Thesis

# Inequalities within progress: social stratification and the life course among the elderly population in Switzerland 1979-2011

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**Abstract**

Instead of aiming to contribute to the growing body of literature that documents the progress and improvements in health and economic well-being that elderly people in Switzerland have experienced over the last decades, this thesis addresses the persis- ting inequalities among this population. It tries to find out why there seem to be people who do not or only marginally benefit from these overall progresses. Drawing on a social stratification and class-analysis approach, it studies retired citizens whose lives are characterized by poverty, poor functional health and depression. This analysis is carried out from two angles: Firstly, from a historical and comparative perspective emphasizing the evolution of the situation and the underlying dynamics over the last three decades, from 1979 until 2011. Secondly, this research extends the initial theoretical framework with a life-course perspective and assesses the impact of events (eg. divorce), or of whole trajectories (eg. people's work-life).

Reference

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# Summary

Instead of aiming to contribute to the growing body of literature that documents the tremendous progress and improvements in health and economic well-being that elderly people in Switzerland have experienced over the last decades, this thesis addresses the persisting inequalities among this population. It tries to find out why there seem to be people who do not or only marginally benefit from these overall progresses. Primarily drawing on a social stratification and class-analysis approach, we study retired citizens whose lives are characterized by poverty, poor functional health and depression.

This analysis is carried out from two angles: Firstly, from a historical and comparative perspective emphasizing the evolution of the situation and the underlying dynamics over the last three decades, from 1979 until 2011. Secondly, this research extends the initial theoretical framework by introducing a life-course perspective and assesses the impact of events such as divorce or the death of a partner; or even the role that is played by whole trajectories, for example that related to work.

The thesis is based on data resulting from three waves of a survey that focused on the living and health conditions of elderly people in Switzerland. The waves were collected in 1979, 1994 and 2011 and each was conducted by a team from the Center for interdisciplinary gerontology and vulnerabilities (CIGEV) at the University of Geneva and the institutions that preceded it, respectively.

While some scholars have argued that social stratification and class are no longer meaningful concepts in a postmodern world – and, as a consequence, life events supposedly play a pivotal role in the construction of inequalities and negative life conditions – the final results in this thesis dismiss this idea. On the contrary, social stratification and classes are shown to play a considerable role in the construction of functional health problems, depression, poverty and the reliance on specific income sources at the age of retirement, most notably on social welfare. Classes have even turned out to to be a key determining factor in old-age poverty, capturing the entirety of the often observed age- and gender-differentials. Yet, some life events such as the dissolution of a relationship or the death of one's partner have a significant impact nevertheless. On a theoretical level this points to the conclusion that they represent an additional influence for adverse economic and health outcomes in old-age. Generally speaking, while our results suggest that social stratification and class still represent the key influences for the presented issues in old-age, we argue that adding a life-course perspective might considerably enrich their understanding – a finding that is highly relevant with regards to social policies.

# Résumé

Aujourd'hui, une littérature riche démontre la progression des conditions de vie, en termes socioéconomiques comme de santé, des aînés en Suisse au cours du dernier demi-siècle. Cette thèse vise à en prendre le contre-pied et à questionner cette tendance générale en analysant les inégalités persistantes au sein de cette population. Elle s'intéresse à comprendre pourquoi une partie des personnes âgées n'a que peu ou pas profité des progrès globaux. En se basant sur une approche de stratification sociale et d'analyse de classes, elle s'intéresse aux retraités dont les conditions de vie sont marquées par la pauvreté, une mauvaise santé fonctionnelle ou un état dépressif.

Cette analyse croise deux angles de lecture : premièrement, d'un point de vie historique et comparatif, elle étudie l'évolution de la situation et souligne les dynamiques à l'œuvre au cours des trente dernières années, plus précisément de 1979 à 2011. Deuxièmement, le cadre de recherche initial structuré par les questions de stratification et de classes sociales est élargi par l'introduction de la perspective du parcours de vie qui examine l'impact d'événements critiques comme le divorce ou le veuvage, ou même au-delà le rôle joué par certains types de trajectoires, par exemple de vie professionnelle.

Cette thèse est basée sur les données provenant de trois vagues d'une enquête portant sur les conditions de vie et de santé des personnes âgées en Suisse. Les données ont été collectées respectivement en 1979, 1994 et 2011. Elles ont été dirigées et conduites par une équipe du Centre interfacultaire de gérontologie et d'étude des vulnérabilités (CIGEV) de l'Université de Genève et les institutions qui l'ont précédé.

Alors que nombre de chercheurs ont déclaré que les concepts de stratification et de classes sociales n'étaient plus pertinents dans les sociétés post-modernes – dans lesquelles, ce ne seraient plus les positions fondamentales dans les structures mais les événements de vie qui joueraient un rôle primordial dans la construction des inégalités et de conditions de vie difficiles – les résultats de cette thèse contredisent cette idée. En effet, les logiques de stratification et de classes sociale tiennent toujours une place importante dans la genèse des problèmes de santé fonctionnelle ou de dépression, de la pauvreté et précarité, et affectent aussi considérablement les possibilités d'accès à différentes sources de revenu durant la retraite, particulièrement celles renvoyant au système de protection sociale. Ces logiques se sont même révélées être des déterminants clés des risques de détresse économique dans la vieillesse, expliquant intégralement les différentiels d'âge et de sexe observés. Cependant, certains événements de vie comme les ruptures de la vie conjugale (par séparations ou suite à un veuvage) apparaissent également comme ayant un impact significatif sur les conditions de vie des aînés. Au niveau théorique, nous pouvons conclure que ces éléments représentent des facteurs de risque additionnels de pauvreté ou de problèmes de santé dans la vieillesse. Globalement, alors que nos résultats montrent que la stratification et les classes sociales représentent encore le déterminant central des enjeux économiques et sanitaires à 65 ans et au-delà, l'intégration d'une perspective plus dynamique à travers des éléments du parcours de vie des individus permet d'enrichir notablement notre compréhension. Cette conclusion a également d'importantes implications au regard des politiques sociales.

# Acknowledgements

Every PhD thesis is both a solitary undertaking as well as a joint-venture. Solitary, because of those long lonely hours spent sitting in front of a computer screen writing or crunching numbers. Certainly, this part represents the majority of the work a PhD entails. Yet, it is a fundamentally joint project as well. Above all,because almost every researcher relies on datasets that have been collected by or with other people. For me, this means being part of the VLV team and and thus being able to benefit from the combined efforts of more than two dozen team members. But perhaps even more importantly, there are numerous people whose help, advice and support are just as crucial for the success of such an adventure just as much as one's own efforts. To all those people who made this a joint project: Although words will always fall short in expressing how thankful I am to you, this is an attempt to do so.

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# 1. Introduction

*Inequalities within progress*

Today, retired people in Switzerland are well off. They live longer and in better health than ever before in history, mainly due to medical progress, a quality health-care system but also favorable social and structural changes (Bundesamt für Statistik, 2014; Kohli, 2005; Lalive d'Epinay et al., 2000, pp. 144–146; Lerch & Oris, 2012). As a result of increased access to education, the installment of old-age pension systems and having worked during an economic upswing, most retired people also benefit from a solid old-age rent (Wanner & Gabadinho, 2008). Retirement, in general, has taken on an entirely new meaning. It is no longer perceived the final chapter of life. Rather, it marks the beginning of a new stage of life, with new perspectives and opportunities (Kaeser & Zufferey, in press.).

But not everybody benefits from this progress. Despite considerable improvements in incomes recent research shows that about twenty percent of elderly people still live in poverty, meaning they have to get by with less than 2400 Fr. a month (Gabriel, Oris, Studer, & Baeriswyl, in press.; Pilgram & Seifert, 2009). Similar evidence can be found for mortality: While the average life-expectancy continues to rise, people with lower incomes die at a much younger age (Zufferey, 2014). Lower incomes are also associated with poor health in old-age (Cullati, 2015).

Underneath the positive trends on an aggregate level there are substantial differences in the actual outcomes. While most retired people today get to enjoy a comfortable life, others, it seems, fall through the cracks of the social welfare system. When they are retired they face poverty, poor health and they might even die younger than their richer counterparts.

The contrast between those who are well off and those who are not is usually referred to as *inequality*. This concept and their persistence among elderly people in many dimensions despite far-reaching improvements - inequalities within progress - is at the core of this thesis.

*Focusing on lacking resources and class structures*

Inequality can roughly be defined as the unequal distribution of resources among a population (Grusky, 2001)[1]. Hence, there are two ways it can be studied. The first focuses on the top end of the distribution where resources are concentrated. Alternatively, the second emphasizes the lower end, where people are lacking resources. This thesis focuses on the latter: It looks at people in situations of poverty, bad health and depression and it investigates what factors are associated with their situation. Particular emphasis is given to their social background and their biographies.

Despite a long tradition there exists no universal theory for the explanation of inequalities. However, scholars generally agree that their construction is related to the way societies are organized. All societies contain hierarchical structures which in turn are responsible for the unequal distribution of resources (Cherkaoui, 1992; Kerbo, 1996). This relationship between social structures and inequality is articulated in another central concept in this thesis: social stratification.

One of the main questions social stratification researchers tried to answer concerns what characteristics structure society (Tillmann & Voorpostel, 2012). Some of the most used categories are people's profession (Zhou, 2005), ethnicity and gender (Keister & Southgate, 2012). It therefore can be regarded as an umbrella-term reuniting multiple sub-theories. This thesis relies on a very specific one of these sub-theories: The Marxist class framework.

Formulated over a century ago, it is centered around the postulate that society is structured by the economy and results in two *classes:* The working class and the Bourgeoisie. Based on a Marxist perspective, social relations, conflicts and changes are all related to class-dynamics. The use of the presented Marxist class framework to the study of elderly people can primarily be found in the *political economy of aging* tradition (Estes, 2011; Kohli, 1985; Phillipson, 1998; Walker, 1981). This original movement has since been integrated in a school of thought called “critical gerontology” (Formosa & Higgs, 2013a, p. ix). Thus, this thesis can be situated within the latter movement.

Why revisit a Marxist framework? The specific theoretical framing has two reasons. The first is pragmatic and concerns the critique of data-rich but theory-poor research, particularly in gerontology (Birren, 1988; Marshall & Bengtson, 2011). In this respect, this thesis might provide a contribution to gerontological theory. The second is related to the position that social problems are a byproduct of capitalism (Harvey, 2014). Nowadays, such a stance is typically found among critical gerontologists. More prominently, it goes back to the Frankfurt School of critical researchers and capitalist critics (Horkheimer, Adorno, & Noerr, 2002; Marcuse, 2002). This thesis aims to contribute to this ongoing discussion.

1 This is a very rough definition. A much refined definition and a discussion of the concept, notably the highly important distinction between inequality in terms of observable resources and inequalities of opportunity, can be found in the chapter on theory (part 2.1).

*The Marxist framework and the life course: Extension and challenge*

The main originality of this investigation is to combine a social stratification and Marxist class-approach with a life course perspective (Elder, 1999; Shanahan & Macmillan, 2008). The latter is about studying people in a dynamic way, considering their entire biography rather than their current, static characteristics. This entails all the trajectories and events in various domains. As an illustration, the life course perspective suggests additionally taking into account a person's work-history rather than focusing on employment status at a given time alone. Also, given that this thesis draws strongly on the political economy and class-approach it has to be emphasized that the life course is not only a construct resulting from individual choices and actions but it is a result from a person's embedding in social, political and economic structures (Dannefer & Kelley-Moore, 2009; Dannefer & Uhlenberg, 1999). The age of retirement, for example, is determined by the country and thus the legal setting a person lives in. In this respect this thesis will assess the connection between a person's social position and his or her life course.

The introduction of such a dynamic perspective might offer insights into life course mechanisms of social stratification and class-dynamics - these are often referred to as *pathways.* For example, beyond analyzing whether people with a low education are more likely to be poor once they are retired, a life course approach could identify whether specific employment histories are associated with class-dynamics in old-age poverty.

The life course perspective does not only extend the social stratification and class-theory framework, but it puts it to the test. In fact, a number of researchers recently started to disqualify the social stratification approach. With the onset of post-modernity they assume a weakening or even a dissolution of traditional institutions and structures. Without these, social stratification lost the very foundation for its existence. As Beck and Willms (2004: 107) write: „Society can no longer look in the mirror and see social classes [...] all we have left are the individualized fragments“. Postmodern lives are believed to have become much more unstable, de-standardized, and characterized by a high degree of risk and uncertainty (Beck, 1992). In such a context, life trajectories and events become the root-cause for poverty and other negative outcomes in old-age. This position is summarized in the *biographization* hypothesis (Vandecasteele, 2011). Leibfried and Leisering (2001) claim that in such a context negative outcomes are much more situated at the individual level and thus refer to it as the *individualization* hypothesis.

This research will contribute to the understanding of the social forces that influence today's retired population. Notably, it will shed light on the continuing relevance of class.

*Research objectives*

This thesis aims to provide a comprehensive and broad insight into the relevance of the Marxist class-framework for the understanding of inequalities in old-age.

With this aim, it focuses on two resources: incomes and health. Following the stated emphasis on the lower end of the distribution, it assesses poverty and precarity for economic resources; major and minor functional health problems and depression for health.

Furthermore, the thesis features two distinct angles. The first is historical-comparative and addresses the main narrative of *inequalities within progress* over time. Here, we assess the evolution that has been made on an aggregate level over the last three decades, between 1979, 1994 and 2011, and for the three mentioned indicators. The insights on the global tendencies will then be opposed with an analysis of the inequalities in each of these indicators. The results in this first analysis will give a preliminary indication on the relevance of the class-framework for the explanation of persisting inequality among the elderly.

Following the first test of the class-theory for the three indicators over time, the second angle of analysis offers an in-depth assessment of social stratification and class-dynamics among the older population today. This also contains the extension or the opposition with the life course perspective. This second angle will be addressed in two key analyses. One focusing on economic resources and another on health. In each of these analyses we will determine the relevance of the class-framework and test whether the basic dynamics are related to other factors such as civil status or living arrangements, for example. Most importantly, we will determine whether the inclusion of work and family related life course data captures the initially set class-effect.

*Data*

This thesis uses two datasets that have both been collected in-house at the Center for the interdisciplinary study of gerontology and vulnerability (CIGEV) at the University of Geneva. The first is the COMP dataset. It consists of three comparable waves (1979/1994/2011) of an interdisciplinary survey among the elderly population in two Swiss cantons, Geneva and Valais. The second is the VLV dataset which is made up of the third wave of this survey on its own. This wave featured three additional cantons – Bern, Basel and Ticino -, and thus a larger number of individuals to perform statistical analyses on. It also included a module collecting retrospective life course data.

The ambitious project of assessing the social stratification and class framework using multiple indicators as well as a historical *and* a life-course angle is only possible with these two databases. Indeed, both database represent a unique opportunity for Switzerland and even internationally.

*Research contribution*

There is a considerable need for updated knowledge regarding the social dynamics due to the fact that the elderly population grows and continues to grow in importance.

Some experts believe that “in the near future the human species will reach a watershed moment in which people over the age of 60 outnumber children” (Settersten & Angel, 2011, p. v). Switzerland is no exception to this trend of “population aging”. Just as in all other Western industrialized countries, the elderly population will continue to increase over the next decades and this demographic pressure raises a number of issues that have since become some of the key elements on the political agenda as well as matters of general public concern.

Perhaps the most debated issues concern that of old-age pensions and social security in general. Particularly the first pillar of the old-age insurance system in Switzerland – the so-called “AVS” which is the most basic source of income of retired citizens -, is facing considerable obstacles. At its core it is based on intergenerational transfers whereby every professionally active citizen contributes a part of their salary to the AVS which then is redistributed to provide a basic rent for retired people. The current and predicted demographic development drastically changes the ratio of contributors and beneficiaries[2]. To illustrate, when the AVS entered into practice in 1948, it took the contributions of roughly 6.5 workers to provide one retiree with a basic rent. In 2007, the ratio had already decreased to close to half of this initial value to 3.7. The latest predictions estimate that in 2035 roughly two people from the active population will have to finance one retired person. A major revision of the old-age insurance system, and above all the AVS, has been in the process of elaboration for a number of years without any success. It continues to be discussed by the parliament and a new proposition for major reforms is expected to be ready for a public voting in the next few years. However, it remains a notoriously difficult topic and the chances for success are not clear.

Knowledge on the key forces within this population could help designing reforms of the pension system while guaranteeing that those who are the most vulnerable continue to be adequately protected and supported.

*Structure*

After this introduction, chapter two focuses on deepening the presented theoretical framework. It will discuss inequality, social stratification and class in old-age, the life course perspective, as well as the operationalization of these questions with regards to the empirical part. The third chapter will describe the datasets and variables that are used, how the theoretical framework is put into practice in the empirical analyses, the methods that are employed. The fourth chapter focuses on the historical evolution of economic and health inequalities. The fifth chapter is dedicated to economic inequalities and the life course. The sixth looks at the same aspects in health inequalities. Chapter seven concludes.

2 It should be noted that the decrease of this ratio is also due to the increase of the basic rents provided by the AVS. In the 8th revision, for example, basic rents have almost doubled (Bertozzi, Bonoli, & Gay-des-Combes, 2005a)

# 2. Theory

The introduction sketched out the rough theoretical background and the analytical framework that will be used in this thesis. Primarily, it consists of the social stratification framework and the Marxist class theory within the latter. Also, it discussed how this thesis aims to extend and challenge this framework by introducing a life course perspective. The introduction has also shown how this thesis features two main angles of analysis. It focuses both on an in-depth exploratory analysis of inequality and life course dynamics today as well as a historical-evolutionary perspective studying the evolution of inequalities over the last three decades. The main aim of this chapter is to discuss these composing elements in order to give an insight into the often still ongoing discourses as well as defining the adopted approaches.

The logic that is suggested in this chapter is top-down. It starts from the more general macrosociological elements and towards the end it focuses on the specific objects of interest that will be featured in the analyses. In the “macro” part, I divide the overall theoretical framework into its two main constituting elements: Inequalities and social stratification in old-age on one hand (2.1), the life course perspective on the other (2.2). For each I will firstly start out with a general definition and their application regarding the study of inequalities in the elderly population. I then discuss the ongoing theoretical debates within each of these „theoretical building blocks“. Towards the end of each of these sections, I will provide a brief summary.

In the second more applied part of this theoretical chapter the literature regarding the two specific objects of study that are at the heart of this thesis is presented: Economic (2.3) and health inequalities (2.4). Each of these parts features a discussion of the factors of influence that have been identified in the literature. This will be done according to their context in the literature: According to social stratification or with regards to the life course. These two blocks, the macro and the microsociological outlines, will be synthesized into the key research questions and main hypotheses at the end of the chapter (2.5).

# 2.1 Inequalities, social stratification and class in old-age

At the heart of this thesis is the concept of inequalities. Thus, it is necessary to start with a first section defining what they actually are and how this concept can be applied to the specific population that this thesis studies. The latter is given by people aged 65 and older in Switzerland (2.1.1). In the second section of this part, the main framework of social stratification (2.1.2) is introduced. Within this framework, this thesis employs a particular theoretical framing which is the Marxist class-theory. This theoretical perspective is described in section 2.1.3. Also, this section will focus on the application of this specific theoretical perspective to the analysis of old-age inequalities. In section 2.1.4 social mobility, an important component of the social stratification framework is discussed. Section 2.1.5 then discusses the operationalization of this framework. In the last section of this first main part of theory (2.1.6) a brief summary is given.

## 2.1.1 Inequality

*A general definition of inequality*

„As Amartya Sen (Sen & Foster, 1973) puts it, the idea of inequality is both very simple and very complex. It is simple and intuitively appealing enough to move people in very different settings and societies throughout history and across the globe, while being at the same time so complex as to engage some of the most gifted philosophers, political theorists, sociologists, and – not least – economists in teasing out its meanings and implications.“ (Nolan & Marx, 2009, p. 7). Accordingly, it is both straightforward and simple, yet extremely difficult – or almost impossible – to come up with a universal definition of what it is.

In light of this dilemma, I propose not one but three starting points. The first is a definition by Bihr and Pfefferkorn and states as follows: „Une inégalité sociale est le résultat d'une distribution inégale, au sens mathématique de l'expression, entre les membres d'une société, des ressources de cette dernière, distribution inégale due aux structures mêmes de cette société et faisant naître un sentiment, légitime ou non, d'injustice entre ses membres“ (Bihr & Pfefferkorn, 2008, p. 8) . This citation is also used as a point of departure by Dominique Joye (2009) in a book chapter on inequalities in Switzerland. The main elements which are mentioned here are: Firstly, an unequal distribution of resources in a society; secondly, that this unequal distribution is a result of the structures in a society and thirdly, an element of injustice – in other words: a moral judgment. Joye comments on the fact that an important question to ask here is the *relevance* of a resource. He concludes that it must be connected to a person's social context.

A second point of departure is given by René Levy (2002). It is also used in Joye's chapter: „Par inégalités, on entend l'accès différentié à des biens sociaux importants. Ce qui est un „bien“, dans le sens de cette définition, peut varier entre sociétés et cultures, aussi bien qu'entre les sous-ensembles d'une même société; la centralité d'un tel bien

découle des valeurs dominantes et de l'organisation de la société“ (Levy, 2002) This definition emphasizes the importance of a social context even further. As did the first source, it also points out the unequal distribution among people in a society. However, unlike the first which considered merely the „distribution“ Levy insists on the „access“ to resources. This signifies an important difference and shows another element: The fact that the distribution does also include an element of hierarchy and, as certain authors argue, oppression.

The third point of departure is given by Osberg (2001). He states quite pragmatically: „The most straightforward definition of inequality is 'differences among people in their command over social and economic resources' “ (Osberg, 2001, p. 7371). The author follows this short definition with the following precision: „To be useful, however, one must go further and specify inequality: (a) of what, (b) among whom, and (c) how it is summarized“ (Osberg, 2001, p. 7371). Again, the main element refers to an unequal distribution of resources among people. Osberg also emphasizes, as did Levy, that there is an element of hierarchy involved given that he writes of the „command“ that people have „over“ resources. Finally, he also mentions the multidimensionality of resources by using the rather generic phrasing of „social and economic resources“ Osberg, 2001, p. 7371).

Comparing those three sources and using the key questions proposed by Osberg, a synthesized definition can be formulated and may serve as an adequate working definition. As far as the *“what”* is concerned, inequality is the unequal distribution of any type of resource among people in a society. The resources can be social or economic and their value depends on the social context as well. Secondly, among *whom:* This refers to a society, or more generally, on a culture. There is an element of hierarchy and possibly oppression involved: In certain societies or cultures some people have access to or command over resources whereas others do not. Thirdly, *how:* This refers to how inequality is measured and how it is operationalized. These aspects will be discussed in depth in the following parts of this chapter and particular emphasis, obviously, will be given to the positioning of this thesis with respect to these dimensions.

Finally, Osberg also notes – and here he joins the definition by Bihr and Pfefferkorn who insist on this moral dimension – that there sometimes is a tendency to confuse empirical facts concerning inequality on one hand with their moral interpretation and the judgment of the situation on the other hand. As Joye (2009) also notes, there is an element of *ideology* involved in the judgment of inequalities. Certain scholars believe inequalities to be nothing more than the byproduct of human nature with people having different traits and capacities and thus reflecting a „natural“ order. Scholars that oppose this initial view argue that inequalities are unjustified and that their eradication is a *moral* issue. This discussion refers to „equality“ and the philosophical discourse on whether inequalities are something to be tolerated or to be eliminated in a society (Osberg, 2001, p. 7372). Hence, this question on the moral judgment regarding the presence of inequalities in a society is a clearly distinct approach from the empirical analysis of inequalities in a society, including the assessment of how they are created, maintained or modified.

This philosophical debate on equality has a long tradition and reaches as far back as antiquity with thinkers such as Plato. In the 20st century it has seen major contributions by the following six contemporary main authors: John Rawls, Amartya Sen, Ronald Dworkin, Robert Nozick, Richard Arneson, and G.A. Cohen (see Roemer, 2011). Although I acknowledge this highly interesting and still ongoing debate, it is not presented here. The key reason why this debate is not addressed here is, above all, that this thesis primarily focuses on an *empirical* analysis of inequalities using evidence from a gerontological survey. I am aware, however, that the social stratification framework and the Marxist perspective in particular, which will both be described in the following section, do implicitly situate this thesis in the egalitarian camp. In this sense the distinction between factual analysis and ideology is not always obvious. Social stratification and even more so the Marxist perspective view inequalities as the result of an (unjust) hierarchical social order. But again, the general description aims to be as factual as possible, to rely on observable evidence and to refrain from moral judgments.

Finally, it has to be said that certain of the elements that appear in the long debate will be discussed further down, but in a different angle, namely in relation to different schools of thought concerning the reasons for inequalities and their source in the so-called social stratification processes[3].

*Inequality within progress: The evolution and persistence of inequality*

So far we have elaborated a working definition of inequality. But how significant is inequality in today's society? Is it a negligible phenomenon or is there evidence that suggests it is a key characteristic of today's contemporary societies? Beyond that, what about the historical dynamics? How has inequality evolved over the last decades or even over the last century?

As far as the historical dynamic regarding inequalities is concerned, there still is an ongoing debate and the results are inconclusive. This fact is perfectly captured in the following quote by Alderson and Nielsen (Alderson & Nielsen, 2002) as it is cited by Joye (2009, p. 49): „Two major trends in inequality have marked the experience of the advanced industrial societies in the 20th century: The Kuznets curve and the great U-turn. Kuznets (1953, 1955), on the basis of historical data for a handful of industrial societies, conjectured a general developmental pattern in which inequality traces a curvilinear, inverted U-shaped relationship with economic development [...] The recent experience of some industrial societies suggest a radical reversal of the Kuznetsian scenario of declining inequality with development. Much attention, for instance, has been given to the resurgence of income inequality in the United States, a phenomenon that Bluestone and Harrison (1988) have termed the great U-turn“ (Alderson & Nielsen, 2002). A large part of the problem lies in the difficulty to draw clear conclusions from the available macroeconomic data. Results are highly dependent on methodological

3 A comprehensive overview over these theories can be found in John E. Roemer's contribution to the Oxford Handbook of Economic Inequality(2011). As the title suggests, this chapter ultimately focuses on economic inequality, but the main discourse on inequalities in a more general manner throughout the 20st century is comprehensibly summarized after all.

specificities (Atkinson & Brandolini, 2006; Atkinson & Piketty, 2007).

However, even though clear empirical evidence of the significant growth (or decrease) of inequality in recent decades is yet to be given, it is relatively undisputed that inequalities persist to some degree. Their existence and persistence is well-documented across various dimensions of life. Some examples: There are important inequalities in school performances (Meuret & Morlaix, 2006), paid work (Charles, 2000; Gallie & Paugam, 2000), access to specific occupations (Flückiger, Silber, & Reardon, 2009), health (Bartley, 2004; Braveman, 2008; Mackenbach, 2012), consumption (Nicolas, 2001), occupational prestige (Zhou, 2005) or lifestyles and cultural consumption (Chan & Goldthorpe, 2007). Switzerland is no exception in this regard. As elsewhere, there is evidence across multiple dimensions for persisting inequalities Angelone & Ramseier (2013) demonstrate differences in school performance for primary school kids in Switzerland and Falter (2012) documents educational differences. Budowski and Tillmann (2006) show persisting economic inequalities. Switzerland, as almost all other western industrialized countries, is a country of important social inequalities (Levy, Joye, Guye, & Kaufmann, 1997; Stamm, Lamprecht, & Nef, 2003).

Based on the fact that inequalities continue to persist across a wide range of countries, numerous scholars concluded that they are an inherent characteristic of contemporary Western industrialized – and not to forget: *capitalist* – societies (Keister & Southgate, 2012). The only inconclusiveness thus regarding the variation in their amplitude across time and according to specific countries (Tillmann, 2010).

The persistence of such inequalities over the last decades is a paradox[4]: It goes against other empirical evidence that has found the second part of the twentieth century generally to have been a period of economic prosperity, in Switzerland as in other countries of the West (Bairoch, 1990, 1997). Particularly the three decades following the end of the Second World War has brought an overall increase of incomes. This made economic historians term this phase *Les Trentes Glorieuses* (Fourastie, 1979) *(*literally meaning „the glorious thirty years“) or the *Golden Era of Capitalism.* Indeed, in this period the overall levels of income in the population over Western countries rose tremendously (Atkinson, 2003; Atkinson & Piketty, 2007). But this overall progress was not only limited to the dimension of incomes. There is evidence for improvements in practically all areas of life. People were living longer (Olshansky, Carnes, & Cassel, 1990; Wilmoth, 1998, 2000) and did so in better health (Fries, 1983; Olshansky & Ault, 1986). This period also brought an increase in consumption representing a generalization of lifestyles that previously had been considered luxury (see Frank, 2008, 2010). Parallel to this increase in material wealth and living standards, the second half of the twentieth century has also been a period in which most welfare states and their corresponding institutions have come into existence. In fact, these institutions were also crucial in

4 One might argue that it is not appropriate to call this situation, overall progress with a persistence of inequalities, a paradox since the two observations are not exclusive. The use of the expression in this context is inspired by the article by Mackenbach (2012) who describes persisting health inequalities as a paradox. In his article he refers to the fact that while the two tendencies are not exclusive, they are nevertheless *counter-intuitive.* It is this quality, the counter-intuitive observation of such persisting inequalities, that I refer to in this paragraph.

structuring people's lives (Kohli, 1985). In Switzerland these institutions have been the generalization of the AHV/AVS system to secure old-age pensions as well as unemployment and disability insurances. Yet, amidst all this wealth and progress inequalities persisted. The paradox can thus be summarized in three words: Inequalities *within* progress.

Continuing inequalities in Switzerland as well as in other Western Industrialized countries can be regarded as a testament to the failure of modern welfare states. Mackenbach (2012), for instance, supports this conclusion based on the analysis of health inequalities across Europe. Welfare states are supposed to redistribute wealth and protect the weakest of the society. Yet, they seem to be failing to do so. Some people are continuously left behind and fall through the safety nets that social policies offer for them.

This thesis will contribute to the analysis of the persistence of inequalities across history. In fact, the analysis of the evolutionary dynamics of inequality, their growth, reduction or stagnation, represents one of the two main angles of analysis. The second angle is the exploration of inequalities and might hopefully provide an *explanation* of this paradox, placing a particular emphasis on a life course perspective. As will be explained further in this chapter, this thesis takes a very specific theoretical stance regarding the continuing persistence of inequalities. Based on a Marxist framework, these inequalities are considered to be a by-product of the general mode of social organization in a capitalist system. This position will be at the center of the empirical part and guides the main theorizing of these questions. It is outlined in the following parts.

*Dimensions of inequality in old-age: Focusing on economic and health inequalities*

As the previous section has shown, the question of inequality concerns (1) the distribution of resources, (2) among a specific population, (3) measured and summarized in a particular way. In this section I would like to narrow down this generic and abstract definition in order to explain and defend the choice of the specific objects of research which will be the focus of this thesis: Economic resources and health in old-age in Switzerland.

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The first element of the definition concerns what resources to look at. As has been shown, this already poses a certain number of problems. Resources can take on a different meaning and value depending on what society and what kind of culture is studied. Plus, they can be of social or economic nature. Also, given the multidimensional

nature of inequality, different resources are interrelated and influenced by each other - in other words, I am aware that inequality is a profoundly multidimensional and complex construct and that it can be measured in many different ways (Keister & Southgate, 2012, p. 10). It therefore appears difficult to choose a single resource or indicator that satisfies all these requirements. Given this background, this thesis employs a step-by-step analysis of two main resources: Firstly, it looks at monthly household incomes, in a second step it then focuses on functional and mental health in old-age. This choice is relatively pragmatic and is based on three main arguments.

Firstly, considering two dimensions in the measurement of inequality addresses, to a certain extent, the multidimensional character of the concept (Keister & Southgate, 2012, p. 10). Regarding the operationalization of this multidimensional nature of inequality, there would exist more advanced approaches that aim to translate this aspect into the analysis and modeling methods. Such approaches consist of analyzing multiple dimensions of inequality simultaneously – usually using cluster or factor analysis – and to create a composite indicator of inequality which then serves as a target variable for the analyses (Ballon & Krishnakumar, 2011; Ferro-Luzzi, Flückiger, & Weber, 2008; Silber, 2007) However, this thesis renounces to use such composite approaches. Above all, because this thesis explicitly aims to contribute to the ongoing discussions regarding poverty in old-age and socioeconomic inequalities in health (see the second argument in the following paragraph). Moreover, focusing on specific and easily understandable indicators is more in line with the political discourse which still focuses on social policies addressing specific issues such as poverty and health-prevention. In this respect, I claim that the conclusions drawn from a multidimensional analysis might be less accessible by policy-makers and for a non-academic audience. Finally, it is to note that, as will be shown in part 2.4, health is in itself a multidimensional construct. Thus, this thesis will look at two components thereof which are mental as well as functional health. It could therefore be said that this thesis technically studies three dimensions of inequality whereas one is simply related to the economic sphere and two are health-related.

Secondly, economic resources and health are two dimensions that are very often used in the literature (Braveman, 2008; Sen & Foster, 1973). In fact, economic resources and their distribution are perhaps the most studied form of inequality. This research focus has quite a long tradition in economics and sociology and accordingly, there is a very large body of literature on this topic. Economic resources and economic inequality are „related to money, such as income and wealth. Income being most often defined as flow of money received over time“ (Keister & Southgate, 2012, p. 11). Accordingly, the focus will lie on incomes as well. As far as health is concerned, it has an equally long tradition. However, especially over the last decades inequalities in health has become a much studied phenomenon, inspiring a large number of research articles as well as government programs to investigate the phenomenon. Focusing on incomes and health as dimensions of inequality is therefore in line with more „traditional“ as well as current research trends and practices.

Thirdly, one of the more recent contributors to the inequality debate – or to be precise: to the philosophical debate on *equality*- Amartya Sen, provides a further solid argument for the use of economic resources and health as measures for inequality. This argumentation requires a brief introduction and explanation of the philosophical system of reasoning he refers himself to. Sen is an egalitarian. This means that he argues for resources to be equally distributed among a society. However, there has been a long debate on *what* it is, that should be equally distributed. John Rawls, another author from the egalitarian camp, suggested that the main focus should lie on goods. Sen (1980) takes this as a point of departure and criticizes Rawls for being „too concerned with equalizing goods, rather than in equalizing what goods *do* for people. He called Rawls a commodity fetishist at one point, borrowing a Marxist term“ (Roemer, 2011, p. 27). Thus, he claims that goods are nothing more than a *means* to an *end* whereas the end being the ability to *function.* „Functioning, for Sen, are abilities to perform certain kinds of tasks necessary for a normal life – being healthy, literate, able to move around, and so on“ (Roemer, 2011, p. 28). As an alternative approach to the focus on goods Sen therefore suggested a list of functionings to be maximized. In this view, goods such as money are only important in the function they provide. Accordingly, „Sen defined a person's *capability* as the set of possible functionings that he or she could achieve, and argued that justice requires *equalizing capabilities* across persons“ (Roemer, 2011, p. 28). Differently put, capabilities are what people have access to given their circumstances in life. This includes material, physical and other resources but also the life chances a person faces. A person can live in an abundance of material wealth and be in excellent physical health but as long as they live in a dictatorship which effectively oppresses their personal freedom, this person's capabilities are very low. Sen's theoretical framework prioritizes a person's freedom which is also reflected in the title of one of his key-works in which he defines the aim of human development as increasing freedom: “Development as freedom” (Sen, 2001) In his original list of functionings economic resources and health are featured prominently. Poverty and poor health, in this view, have a cardinal impact on inequalities among a society. Sen's contribution has since helped to broaden the perception of researchers, policymakers and the general public and his ideas have since been put into use in the United Nation's Millennium Development Goals and the Human Development Indicator.

The second criteria regarding a more refined application of the inequality concept in the case of this thesis regards the *population* among which resources are distributed. The population which is the focus of this thesis are elderly people, meaning people aged 65 and older living in Switzerland[5]. The fact that I focus on this particular population implies a number of specificities for the analysis of their resources. These particularities distinguish them from people in the rest of the population, notably from the professionally active. Regarding economic resources for instance, being at the age of retirement signifies a shift in income sources. Usually, a retired person's income no longer depends on work but turns towards other sources. In most cases, this entails a

5 65 being the age of retirement for men in Switzerland. The age of retirement for women lies at 64. Hence, 65 is the age where people should, from a legal point of view, be retired. It has to be emphasized that this age is a relatively arbitrary age given by law and that it thus does not reflect anything else beyond how the social structures define a particular life-stage. Age and old-age in particular is a social construct (Leisering, 2003)

form of pension. Among other things, this means that it is actually very difficult for people who are retired to radically change their incomes, unlike people in the working population who could perhaps do so by either taking up a job (in cases where they are unemployed) or taking on a more lucrative one. The same applies to other dimensions of life such as health, the other large dimensions of inequality that is studied in this thesis. Here, it is important to consider that health is not exclusively a social process, even though social factors have a tremendous impact on it. In old-age, especially the higher age-groups, health deteriorates due to natural biological processes (Lalive d'Épinay, Guilley, Guillet, & Spini, 2008). Finally, social policies and the welfare state in general play a more important role for this segment of the population. For example since retired people financially rely on old-age pensions (in Switzerland this is the so-called three pillar system), the redistributive functions that are built in to those institutions might alleviate a certain degree of unequal distributions for economic resources. From a strictly analytical point of view this means that certain dynamics of inequality might be mitigated or distorted (Gabriel et al., in press.). These particularities have to be kept in mind when analyzing elderly people. In the parts of this chapter that describe the adopted analytical models these particularities are discussed in more detail.

Thirdly, the question of *how* resources are measured and summarized needs to be discussed. This means specifying, for the resources that have been chosen, from what angle and based on which indicator they should be studied. Basically, there are two approaches that can be taken. One is to emphasize the upper end of the distribution and look at people where resources are concentrated: Among the rich, the physically fit, the well-educated, etc. The alternative is to adopt a vision that is oriented towards the *lower* end of the distribution. This thesis employs the latter. It focuses on people that are in situations of insufficient and lacking resources. Thus, this approach can be considered "problem-oriented" or a "negative-outcome" vision.

There are the two key reasons for such a "problem-oriented" approach emphasizing the lower end of the distribution and the resulting choice of indicators. The first is that the main interest of this project lies on negative consequences of inequality: The consequences that a lack of financial resources, bad physical or mental health have on people's lives. This argument goes back to Amartya Sen and the capability approach. In this framework, Sen stresses that resources are a key means to allow for human development. Inversely, a lack of resources creates constraints which make it impossible for people to pursue a meaningful life (Sen, 2001). The second reason concerns the implications for social policies. Generally speaking, governmental programs are designed to decrease inequality and offer help and support for people in situations of hardship. This thesis aims to provide a contribution for these discussions by analyzing what factors, events and biographies might lead to such situations of hardship in old-age.

For health inequalities, two measures are employed. The first is given by the functional health indicator. It is the ability that people have to face the activities of daily living on their own and without assistance. The second is the Wang depression score. As the name suggests, this is a measure of mental health by capturing to what extent people are suffering from depressive symptoms. Both of these indicators are in line with the

described “problem-oriented” vision that emphasizes people at the lower end of the distribution. The indicator of functional health distinguishes between three large categories whereas two of them capture minor and major difficulties and the third serves simply as reference category. The first group thus consists of people who are physically in such bad condition that they are completely dependent. They cannot manage their own daily lives individually and without external help anymore. The second group is given by people with minor health problems. They can still execute most of the tasks in their daily lives themselves and only require minimal outside assistance. The third reference group is given by people who are physically in good condition. As for mental health, the Wang depression score is a count-based measure of how depressive symptoms a person is suffering from. Hence, both of these measures are inherently oriented towards specific health-issues, following the stated “problem-oriented” approach. This vision is also in line with the aim to contribute meaningful empirical material for policy-planners. In fact, functional health problems as well as depression are important topics of governmental research programs. The more detailed literature regarding these two indicators is described in part 2.4 and 2.5 of this chapter.

For economic resources, the main point of departure is given by a variable that is available in the data used in this thesis: Monthly household income. Following the stated problem-oriented vision, the focus again lies on the lower end of the distribution. But how can such a focus on this particular segment of the distribution be put into practice? The solution consists of creating the secondary indicators of *poverty* and *precarity*.
Poverty is a complex concept in itself and there is an ongoing debate on how it is best defined, measured and operationalized for empirical research (see Haveman, 2001). “Although reducing poverty is a nearly universal goal among both nations and scholars, there is no commonly accepted way of identifying who is poor. Some argue for a multidimensional poverty concept, such as being ‘housing poor’ or ‘health poor’ or lacking in social contacts, thought of as social deprivation. Economists tend to prefer a concept of hardship that reflects economic position or economic well-being, somehow measured; that concept has come to dominate the measurement of poverty” (Haveman, 2001, p. 11917). For the latter, the traditional definition of poverty is that it excludes people from society due to the lack of economic resources (Townsend, 1979). The basic idea is that there is an amount of income that is required to be part of society. Below this threshold people are socially excluded. Various paradigms have emerged when it comes to defining this basic amount. They range from absolute measurements, relative measurements, consumption-based indicators and go as far as subjective-based indicators that emphasize people's own perception of their economic situation. In this thesis an absolute poverty definition is adopted. Such a definition can be considered as very close to the original idea by Townsend. It is built around a fix and static “poverty-line” given by a specific amount of monthly income. The specific amount that is used as a threshold is discussed in the following chapter on data and methods. Such an approach is not undisputed. The alternative approaches such as household-spending, relative poverty and material-deprivation, however, are not useful for the present dataset, since the necessary variables that would enable to construct their corresponding indicators are missing. In defense of my approach it can be said that most studies that compare these indicators find high correlations among them (for a good overview of

these different concepts and methodologies, see Haveman 2001).

Adhering to the described goal of a problem oriented approach and also of providing relevant empirical data for policy-makers, the use of poverty as an indicator is highly relevant. Research on poverty has always been and currently still represents a key issue on the political agenda in Switzerland. Most recently, there have been two research projects that have received a significant amount of attention both on a political level as well as in the media. Wanner and Gabadinho (Wanner & Gabadinho, 2008) assessed the financial situation of the retired population in Switzerland. One of their main finding was that wealth is highly concentrated in the elderly population. Partly as a response to this overly positive image of the wealthy retired citizen, Pilgram and Seifert (2009) have shown that despite important overall progresses in terms of economic well-being among the elderly there remains a significant part of that population which lives in situations of poverty. This research has also sparked a considerable political debate and has culminated in the inclusion of particular strategies for elderly citizens in the government's program for poverty prevention (see Sozialversicherungen).

The second indicator that is used in parallel with poverty is a secondary classification also considering the category “precarity”. By doing so, this thesis follows the approach that has been taken by previous studies on this subject (Lalive d’Épinay, Bickel, Maystre, & Vollenwyder, 2000). The underlying idea for this measure is that in today's complex world, the frontier between poor and not-poor are no longer as clear as the might have been in the past (Castel, 1994; Paugam, 1991a). In a world that is increasingly characterized by risk and uncertainty (Beck, 1992) and where many of the traditional institutions that provided security and stability are on the decline (Mills & Blossfeld, 2005) people are heavily exposed and are likely to experience negative life events that make them fall into situations of financial hardship. Hence, beyond looking at people who are actually poor, it is equally important to assess the situation of people who are living just at the fringes of poverty. In the second indicator, precarity also reflects a concept that is becoming increasingly important in social sciences as well as for policy-makers: Vulnerability. Hence, people who are living in economic precarity can be considered economically *vulnerable* (Ranci, 2010; Spini et al., 2013). Identifying people who are not necessarily poor at the moment but who are likely to become so should they experience difficult circumstances provides an important insight into a population where social policies could provide protection and prevention. Again, the specific definition of the amount and the operationalization for the empirical part of this thesis is discussed in the following chapter.

A final distinction concerning how inequalities are measured and summarized is the distinction between *inequality of condition* and *inequality of opportunity.* For the most part, I have argued in terms of inequalities of *conditions*, which means the observable inequalities in the distribution of resources people currently have. Related to this concept, *inequalities of opportunity* „refers to disparities in access to important resources such as educational and occupational experiences. When speaking of inequality of opportunity, we usually refer to opportunities that people have beginning early in life (including childhood and early adulthood) that allow them to attend school, find a job,

earn an income, and otherwise succeed in life. However, we can consider equality and inequality of opportunity at all stages of a person's life [since] unequal opportunities early in life [...] often translate into unequal opportunities later in life.“ (Keister & Southgate, 2012, p. 10). This concept, inequality of opportunity, can be connected to the Weberian concept of “life-chances” (Weber, 2002). A more contemporary author that has emphasized the importance of this concept is Amartya Sen (1999), since his capabilities can be understood as opportunities to achieve certain functions. As has been presented previously, the author has strongly suggested that rather than just focusing on observable inequalities in goods it is more important to understand the inequalities in opportunities, or the lack of freedom to use Sen's terminology, that created them. However, the concept of inequality of opportunity is much more difficult to operationalize and to measure in empirical data – some might even consider this impossible (Alkire & Santos, 2009; Chiappero, 2008) .This is the main reason why it is not considered here and why the priority is given to actual observable conditions.

So far, this chapter has introduced the specific objects of analysis in this thesis given a general definition of inequality. In doing so we have so far defined *what* this thesis is looking at. Now, the following section will describe the theoretical framing for the analysis of these objects – *how* these two dimensions of inequality can be analyzed. It will thus focus on the reasons and underlying dynamics behind inequalities, how they can be explained and interpreted.

### 2.1.2 Conceptualizing inequalities: The social stratification framework

*What is social stratification?*

As has already been posited in the introduction, almost all scholars believe that the existence (or persistence) of inequalities has to a large extent something to do with the way societies are structured. These structures reflect a certain hierarchy. As a consequence, resources are also distributed unequally. This dynamic is captured by another key concept for this study: social stratification.

What is social stratification? The starting point for the social stratification framework is given by the structure and the organization of a society. Obviously, „all societies have individuals and groups that differ in many dimensions“, a fact which is usually referred to as „*social differentiation*.“ (Keister & Southgate, 2012, p. 9). It can be considered the„layering“ of society. „Some traits in which people differ are relatively apparent, such as gender and race. Other differences that are not as easily detected – such as occupation, lifestyle, income, wealth, and political preference – allow people to be categorized into groups with similar people“ (Keister & Southgate, 2012, p. 9). The question of how to distinguish people according to distinctive groups is an ongoing debate. It represents one of the main questions in social stratification research (Tillmann & Voorpostel, 2012). What does seem to be clear, however, is that there exists a universally accepted social ranking, a universal hierarchy, among practically all know societies (Cherkaoui, 1992; Kerbo, 1996; Tillmann, 2010) For example, „when asked to rank occupations,

respondents consistently rank physicians higher than taxi drivers; similarly, they rank attorneys higher than secretaries“ (Keister & Southgate, 2012, p. 10).This hierarchical organization and the resulting differential access to resources is one of the key concept in this thesis and is known as *social stratification.*

In summary, the concept of social differentiation refers to layers of society which have hierarchical and vertical structuring effects. Grusky, a distinguished researcher in this field posits that: „In modern societies, social inequality is often framed as a differentiation of society in distinct groups of similar positions conceivable as „layers“ of the social order on a vertical scale. A general term for this type of social inequality structure is „stratification“ (Grusky, 2001). Social stratification „is associated with unequal access to and distribution of resources such as educational attainment, employment, and material rewards, and leads to unequal outcomes in many domains of life, such as those related to health and quality of life“ (Tillmann & Voorpostel, 2012, p. 1).

*Basic elements of the social stratification framework*

The postulate - inequalities being the result of the structure of society - has created a large body of research literature. Most central was the aim to determine the source of inequality by looking at factors that define specific groups in a population. In other words, social stratification researchers tried to shed light on the processes and the origin of social stratification by conceptualizing the patterns of social *differentiation.* As previously pointed out, these group-defining differences and characteristics are complex to grasp. A number of authors have suggested various systems to do so. One of the classic approaches is given by the works of Blau (1974, 1977). This author is cited and used as a point of departure for one of the more fundamental pieces of research on social stratification in Switzerland by Levy and colleagues (1997). Since almost all people are engaged in some form of work for a considerable portion of their lifetime, occupation is often a meaningful trait to consider (Blau & Duncan, 1967; Zhou, 2005).

Generally speaking, the *nature* of characteristics that have been studied are generally of two kinds: The first are *ascribed* factors which are beyond a person's influence. The second type are factors that result from a person's actions and merits. These are called achievements. Ascribed characteristics that are often cited include „race, ethnicity, gender, social class at birth and family size in childhood.“ (Keister & Southgate, 2012, p. 12). Examples for achieved characteristics are educational level or a person's profession. It is important to note that these aspects interact or even depend on each other, some in obvious ways, some in more complex manners. For example, certain social classes might have less access to education, or women might find it harder to have access to certain types of professions. Also, these characteristics are further mediated by external factors such as (redistributive) social policies. Nevertheless, together these factors, as diverse as they may be, largely shape „a person's access to financial resources, power and prestige“ (Keister & Southgate, 2012, p. 13).

Furthermore, a great deal of discussion has gone into the question how these group-defining social characteristics that create this *structured inequality* can be conceptualized. The most debated aspect perhaps being class. Broadly speaking, this is done based on two distinct approaches: Categorical or continuous. A categorical approach, as the name suggests, conceptualizes society in relatively rigid layers which usually means an approach relying on class. In this view, classes define in a fixed manner which group of people occupies what rank in society. Opposed to this, a continuous approach is based on the idea that social ranking is much more continuous than suggested by the categorical/class approach. (Keister & Southgate, 2012, p. 14). Both of these approaches are rooted in their respective theoretical tradition or paradigm. Each supposes a different set of dynamics in society and thus relies on one or the other measurement of social structure.

The final piece in the social stratification framework is *social mobility.* In fact, a person's social position can change over time. Such changes are referred to as social mobility. Given the context of this thesis, which focuses on people in the elderly population, two further distinctions have to be made. Firstly, social mobility for a person in the course of his or her life may be referred to as *intragenerational* mobility, meaning social ascension or social descents within a person's generation and lifetime. Intergenerational social mobility on the other hand is a concept that captures how social position is passed on between generations, for example between parents and their children.

Generally speaking, „there is evidence that social mobility is relatively limited“ (Keister & Southgate, 2012, p. 14). Parents and children often show very high similarities across multiple measures such as income, education, wealth and occupation. Hence, Keister and Southgate (2012) claim that inequality will remain quite stable over time. In particular circumstances there might be stories – they are often called „rags-to-riches“ stories – of upward social mobility. However, as the same authors emphasize, such trajectories are rather proof that such upward ascents are possible but by no means that the are common. An example of upward mobility from the 20st century is strongly related to the improved access to education for a majority of people. It has rendered trajectories of upward social mobility much more likely. In fact, this example can also be regarded as what Marshall refers to as macro to micro linkage (Marshall, 1999, p. 438). This interpretation is, once again, not supported by Keister and Southgate. They insist on the fact that social mobility is relatively limited and that the only way there can be major disruptions in the reproduction of social structures and the corresponding social rankings are „some type of change to the rules by which a society operates“ (Keister & Southgate, 2012, p. 14). An example that is cited by the authors is the civil rights movement in the US. In the course of this movement racial segregation has been outlawed and as a consequence, there has been a massive reduction in barriers for education and job opportunities for minorities. The same is true, though to a much lesser extent, for women in 1960s and 1970s, whereas previously unattainable social positions opened up. As an example, women in the Swiss parliament are no longer an exception as they have been for a large share of the 20st century.

*Meso-context*

Up to this point, the presentation of the social stratification framework has emphasized the importance of specific individual characteristics such as gender, income or race on the organizational structure of society. In other words, the emphasis has been on a individual (micro) and social (macro) level. However, in this reasoning one important aspect is somewhat neglected: The importance of the embedding in various others contexts in-between: Meso-structures. What exactly are meso-structures? They can be defined as "phenomena whose scope is larger than micro-social (face-to-face relations, small groups) and narrower than macro-social, the latter being assimilated, as current sociological language habits do implicitly, to the level of a global society organized as a nation state, or to social systems of an even larger scope" (Levy, 2002b, p. 196). A specific example would be the following: When we look at a person's education, we focus on an individual personal characteristic. Traditional stratification research might then seek out to link this characteristic to the organization of a society. However, there are various structural levels that are neglected when doing so: A student is part of a class, his or her school is situated in a neighborhood and is part of a local school-system regulated by local authorities (in the Swiss context, this would be a canton) and so on (Levy, 2002b, p. 195).

In a review on social stratification research in Switzerland, René Levy and Christian Suter (2002b) argue that it has been, up to the moment of the review, one of the areas that has generally been neglected. In the same issue of the *Swiss Journal of Sociology* where the review was published, Levy himself addresses the topic of meso-contexts (Levy, 2002b) in which he concludes that contemporary stratification theories at large seem to neglect this aspect despite there being no substantial arguments to do so. Thus, he judges their findings as somewhat unsatisfactory. He particularly questions larger macrosociological conclusions when failing to take into consideration people's meso-social embedding. Levy makes a strong plead for the integration of such meso-structures in sociological and stratification analyses. Such contexts, spatial contexts in particular, also represent an important emphasis in one of Levy's key works on social stratification in Switzerland (Levy et al., 1997). In this book, as will be shown in the following chapter, this aspect of meso-social structures and contexts is incorporated by controlling for the canton in which people are situated.

How the basic elements of the social stratification framework define the main areas and questions of research in this field and how this thesis is positioned within this framework will be discussed in the next section.

*Main questions of stratification research*

Tillmann and Voorpostel (2012) synthesize the general framework that has so far been presented and, citing (Sørensen, 1986) posit that there are four interrelated main questions in stratification research. The first concerns the origins of inequality and is largely theoretical with very little empirical evidence involved. The second regards how

the position within a society can be conceptualized and measured when studying the effect of it on individuals. The third question aims to shed light on the consequences of being situated in a particular social position. The fourth question concerns social mobility. Following René Levy and Christian Suter (2002a) it can be argued that there is an additional question that can be added to that list. The fifth and final key question is given by the problematic of perception of social inequalities or, as Levy and colleagues (1997) call it: The *representation* of inequalities which is not to be mistaken with the study of class-consciousness.

This thesis primarily contributes to the first and the third question. It principally contributes to the third as it studies the effects of people in different social positions at a particular life-stage given by old-age. This is done with regards to the two dimensions of inequality which are poverty and health. Its contribution to the first of Tillmann and Voorpostel's questions consists in determining whether these observed inequalities can be explained with the Marxist class theory and more specifically, whether class differences are related with or can even be explained through life course patterns.

The following two sections are thus dedicated to the definition and positioning of this thesis with regards to the aforementioned two key questions. Firstly, section 2.1.3. defines the specific theoretical framing within the social stratification framework which is given by the Marxist class approach. Section 2.1.4 briefly addresses the topic of social mobility. Section 2.1.5 then discusses the operationalization of class in old-age and in the Swiss context.

### 2.1.3 Marxist class theory and its relevance for the study of inequalities in old-age

*Multiple theories of inequality and stratification: Of functionalist and conflict theories*

As Tillmann (2010) posits, there is still no unified or validated theory of inequalities and social stratification although he does acknowledge some more prominent attempts at doing so (notably, Anderson, 1996; Grusky, 2001). The suggested explanations regarding the origins of social stratification and inequality generally fall into one of two broad groups: The first contains authors that view social stratification as necessary or functional for a society – a byproduct of human nature, so to speak – and secondly, those that view it as problematic and dysfunctional. The first, *functionalist theories*, „approach inequality as a necessary and normal part of society“ (Keister & Southgate, 2012, p. 42). This view has a long tradition and is found in numerous thinkers from the Antiquities such as Plato. In this view, there is a natural distribution of talents and abilities among people. In a society, certain of these skills are needed more than others and more talented individuals thus occupy social positions that reflect the social need and prestige for what they (can) do. Kingsley Davis and Wilbert Moore (1945), two of the most influential functionalists, compared the functioning of a society with that of a human organism. They argued that there are numerous organs in a body, just as there are people with different traits in a society. In a body some organs are more important than others. If a lung or the heart is malfunctioning the functioning of the whole organism might be

compromised. The same, they claimed, can be said for societies as a whole. There are some people who need to produce food, some that have to work in factories and others, still, who perform more complex and demanding managerial duties. In this conceptualization, there basically is a place in society for everybody. The main question for these scholars revolved around how to „sort“ societies in a way that people end up in the most adequate social position. Also they thought about how a harmonious functioning of a society can be guaranteed or how a society can achieve that people remain in their position, respectively. For Davis and Moore school and education played a key role in this process as it places – it „sorts“ - people within a society based on their skills. Following this main idea, Talcott Parsons (1964, 1937), another one of the key representatives of this tradition, elaborated a similar theory but insisted on the central importance of values and status in a society rather than on skills. „Practically, Parsons came to the same conclusion as Davis and Moore: The best people fill the most important positions and are awarded accordingly.“ (Keister & Southgate, 2012, p. 34). Emile Durkheim, who is among the three scholars who are considered to have shaped modern sociology (along with Marx and Weber) could also be situated in this school of thought (Keister & Southgate, 2012, p. 31-34). Levy and colleagues (1997) summarize these functionalist theories in their original form as being, above all, frameworks of distribution of social goods. They point out how generally these authors keep themselves from attempting any sort of conceptualization of society in terms of domination and oppression.

Strongly opposed to this are *conflict theories* which put this latter aspect, the unjustified oppression of certain segments of the population by others, at their core. The key idea for this second school of thought is that „elites have access to social, economic, and political resources, which they use to maintain their privileged positions“ (Keister & Southgate, 2012, p. 32). Lower classes then have no choice but to follow the rules imposed by the elites since they have relatively little power and resources that would allow them to refuse participating in the system. Conflict theories are most often associated with the works of Karl Marx and his political economy or *class* theory. Keister and Southgate (2012) summarize Marx's main contribution by emphasizing two main points: First, „Marx proposed that social class is fundamental to understanding social relations, conflict and change“ (Keister & Southgate, 2012, p. 43). His second contribution concerns the critique that governments and states are inevitably linked to the economy in a way that will reproduce the class system. In this understanding, they are part of the structure that dominates people in the lower classes (Keister & Southgate, 2012, p. 44). In other words, this framework stresses the importance of a person's position in the economic structure as well as the impact of the economic structure on a person.

Conflict theories can be further divided into two additional sub-groups as suggested by Levy and colleagues (1997). According to their typology, the family of conflict theories is made up of the Marxist class-theory on the one hand, and *power*-theories on the other hand. I fully agree with this more refined distinction. The latter is obviously also in line with the main idea that inequalities are the result of oppression and domination but unlike Marx in his „pure“ class-approach, authors from this camp do not reduce the

framework of domination to the economic system.

In fact, Levy's suggests a global distinction of social stratification theories into three groups which -interestingly- follow the „founding fathers“ of Sociology: Durkheim defining the „meritocratic theory“ and the functionalist family, Marx the class theories among the family of conflict theories and finally, Weber and his notion of power fall into Levy's „power theory“ family (see Levy et al., 1997; Saunders, 2001).

This thesis will use a Marxist class theory framing. In taking this particular stance, this thesis inscribes itself in a tradition of neo-Marxist scholars, above all Wright (2005), who continue to stress the primordial importance of the economic structure on people's lives and on society in general. Pioneers of this (neo-)school of thought include George Lukacs (Lukács, 1977) and Antonio Gramsci (see for example Gramsci, 1995). In the post-World-War era, one of the most prominent Neo-marxist institutions was the Frankfurt school of sociology (most prominently Horkheimer, Adorno, & Noerr, 2002; Marcuse, 2002). More recently, Richard Sennett (2007, 2011) has described how flexible capitalism influences people's professional lives and in doing so, somewhat echoing the early criticism of the Frankfurt school with regards to capitalist social transformations. On a more macroeconomic and macrosociological level, David Harvey offers a compelling Marxist analysis of the recent financial crises (Harvey, 2014). This position and its relevance for the analysis of old-age is the focus of the following sections.

*Marxist class theory: The big picture*

With regards to the previous discussion, the Marxist class-theory is clearly a conflict theory. Marx's work is extremely vast[6] but his contributions to sociology - and socioeconomics - are essentially what can be called “Marxism as class analysis” (Wright, 2005, p. 4). It is this approach of Marxist class analysis which will be adopted in this thesis. However, it must be said that there is an ongoing debate on what class analysis is or is supposed to be. There is no universal consensus but a multitude of different authors with their specific interpretations of it. In this first section on Marxist class analysis, I would like to start by painting the broad picture of what the latter actually is all about, what it is at its essence. In fact, what lies at the core of Marxist class analysis is a strong moral and normative stance against inequalities in a society. This is the broad picture on Marxism, so to speak. More specifically, he promotes a form of radical egalitarianism. As Wright (2005) posits, this radical egalitarianism can be condensed into three main theses:

1. “*Radical Egalitarianism thesis: Human flourishing would be broadly enhanced by a radically egalitarian distribution of the material conditions of life.*” (Wright, 2005, p. 6). This first thesis – which, as has been presented before, has also been addressed by Rawls - represents Marx's strong concern

6 Carver (2001) offers an overview and thus gives a insight into his work's depth. There are whole volumes that are written on this topic, see for example Giddens (1971) and Harvey (2010) for what I consider highly accessible works.

with social justice and also his idea about a classless society. It shows his strong conviction that such a social organization would be highly beneficial for human well-being overall.

2. *"Historical possibility thesis: Under conditions of a highly productive economy, it becomes materially possible to organize society in such a way that there is a sustainable radically egalitarian distribution of the material conditions of life"* (Wright, 2005, p. 7). I claim that this thesis could also be termed the "institutional embedding" thesis. It refers to the crucial connection of such a normative state of egalitarian distribution of resources with economic and social practices. Accordingly, Marx claims that one of the most crucial basis of such egalitarian order is a highly productive economy which reduces material scarcity.
3. *"Anti-capitalism thesis: Capitalism blocks the possibility of achieving a radically egalitarian distribution of the material conditions of life.* One of the great achievements of capitalism is to develop human productive capacity to such an extent that it makes the radical egalitarianism needed for human flourish materially feasible, yet capitalism also creates institutions and power relations that block the actual achievement of egalitarianism. This sets the stage for the great drama and tragedy of capitalist development: it is a process which continually enhances the material conditions for an expanded scope of human flourishing while simultaneously blocking the creation of the social conditions for realizing this potential. The political conclusion of classical Marxism is that these obstacles can only be overcome by destroying capitalism through a revolutionary rupture […] The full realization of radical egalitarian ideal may, of course, be a Utopian fantasy. But even if "classlessness" is unachievable, "less classness" can be a central political objective, and this still requires challenging capitalism" (Wright, 2005, p. 7).

Regardless of the specific approaches or definitions to class, within Marxist class analysis the main pursuit is always about this described agenda. Applied to the issues in this book, this means taking a radical stance against poverty and health inequalities in any forms. Having so far painted the broad picture of what Marxist class analysis is all about, we can now focus on a more applied elaboration of a conceptual framework to class. However, as has been indicated before, there is no consensus in this area. Therefore, the focus of the following paragraph lies on outlining this debate and the main issues within it before then turning towards the solution which is adopted in this thesis and which primarily draws on the works of Erik Olin Wright (1985, 2005) .

*What exactly is class?*

Generally, the key ideas that Marx has formulated seem quite straightforward. However, their application in the real world is much more difficult. Above all is the question of what social class actually *is.* As it turns out, despite the fact that class is almost often „a core explanatory variable in much empirical research [...] there is enormous diversity in the ways in which it is operationalized and measured. Most sociologists agree that social

class refers to how people make a living, and that there are relatively stable patterns of inequality between different classes – but there the consensus ends“ (Saunders, 2001, p. 1933). Other authors point towards the general consensus that a social class „is a group of people with common levels of relative wealth, income, occupation, and education. [They] are typically [...] similar to one another on these measures and distinct from others“ (Keister & Southgate, 2012, p. 92). In the following sections I discuss the difficulties related to the application of the Marxist framework to the real world and concrete empirical analyses, then I briefly summarize the different approaches that have been made to solve this problem and finally, I sketch out a framework which will then serve as the basis in order to define an indicator that serves as a proxy for class (the actual definition of an indicator is then found in part 2.1.4).

*From Marx's vague definition to clusters of class-related conceptual issues*

To begin with, it is quite interesting to note that Marx himself never formulated how class was to be conceptualized and implemented. In fact, as Wright (1985) writes, “to the perpetual frustration of people who seek in the texts of Marx authoritative answer to theoretical problems, in the one place where he promises such an elaboration – the final chapter of Capital Volume 3, entitled “classes” - the text stops after only a page. Just before the end of this incomplete text Marx wrote, 'The first question to be answered is this: What constitutes a class?' Two short paragraphs later comes Engel's sad comment, 'Here the manuscript breaks off'” (Wright, 1985, p. 6).

In order to elaborate a definition of class based on the various elements that Marx has provided in his work and on the elements that Marxist scholarship has since concentrated on, it is useful to organize them into clusters or generic *themes*. Wright (2005) identifies eight such main themes that are related to class and that have to be taken into consideration when applying this concept in an analysis. This typology is completed – and where applies, contrasted – with the classification suggested by Saunders (2001).

1. *“Social relations of production” (Wright, 2005, p. 9).* This first theme concerns what Saunders calls ownership. He states that the key characteristic that divides classes is ownership (or non-ownership) of productive means. This might concern anything from actual financial capital, tools, machines, land or labor power. However, it does also include immaterial resources and means of production such as skills and knowledge. Wright emphasizes that the rights and power associated with these means of production are not to be reduced to the technical aspects of possession or the factual distribution of resources but that they refer to *social relationships* of one group of people towards the other. These relationships, argues Wright, are *power-relations* based on the ways that economic activities are organized and controlled (Wright, 2005, pp. 9-10).
2. *“Class relations as a form of relations of production”* (Wright, 2005, p. 10). The second theme concerns class as a relationship based on productive means. It is not only ownership of any means of production that turns people into capitalists but it is the use of these means of production in a production process

that does. As Wright summarizes: “In general this implies appropriating income generated by the deployment of the resource in question” (Wright, 2005, p. 10).

3. *“Variations in class relations”* (Wright, 2005, p. 10). The third cluster of issues concerns the tension between the theoretical basis of Marxist classes which follow a clear binary logic with a division between owners and non-owners of productive means on one hand side, and on the other, the multitude of the variations in class relations. While there might be no theoretical space for qualitative variations in class-relations the *direction* and the signification of class-relationships always remaining the same – there might nevertheless be a degree of quantitative or structural variation therein. An example of such variation, argues Wright, can be found in the contrast between slavery and capitalism. In a system based on slavery, the ownership of land and of individuals is possible whereas the former is prohibited in capitalism. The abandonment of slavery might have caused a shift in the structure of class-relationships, between those owners of means of production and non-owners. Yet, the nature and the quality of the relationship remains the same. As will be shown further on, the relationship is characterized by exploitation and domination (Wright, 2005, pp. 10-12) – an idea that we have already seen in the works by René Levy (1997).
4. *“The problem of complexity in concrete class relations”* (Wright, 2005, p. 12). A fourth cluster of issues related to class is that of complexity in class relations. Directly related to the previous issue of variations in class-relations, this theme focuses on the high complexity that can characterize such variation. There are two sorts of complexity. The first is the coexistence of class relations. Taking the example of slavery and capitalism as previously, Wright points out that in the American South before the civil war the two systems have coexisted. The second type of complexity is given by the multidimensionality and to a certain extent the regulation of rights and power people can have with regards to certain resources. As an example hereof, Wright cites a factory owner who obviously owns machines. In doing so, he is free to use these machines to a productive end. Yet, if the factory is situated in a state that regulates the safety requirements of such a machine, he is only free to do so if he complies with the latter. Hence, this type of complexity can also be considered as the socialization of property rights. Wright emphasizes, however, that these forms of complexity remain at all times class-related and variations of a class-system and not other forms of social systems (Wright, 2005, pp. 12-14).
5. *“Class locations”* (Wright, 2005, p. 14). According to Wright, much social research focuses on the identification of class categories or the location of people within a class-structure. Such indicators, Wright claims, are justified but he emphasizes the cardinal importance to constantly remain aware that these class-locations always refer to the position of people in an economic structure. Hence, conceptualizing the location within a class structure essentially is about situating individuals within a structured pattern of interaction *related* to class (Wright, 2005, p. 14).
6. *“Complexity in class locations”* (Wright, 2005, p. 14). A sixth cluster of issues related to class concerns the complexity of the aforementioned class locations.

This is an aspect which will be discussed in detail in the following section as it directly relates to the problem of how class can be applied to a complex social structure as found in contemporary societies – in this case Switzerland.

7. *Macro- and micro-analysis* (Wright, 2005, p. 19). This theme can also be termed as the "level of analysis" cluster. It is concerned with the choice and focus regarding the unit of analysis. Units may be larger, corresponding a macro-perspective, such as when analyzing a country, a firm or even the world. Opposed to this, a micro-analysis might focus on individuals and the impact that class-membership has on their living situation. Finally, it must be said that micro- and macro-levels are linked together in complex ways. (Wright, 2005, pp. 19-20).
8. "Class agency" (Wright, 2005, p. 20). The eighth and final theme related to the class concept is that of agency. All of the previous clusters have been related to structure, meaning that we have tried to conceptualize people's social relations in terms of class. However, not much has been said about the actions and individuals *within* those structures. Here, Wright lays out five concepts that are relevant for such an understanding. First, class *interest* which, I argue, could simply be termed "class-related living conditions". This relates to a range of issues such as standard of living, material security, leisure, health, etc. The second is class conscientiousness which refers to people's awareness of their membership to a certain class and/or the implications thereof on their class interests, as previously described. Thirdly, class *formation* which refers to the grouping of people according to class. This entails anything from political parties, labor organizations unions but also less formal structures such as communities or social networks (Wright, 2005, p. 20-21). The fifth and final concept is also one that Saunders emphasizes, namely "class struggle". In a Marxist framework, it is the driver of social change: Marx sees class struggle as a feature of every society, going back to the first settled societies developing agriculture. Class structures every society and the key social relations are always characterized by the class struggle. Furthermore, „class relations shape every aspect of social life. Politics, law, art, and philosophy are the 'superstructural' expressions of a more 'basic' relation between owners and non-owners of the means of production. Class relations impose their stamp on every aspect of life" (Saunders, 2001, p. 1934).

Wright (2005) claims that the discussion of these themes leads to the simple conclusion that "class counts" (Wright, 2005, p.22). Class, as understood in these eight issues, has significant consequences for people's lives and for society. At a micro-level, it has an impact on the resources – for example the amount of money - people have at their disposal, their actions and relations to other people - for example whether or not somebody has the power to tell other people what to do in their job. On a macro-level, class is crucial for the creation, maintenance and, potentially, for the overcoming of institutions.

So far, we have defined the core agenda of the Marxist position. Then, we have turned our attention towards a clearer definition of class with respect to the main themes or

clusters of issues that can be found in Marxist class analysis. From this insight we have gained, hopefully, a somewhat intuitive understanding of what class is. In the following subsections this intuitive understanding is taken as a point of departure and it is confronted with the debate on the formal definition of class. It starts with a broad overview of the main problem that such a task faces. Then it discusses the two broad approaches that have traditionally been taken before then describing the solution on which this thesis relies on: The Marxist framework according to Erik Olin Wright.

*Confronting Marx with contemporary social structures*

Beyond the lack of a precise definition of class, the real difficulties start when trying to confront the Marxist theory with concrete contemporary social structures. It is actually quite interesting to note that even Marx himself discovered the incongruencies between his theory and reality: „in *Capital* he identifies three classes in modern capitalism (landowners, wage laborers, and capitalists), and, analyzing the 1848 events in Paris, he finds as many as *nine* (proletarians, financiers, industrialists, the middle class, the petit bourgeoisie, the lumpenproletariat, intellectuals, the clergy, and the peasantry)“ (Saunders, 2001, p. 1934).

Perhaps one of the main problems is that Marx formulated his theories in the 19th century. Since then societies have seen profound changes in almost every domain. Some critics even put forward that Marx's conceptualization of society may no longer be adequate given today's modern complex societies (this critique has been debated in the previous section of this chapter (see Keister & Southgate, 2012, p. 38). This led some authors to even claim that the complexity of social stratification, notably the impact of meso-structures, is insufficiently reflected in the traditional class theory (Levy et al., 1997, p. 21). The difficulty thus lies in remaining in line with the original Marxist theses and yet, to arrive at a solution that adequately reflects modern social structures.

There has been – and there still is - considerable debate on this issue. Saunders (2001) identifies two main broad approaches that have emerged. The first solution consists in adhering to the main idea of two main classes, proletariat and bourgeoisie, while further dividing them into sub-classes. Authors who employ this strategy therefore distinguish between „classes“ and „class-fractions“. The second solution consists in distinguishing the Marxist theory of a „mode of production“ (where there are only ever two classes) and actual „social formations“ (which may contain elements of more than one mode of production or other forms of social organization and thus more than two classes“. (Saunders, 2001, p. 1933). This typology is in line with suggestions by other authors such as by Levy and colleagues (1997).

*Two main approaches for the application of the class concept*

Each of those two broad approaches has fostered a multitude of suggested indicators and methodologies to measure and apply the class concept. The first approach, reuniting

those who interpret the Marxist logic more strictly, thus inspired methodologies whose main focus was to increase the complexity of the original dichotomous Marxist system in order to more adequately reflect the structures modern societies. A key question in this process was how to deal with the emergence of an important middle class. The problem is that such middle classes are not easily attributed to any of the traditional binary logic. Hence, their conceptualization with regards to the Marxist scheme represented a key issue in the debate. Various attempts have been made to solve this problem including Braverman (1998), Carchedi (1975)and Poulantzas (1975). One of the most prominent typologies according to this paradigm, however, is given by Wright (1985).

The alternative solution to refining the Marxist scheme relies, according to Saunders (2001), on a more Weberian approach. In this perspective, classes according to the Marxist sense are seen as something that only serve the purpose of conceptualizing social classification, an „idealtyp“, rather than defining real-world relationships. The solution to measuring and applying this framework is therefore based on the idea that there are a series of hierarchical social classes, based on power or their position in economic markets, respectively. Hence, „Weber [...] has no problem solving the problem of the middle class. Following this logic, there are two middle classes (a petit bourgeoisie of small property owners with a relatively weak labor-market position, and an intelligentsia who owns few assets but who command high returns in the labor market because of their education and training). They sit between an upper class (positively privileged in property and skills) and a working class (negatively privileged on both, and therefore relatively poorly remunerated)“ (Saunders, 2001, p. 1935). This tradition has generated a number of corresponding typologies. Notably, Lockwood (1966) in an influential study has linked workers according to their class position and their attitudes and behavior. He would define a person's class position as a result from the degree of autonomy they had at their job, and their occupational prestige, as well as their market situation (income, job security and career outlooks). Much of this approach was utilized by Goldthorpe and colleagues (1968) for their study of the British working class. Based on this initial work, Goldthorpe refined his typology further by using different definitions of people's work situation (hierarchy and authority), their market situation (with respect to incomes, security and job prospects) and created a 11-category model of the class structure in Britain. Although this model was originally conceived for the British context, it has since been widely used and has gained widespread acceptance in Western sociology (Saunders, 2001, p. 1936). „There has been a growing consensus around the use of systems of classification based on the Goldthorpe schema“ (Saunders, 2001, p. 1937) with major statistical offices adopting typologies reflecting the Goldthorpe criteria and logic[7].

7 Another final aspect, which has briefly been touched upon before, concerns the measurement of class in either a categorical or a continuous scale, thus opposing a Marxist class-representation with a more Weberian continuous representation of society (Lemel & Noll, 2002). The latter is an approach that has a long tradition in the United States. The previously cited approach by Blau and Duncan (1967) offers the most widely known typology, consisting of a 96-point scale which they used for the study of social mobility. However, even though continuous representations might have a certain descriptive character, they ultimately fall short of having any interpretative and factual value, leading to the conclusion that they are not truly indicators of social position(see Levy & Joye, 1994).

*The Swiss social structure*

The classification system which has been specifically designed for the Swiss context is given by the Swiss or „Helvetic“ socio-professional categories (often abbreviated CSP or CH-CSP) by Joye and Schuler (Joye, Schuler, Meier, & Sayegh, 1996). Influenced by Desrosières and Thévenot (1992) this system is constructed to reflect the country's social structure. Also, it is the most often used indicator of individual social position in research projects in Switzerland and is usually available for most major datasets (Tillmann, 2010). Its widespread application can be interpreted as being a robust validation (Bergman & Joye, 2001; Rene Levy & Joye, 1994; R. Levy et al., 1997).

The CSP basically measures two aspects of a person's socioeconomic situation: On one hand the required level of education (this criteria has four levels: Higher education (university or university of applied sciences); higher professional education; professional education (apprenticeship, Matura/federal college degree); low education (only or no education beyond secondary level). On the other hand, it distinguishes between three levels of hierarchical position: Managerial (being in a hierarchically superior position directing employees); independent; and being employed. Moreover, hierarchical position takes priority over educational level. Table 1 summarizes the CSP system.

| Hierarchy (position and competences in an organization) | Education | | | |
|---|---|---|---|---|
| | Higher | higher professional | Professional | None |
| Managerial | Managerial | | | |
| Independent | „professions libérales“ | Other independent | | |
| Employed | Intellectual and managerial job | Intermediary job | Non-manual qualified or manual qualified worker | Non qualified worker |

*Table 1: Swiss CSP system*
*Source: Tillmann, 2010*

Since it incorporates both, elements of a person's situation in the economic structure as well as certain elements of power, it can be considered a class-based system with Weberian power-structure elements, thus representing a hybrid of the Wright and Goldthorpe system (Tillmann, 2010).

*Wright's approach to complexity*

As has been highlighted before, this thesis principally draws on a Marxist class-analysis framework based on the works of Wright (1985, 2005). Among those two broad currents that have been described before, this author is situated in the first group of scholars who retain the original two-class-model and then extend it by adding complexity in a manner that always relates back to this initial model. In this section the extensions and added complexity that Wright suggests is presented.

The author points out that main idea lies in extending the analysis of class locations in a systematic and rigorous manner rather than seeing it as chaotic and unstructured. Hence, this means identifying principles according to which complexity is created and then deriving the implications of these principles for the task of location people in a class-structure. He identifies five main sources of such complexity (see Wright, 2005, pp. 16–20):

The first principle states that rights and powers that associated with class relations are complex and multi-layered. Hence, it must be possible to unbundle and dissect them into their composing patterns. This strategy is used and lead to the identification so-called "contradictory class locations" (see chapter 1, Wright, 1985). A good example of such a case is given by managers in corporations. While they exercise some of the powers that are typically attributed to the capitalist class-position – hiring and firing workers, making decisions about the production process, etc. - their situation is also characterized by attributes that are usually associated with the working-class: They cannot sell a factory or transform the means of production into value for their personal consumption. Moreover, they can be fired from their position – something that capitalists cannot experience.

The second principle is quite self-explanatory. It concerns cases where people occupy multiple jobs – in abstract terms:multiple class locations- which places them in different classes. A person might be a manager as well as a worker in a firm, effectively making him part of the working-class (worker) while at the same time also occupying a function that belong to the capitalist class (manager).

Thirdly, Wright states that there is a level of *temporal* complexity which has to be introduced. This refers to cases where people occupy a position in one class relation only for a fraction of time and then move on to a different position among a different class-relation. As an example for such a case the author points towards certain career trajectories where a temporary stage among the workers is required – a sort of apprenticeship- before moving up into the managerial positions.

The fourth principle that generates patterns of complexity is related to the scale of rights and powers people have with regards to means of production. First, this diversification can be made for capitalists. There might be some capitalists that control vast quantities of capital, that employ thousands of workers all over the world, whereas there might be others that only control a small amount of workers in a single location. Both belong to the capitalist class, yet their command over power and resources vary substantially. Secondly, the same variation can be found among the working-class as well. Workers vary in their skills, and as a consequence thereof, in their market value. Again, unskilled and skilled workers are both situated in the working-class despite their substantial differences in terms of resources – in this case skills – they have command over. Wright terms these quantitative variations among people who occupy similar locations, who are situated in the same class, as *strata* among classes or class-locations.

The fifth and final principle to which Wright attributes great importance for the creation

of complexity is that of family and kinship. Such social relations might greatly influence the control and use of productive means. More specifically, this refers to cases where somebody from a class - a female typist, for example – is married to a corporate manager. In this example, Wright considers them to create a “cross-class-household” (Wright, 2005, p. 16).

Given these reflections, Wright concludes that the question which people often as - “how many classes are there?” - is misconstrued. He argues that, “a class 'location' is not 'a class'; it is a location-within-relations. The number of such locations within an analysis of class-structure then depends upon how fine-grained an account is needed for the purpose at hand. For some research questions, a relatively fine-grained differentiation of locations within class relations is desirable, since the precise ways in which persons are connected to rights-and-powers-over-resources may be of explanatory importance. In [his] research on the relationship between class location and class consciousness, for example [he] felt that a fairly refined set of categories would be relevant [thus leading to the often cited twelve-class model]. For other problems, a more coarse-grained description of locations-within-relations may provide more insight. In [his] work on the problem of class compromise [he] felt a much simpler two-location class model consisting only of workers and capitalists was appropriate” (Wright, 2005, p. 19).

*Wright's model to Marxist class-analysis: Exploitation and domination*

The framework of Marxist class-analysis which has been sketched out so far is, as Wright (2005) argues, nothing uniquely Marxist. It merely structures the analysis of social structures around the concept of class and it shows, firstly, how class determines what people have and secondly, what people have to do to get what they want to get. This framework is quite close to the Weberian idea of life-chances (Wright, 2005, p. 23).The pivotal element that does reconnect this framework of class-relations to the Marxist agenda is the concept of *exploitation.* Simply put: Wright's interpretation of the Marxist class-framework consists of the diagnosis that inequalities are, to a large part, the result of the way in which exploiters are able to employ their exclusionary rights and power over resources at the expense of the exploited.

Exploitation is a complex concept. The way it is used in Wright's framework, it is supposed to indicate a particular form of interdependence of the material interests of people. More specifically, it is a situation that is present when the following three criteria are fulfilled:

1. "*The inverse interdependent welfare principle*: the material welfare of exploiters causally depends upon the material deprivations of the exploited. This means that the interests of actors within such relations are not merely *different*, they are *antagonistic:* the realization of the interests of exploiters imposes harms on the exploited.
2. *The exclusion principle*: This inverse interdependence of the welfare of exploiters and exploited depends upon the exclusion of the exploited from access to certain productive resources.
3. *The appropriation principle:* Exclusion generates material advantage to exploiters because it enables them to appropriate the labor effort of the exploited." (Wright, 2005, p. 23).

Wright notes that in cases where only the first two principles are fulfilled, the situation that is present is not exploitation but non-exploitative *economic oppression.* In the latter, the welfare of the privileged group is indeed at the expense of the disadvantaged group but no direct transfer from one group to the other takes place.

Furthermore, exploitation is strongly linked with the concept of *domination.* It entails social relations which are characterized by the control and influence of one entity over the actions of another. Applied to the aforementioned principles, domination is present in the first: The fact that one group possesses a resource prevents another from using it, thus has a tremendous impact on the activities and actions of that latter group. The clearest example of this is the power of employers to hire and fire workers. Furthermore, domination also occurs in most cases of the appropriation principle: The appropriation of labor efforts by one group over the other requires some form of subordination on behalf of the second group. Concluding his general argumentation, Wright summarizes that exploitation in combination with domination define the central features of class-relations.

More specifically, based on these key concepts of exploitation and domination Wrights perhaps most notable typology is the one developed in his book "classes" (1985). Extending the core class-relation of "owners" and "non-owners" of productive means, he adds the dimensions of "scale" of asset ownership as well as skills. The final typology is depicted in figure 1.

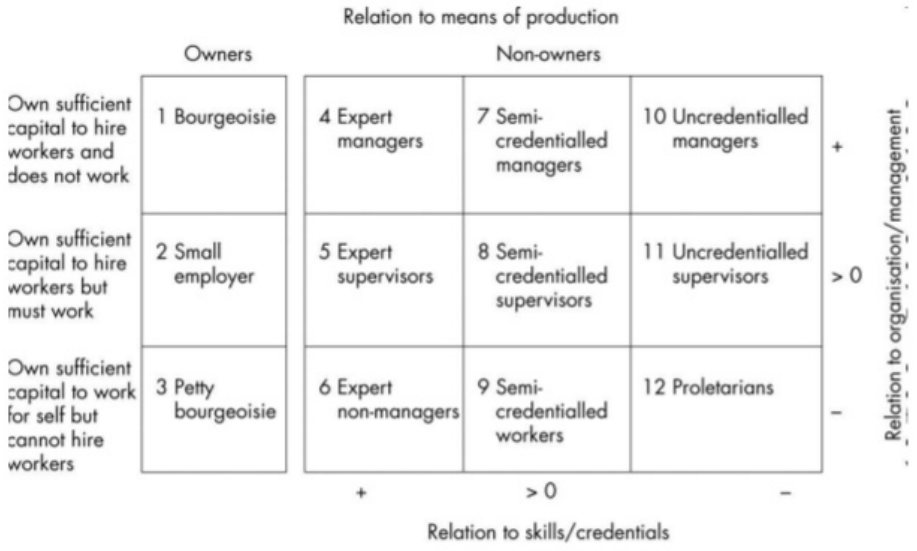


*Figure 1: Wrights 12-type class-scale*
*Source: Wright, 1985*

At this point, it is appropriate to briefly summarize this rigorous discussion of the Marxist class-approach that has been elaborated so far in this section. I have started with an overview over different approaches to the explanation of inequalities. Among those theories, I have defined how this thesis relies on the Marxist class-framework, a conflict theory. In what followed I have discussed the global Marxist agenda and have transitioned towards what can almost be considered an excursus regarding the problematic of the application of this framework to contemporary social structures. This excursus has started with a discussion of the vagueness of the class-concept and an approximation based on various clusters of class-related issues that provided a first preliminary and somewhat intuitive definition of class. I then deepened this definition by retracing the large traditions regarding its application. Among those traditions I then emphasized the interpretation provided by Erik Olin Wright. Here, I have first addressed how Wright deals with the main problem of “updating” the traditional two-class system to today's complexity and finally, I have elaborated on how Wright's suggested Marxist class-analysis framework places pivotal importance on the concepts of exploitation and domination. In the following sub-sections I will focus on the application of this framework to the area of gerontology and in part 2.1.5 I will then come back to this framework in order to discuss the choice of class-indicator in this thesis.

*Intersectionality theory: Multiple forms of domination*

Up to this point, this chapter has discussed social stratification and class. However, there is yet another element which has to be emphasized here as it is of great relevance for this

thesis: It is the concept of *intersectionality.*

According to Robnett (2001) Intersectionality theory originally stems from the field of feminist theory. It came into focus when the theorizing about gender-inequalities and gender-domination was combined with that of racial inequalities. Women of color, to be specific, are not only susceptible to forms and dynamics of gender-domination but also to negative dynamics related to their race. Proponents of this theoretical framework criticize that such situations are often conceptualized as separate dynamics related to gender and race. They advocate that such situations are to be assessed holistically by emphasizing on the cumulative effects of these domination forces. In fact, this line of conceptualizing can be even extended by adding multiple other dynamics to constitute, in the language of intersectionality theory, the "matrix of domination, which is the intersection of gender, class, race, sexual preference, and other relevant systems of oppression" (Robnett, 2001, p. 12681).

The insights of intersectionality theory are important when conceiving a conceptual framework for ones analysis as well as for the interpretation of specific results. For this thesis intersectionality theory is not specifically integrated in the analytical models of the empirical part. However, it shall serve as a guideline for the interpretations that are taken from the following analyses: It stresses that real-world dynamics are never isolated. People are not only exposed to class-dynamics but they are also exposed to gender, race or age-discriminations.

*The relevance of class-analysis in a postmodern world*

Recently, a number of scholars started to criticize and even disqualify the „traditional" class-analysis approach, regardless of the chosen theoretical framing – (neo)Marxist, (neo)Weberian or (neo)functionalist. As Tillmann (2010) argues, citing Levy and Joye(1994, p. 315) there are two principal issues that are raised. The first concerns a general acknowledgement that sex and race are factors of significant influence on social stratification and social inequalities. Class differences, in this regard, can in certain cases be captured by introducing sex or race differences in the analyses. As it will turn out, in this thesis this logic is actually inversed and sex and race differences are actually to a large degree captured by educational or class-configurations.

The second key critique can be called the „postmodernist critique" (Tillmann et al., 2014) and has sparked a significant debate on the continuing relevance of class. It constitutes an important movement in Western sociology that, according to Tillmann, has its roots in the 1960s and has seen its major resurgence in the 1980s.According to this trend, class has become an obsolete concept in a a period that saw „industrial societies experience profound economic, political and ideological changes that brought the „classic" and „modern" phases of industrialization to a gradual end" (Formosa & Higgs, 2013b, p. 4). In fact, these scholars – Formosa and Higgs call them the „Anti- class Brigade" - argue that with the global process of postmodernization there have been multiple social changes that altogether are responsible for a general weakening or even a

dissolution of traditional institutions and class structures[8] (Clark & Lipset, 2001; Evans, 1999; Lee & Turner, 1996; Pakulski & Waters, 1996a, 1996b; Therborn, 1986). These social changes are (all according to Chauvel, 2001, pp. 318–320): a general diffusion of political rights among the totality of the population; the increased importance of the tertiary sector in the economy which obviously went in hand with a decline of the primary and secondary sectors; a general increase in people's living conditions; the democratization of education; increased social mobility; and finally, a decreased class-conscientiousness. Overall, these changes are believed to have created a so-called „elevator effect“ during which there was a general rise of well-being and a strong increase of the middle class in contemporary societies (a „moyennisation“ as Tillmann (2010) calls it). More generally, many authors believe that lives had become much more unstable, de-standardized, individualized and generally characterized by a high degree of risk and uncertainty (Beck 1992). Zygmund Baumann characterizes such postmodern lives as „liquid“, emphasizing their ever-changing, restless and uncertain nature (Bauman, 1992).

Based on this supposed postmodern shift in society, it can be concluded that the individual and its actions have a much greater impact than its surrounding social and economic structures – the latter position corresponding a traditional social stratification approach. Hence, some authors concluded that the risk of negative life-situations, such as poverty, ill-health or depression, is consequently much more situated at the individual level (Leisering & Leibfried, 2001)[9]. Beck and Willms (2004, p. 107) posit: „Society can no longer look in the mirror and see social classes [...] all we have left are the individualized fragments“.

This hypothesis of a dissolution of classes in contemporary societies is heavily debated. Generally speaking, it relies on two main theoretical assumptions (Tillmann et al., 2014): Firstly, while there might be a measurable decline in class-consciousness, there is no reason that this change in the representation of class has to go in hand with an actual decline in the importance of class and social position. Secondly, to hold true this hypothesis has to assume a *historical linearity* whereas the observed social changes – most of which have been particularly well-documented for the period of the „Trente Glorieuses“ - have to continue and remain a driving force today(Duménil & Lévy, 2006)

Numerous studies have aimed at testing the relevance of these theses. This has been carried out using multiple approaches and methodologies. Firstly, some have focused on the analysis of inequalities per se, following the idea that a dissolution of class importance would go in hand with a general decrease in social inequalities. To a certain

8 Here, the terminology differs quite a bit. I claim the most comprehensible term to be used is „postmodernity“. However, other authors refer to the same movement as „late“, „reflective“ or „second“ forms of modernity.

9 To be precise, it has to be distinguished between two levels: On one hand, there is the methodological one that entails the opposition between an individualistic approach to social phenomena versus a structuralist or holistic approach – something which further in the text is referred to as the opposition between “agency versus structures” (Settersten & Gannon, 2005). The second level is the interpretation of negative outcomes such as poverty or poor health with an emphasis on the individual. The latter is by no means a novelty that came with the postmodernist shift. Rather, the postmodern world lends itself much more to the lens of agency rather than structures.

extent, there is evidence that supports arguments for as well as arguments against it. This could be considered a paradox, as I have described it in the introduction of this thesis („Inequality within progress“). On one hand, there is evidence for the so-called elevator effect (Levy et al., 1997; Stamm et al., 2003). This finding effectively disqualifies Keister and Southgate's (2012) description of this phenomenon as negligible. Most relevant for this thesis, the elderly population in Switzerland has greatly benefited from these positive tendencies (Lalive d'Epinay, Bickel, Maystre, & Vollenwyder, 2000; Wanner & Gabadinho, 2008). At the same time, there is equally significant evidence for the continuing persistence of inequalities in general (Atkinson, 2003; Smeeding & Grodner, 2000) as well as for the elderly (Pilgram & Seifert, 2009).

Secondly, other authors have focused on testing this hypothesis by analyzing the social structure itself, notably testing the theses of a „moyennisation“. The evidence in Switzerland(Levy et al., 1997; Tillmann, 2010; Tillmann et al., 2014) more or less corresponds to the findings in Europe (Rose & Harrison, 2014) and the United States (Chauvel, 2001b) in that it shows a relative stability in the social structure that does not fully support a complete dismissal of class-analysis, yet remains inconclusive to a certain degree.

A third approach consists of analyzing social mobility. For Switzerland a key contribution is given by Levy and colleagues (1997) and more recently by Falcon (2012) who analyzed cohorts born between 1912 and 1974 (containing precisely the cohorts that are studied in this thesis) and generally found stable mobility rates. The evidence regarding stable mobility rates found by Falcon does to a certain degree support the hypothesis of a dissolution of class through an elevator effect with the majority of the population steadily ascending the social structure. Yet, the author also documents the strength of such upward movements: It is questionable whether the mobility rates are strong enough to have fundamentally changed the social structure over time.

This tension between the two paradigms, the Marxist class approach and the postmodernist critique or „anti-class“ and „anti-stratification“ thesis that both call for an approach putting forward new social structures or new dynamics in inequalities, represent a key aspect in the theoretical framing of this thesis. As will be explained further in this chapter, the same tension can be found when discussing the impact or the structure of the life course in general.

Having so far outlined the main framing using a Marxist class approach, the next section will focus on how this theoretical model can be applied to the elderly population.

### *Political economy of aging and critical gerontology*

The application of the presented Marxist class framework to the field of gerontology can primarily be found in the *political economy of aging* tradition. It was particularly popular in the late 1970s and 1980s in a context of reemerging interests in neo-Marxist theories in the social sciences. One of the key ideas was introduced by Peter Townsend (1981)

and revolved around the concept of *structured dependence.* Townsend criticizes the way nation states supposedly forces retired people into a restricted world of low incomes and severely limited opportunities for self-determination and social participation. This reflects the key Marxist idea that governmental structures, including old-age security systems, are strongly responsible for the auto-reproduction of discriminating structures. Another key author was Chris Walker (1981) who wrote an article in which he outlined the political economy of aging perspective in gerontology and what kind of function it should serve. These two scholars were joined by authors such as Carolle Estes (1998) who followed Walker's outline for a political economy of aging and developed a whole framework that culminates in the demand for a moral-economy approach to aging. Further members of this movement were found in Chris Philippson (2007) and Martin Kohli (1985).The latter actually represents a key scholar in the area of life course research, notably with his emphasis on the institutionalized life course. Generally, they insist on how class „holds a crucial role in determining how people experience retirement and the quality of lives they lead“ (Formosa & Higgs, 2013, p. ix).Retrospectively, it can be said that these works bear the enthusiastic and reactionary character of numerous neo-Marxist publications of that time. However, as Tillmann and colleagues (2014) conclude a good three decades later: Since that time the general preoccupation of class analysis in general has shifted away from macrosociological aspects (collective action, revolutions, etc.) towards an explanation of the variability in life-chances, behaviors and attitudes of individuals.

Nowadays the political economy perspective in gerontology is usually attributed to a school of thought in gerontology called „critical gerontology“. It regroups a multitude of „dissenters“ (Formosa & Higgs, 2013, p. ix) amongst the most prominent are the aforementioned political economy scholars as well as feminist-gerontologists (see Marshall & Clarke, 2007).While there were periods were critical gerontology was quite popular and inspired a larger number of researchers, it can now be considered somewhat of a niche and certainly not the most widely used theoretical framing (Marshall & Bengtson, 2011, p. 26).

More cynical comments even asked „What is new about critical gerontology?“ Marshall (2009) claiming that critical gerontology fails to deliver new theoretical perspectives of its own and summarizing that it does nothing more than emphasize a „self-labeling as a critique of the status quo in society and [claiming] to be struggling for social justice and a better world“ (Marshall & Bengtson, 2011, p. 26). As Marshall (2011) claims, most other scholars in social gerontology – or perhaps even in sociology in general – could argue that their research supports social justice and human betterment[10].

10 I disagree with this general dismissal and defend the importance of a type of research represented by groups of scholars such as critical gerontologists. The larger picture is the following: With the backdrop of scientific knowledge-production that is more than ever driven by impact factors and the general „publishability“ of research findings, there is a high risk of purely abstract empiricism without (a more problematic and hard to publish) theoretical framing and, more importantly, that key areas where research is needed become neglected. In fact, this is not only a risk but a documented tendency (see for example the *Nature* editorial (“Not-so-deep impact,” 2005; Sample & Correspondent, n.d.)This is equally true for the social sciences as well as the hard sciences (Oris & Burgnard, 2014). Particularly problematic is that many grant-institutions base the allocation of financial resources on exactly these criteria. Hence, a theoretical framing as it is emphasized in critical gerontology is more than just a moral

Given that this thesis is done in an academic environment – at the Center for interdisciplinary gerontology at the University of Geneva – that has a strong tradition and affiliation with French sociology, it is necessary to address – albeit only briefly -the French tradition of the political economy perspective.

The first French sociological study that emphasized the social determinants of retirement and aging was Anne-Marie Guillemard's “La retraite, une mort sociale” (Guillemard, 1972). In her work, Guillemard identifies five models of retirement, five “types” of how retirement is characterized. The most frequent, according to her observations, was the one she termed “retraite-retrait”, meaning “retirement as (social) retreat”. She posits that for the majority of people, retirement is a period of social exclusion and hardship whereas more privileged seniors might, due to an abundance of economic and social resources, be able to enjoy a positive form of retirement, a situation which she describes with her types of “retrait-loisir” (“leisure retirement”), for example. Guillemard's main contribution lie in three main elements: Firstly, her work offers a demonstration of the heterogeneity of the elderly population in an intellectual environment which still was strongly influenced by a rather homogeneous view of retirement and aging. Secondly, she showed the impact of social policies on people on the third age – albeit in a rather negative vision and thirdly, she argued how the multiple social dimensions of people's lives determine people's living conditions and circumstances once they arrive at the age of retirement.

Guillemard's work, largely in line with Townsend's view, significantly influenced the intellectual and theoretical framing of the work done at the Center for interdisciplinary gerontology (CIG) led by Christian Lalive d'Epinay(see for example Lalive d’Épinay et al., 1983).

Regarding the last decades of gerontological research with an emphasis on social structures, it can be seen that seems to be a tendency of differing intellectual framings between Anglo Saxons and French-speaking gerontologists (excluding Québec) (Moulaert, 2012). In the Anglo-Saxon world, the critical gerontology tradition seems to have taken a strong hold – a strong hold of a minority, that is, since it is somewhat of a dissident movement, as has been described previously. The French-speaking world, by contrast, more strongly gravitate towards a school that could be translated as “sociology of aging” (“sociologie du viellissement”) tradition. The latter strongly focuses on concepts such as social exclusion with authors such as Serge Paugam (1991a).

This thesis inscribes itself in this political economy – and consequently, in the critical gerontology -tradition and thus aims to be part of what Formosa and Higgs (2013)call a movement of scholars that try to renew the importance of social class analysis in later life and that believe it must be a central point for theories of aging. This clear positioning with regards to a theoretical perspective and tradition is rather unusual for main stream gerontology and, as some authors summarize, stands contrary to the general tendency in

underlining of research results. It represents a critique of such a system of science by a clear focus on specific research topics and theoretical framings in order to uncover dynamics of discrimination, notably within the institutional settings of social policies.

gerontology which still tends to be rather rich in data but poor in theory (Birren, 1988).

*Temporal dynamics: Inequalities within progress in old-age?*

As far as the discussion on the evolution of inequalities over time is concerned, the narrative presents itself similar as the one that has been described in the subsection regarding the historical evolution of inequalities at large. As a reminder: In that part it has been shown that there has been proven but contradictory evidence regarding the evolution of inequalities in the overall population. On one hand, there has been significant evidence of tremendous overall progress in many areas of life but at the same time, there has been equally significant evidence showing the persistence of inequalities. This situation can be regarded as a paradox: Inequality within progress.

For the elderly population the picture is not as clear. Whether there is actually inequality within progress is much more of an open hypothesis than proven fact. Whether there is continued progress that improves the lives for elderly people and whether parallel to these improvements there are some people that continuously are left behind is still up for debate. The following paragraph explores this question based on a short review of the literature in gerontological research.

Like in most other western industrialized countries, life expectancy in Switzerland had continued to rise steadily over the second part of the last century to reach unprecedented numbers. Combined with a constantly low fertility rates the structural changes in the composition of the population had been tremendous. Over three decades since the end of the 1970s there had been a threefold increase of the proportion of over 65 year olds in the population and the share of people over 80 years of age had increased eightfold (Oris & Lerch, 2009). Although it is not undisputed that this will be the case indefinitely (Olshansky et al., 1990) this trend still persists today. At the same time, there have been tremendous advances in technological and socio-sanitary conditions which had contributed not only to the absolute life expectancy but also to the decrease of morbidity for a large part of old-age. There is a trend that people experience morbidity only at the very last stages of live – a trend which is called the compression of comorbidity (Fries, 1988). People live both longer and they remain autonomous until a much higher age than ever before (Abelin, Beer, & Gurtner, 1998; Kochsiek, 2009).

On the other hand, parallel to these positive developments there has been a rise of a number of challenges that are likely to produce inequalities. The cohorts that are entering retirement today dispose of much different characteristics as earlier ones that had been previously studied. They show new patterns in terms of family life, for instance. Whereas in generations that have been studied up until 1994 growing old together seemed to be the general rule, there is a slow tendency towards other more heterogeneous forms of family and partner configurations: Unmarried couples growing old, singles, divorced people (Bengtson, Rosenthal, & Burton, 1990, 1995; Bonvalet, Olazabal, & Oris, in press.). The same holds true for people with a migratory background. In earlier gerontological studies, this population has been marginal but

nowadays, they start to represent a more substantial part of the elderly population in 2011 (Bolzman, 2012). As for the direct effects of longevity and the decrease of comorbidity, this has contributed to a further homogenization of old-age. For many scholars there now is a growing gap between the „young-old“, the „old-old“ (Neugarten, 1974) and the „oldest-old“ (Suzmann, Willis, & Manton, 1992).

The negative consequences that have traditionally been attributed to old-age in general have now become a concern starting mainly in the so-called fourth-age (Baltes & Smith, 2003). It is within this fourth-age that people tend to show a much higher prevalence for comorbodities than their „young-old“ counterparts(Robine & Michel, 2004). Functional physical health tends to degrade (Lalive d'Épinay et al., 2008), as does cognitive capacity (Birren & Schaie, 2001)and psychological health (Baltes & Smith, 1999). In a broader context, studies show that this is often accompanied by a decline in their social networks (Carstensen, Isaacowitz, & Charles, 1999) and a reduction in social participation (Bickel, 2014).

However, it is not only the heterogeneity between the age-groups and the factors of age advancement that produces significant differences in well-being and psycho-physical resources. There were important variations within the young-, the old- or the oldest-old that seem to have their explanation in other factors and characteristics. Research nationally and international has shown that there remain groups that are continuously at a disadvantage and suffer from material, physiological and social deprivation (Lalive d'Épinay et al., 2008; Pilgram & Seifert, 2009; Wanner & Gabadinho, 2008). Research has identified a number of groups and characteristics that tend to be susceptible to such disadvantages and that are in general more vulnerable: Women (Moen & Spencer, 2006; Valtorta & Hanratty, 2013; Venn, Davidson, & Arber, 2011; Vlachantoni, 2012), immigrants (Bolzman, 2003, 2012; Kaeser & Bolzman, 2013) and people belonging to lower socio-economic classes (House et al., 1992; Mackenbach et al., 2008).

In summary, it is yet to be confirmed whether the same narrative, inequalities within progress, can be fully found for the elderly population. Numerous studies indicate that this might be the case but it is hard to predict whether they represent only punctual findings of inequalities that are yet to disappear, or whether they represent evidence of structural and persisting inequality. What is needed, above all, is a broad, in-depth analysis of the progresses and social dynamics in this population. Thus, this is where this thesis aims to offer a significant contribution. In fact, it is part of a large research project supported by the Swiss National Science Foundation with precisely the aim – among others – to provide a broad and general update regarding the elderly population in Switzerland.

One of the first objectives that this thesis will focus on is to determine whether such inequalities can indeed be found in this segment of the population. Moreover, beyond simply testing and documenting the amplitude of their existence, the most pressing matter is to explain them.

*Current issues of class-analysis in old-age and research in Switzerland*

Class-based frameworks are, as has been argued so far, not the mainstream approach in gerontology neither internationally nor in Switzerland. However, many empirical analyses still feature some sort of indicator of social position, either a form of SES-indicator or most often education. Thus, the following description includes some studies even though they do not identify themselves as doing so.

Generally speaking, current class-analysis in old-age largely rely on the two main postulates from the Marxist class-framework that have been cited as synthesized by Keister and Southgate (2012): On one hand, that class and social position shape the distribution of resources, social relations, conflicts and change. On the other hand, that governments – or, to use the somewhat more polemic language that is often used by these scholars: the political-industrial complex – are inherently part of the economic structure and thus play a key role in creating and maintaining the unequal social order and class structure.

More specifically, current research can again be divided into five key questions. Firstly, there is an important body of literature on the nature of class-structure in old-age. This debate has been strongly influenced by the debate on the continuing importance and relevance of the class concept in general in light of the postmodernist critique. Accordingly, a main theme in this field of research is to prove that social inequalities continue to be related to class. This main message is found in the compilation by Formosa and Higgs (2013b). More specifically, Jones and Higgs (2013) show these class dynamics are also a strong factor in the area of health inequalities. Storelli and Williamson (2013) focus on the second (neo-)Marxist postulate and demonstrate how pensions and old-age security systems play indeed a key role in sustaining a certain marginalization and discrimination of lower classes in old-age. Phillipson makes a similar argument but refers much more to the background of globalization and the fundamental changes that the global economic structure has seen in recent decades. However, his conclusion remains in line with those of the aforementioned authors in that he sees the general global dynamics transform in a way that emphasizes class inequalities in old-age (Phillipson, 2013).

For Switzerland Lalive d'Epinay and colleagues (Lalive d’Épinay, Bickel, Maystre, & Vollenwyder, 2000) established a broad documentation of inequalities in old-age. Although dating back to the mid 1990s, their work continues to be an important piece of research. In it they emphasize the heterogeneity among the elderly population and as part of this, they also put forward education differences (which could be interpreted as class-differences, even though they do not specifically refer themselves to a class-framework).

Secondly, as far as the measurement of class in old-age is concerned, there is a general discussion on whether traditional indicators which are usually based on educational attainment, socio-professional hierarchical (power) position and profession remain valid indicators for class in old-age. Regarding this issue, Lopes (2013) develops a

multidimensional framework for the measurement of class in old-age. To my knowledge, there is no corresponding discussion that focuses on the particular context in Switzerland.

Thirdly, the broadest body of literature can be found in the documentation of consequences of a certain social positioning in old-age. As indicated in the beginning of this section, often these studies do not specifically put forward a social stratification or a class-analysis framework. Yet, many of them include some sort of measure of social position and often significant results are reported. Hence, recent analyses that have been carried out focused on the dimensions of health (Mazzonna, 2014; Strand et al., 2014) poverty and economic hardship (Augris & Bac, 2009), care and caring arrangements (Victor, 2013) or lifestyles (Fratiglioni, Paillard-Borg, & Winblad, 2004). In Switzerland gerontological research in a specific class framing is, as it is in general, not current mainstream (René Levy & Suter, 2002a), hence, the number of relevant studies is modest. Notably, Pilgram and Seifert (2009) have insisted in migratory and sex-differences in poverty, some of which can be attributed to class-differences. Although a bit older, the qualitative study by Lalive d'Epinay (1991) represents a precise application of a class-framework, focusing on individual perception of retirement in relation to class-membership.

The fourth body of research concerns social mobility. Here, Bottero (2013) is a typical example. In his study he suggests a theoretical framework to explain social mobility movements against the backdrop of social change in the 20st century. In Switzerland, Falcon (2012) has established the most relevant research in this field. It is described in the following section that focuses exclusively on social mobility.

Finally, as for the fifth key question regarding social representation of class in old-age there is equally little empirical evidence in Switzerland as well as internationally. Higgs and Formosa (2013) take a strong stand against this largely neglected area of gerontological research and demand a renewed interest in class-analysis in old-age. In their final chapter of their edited book on the topic they specifically call for the study of social representation, notably in terms of lifestyles and class-consciousness in old-age.

As has been previously posited, in light of these current issues this thesis will be contributing to the first and the third main question of stratification research. It will focus on exploring the specific consequences for inequality that the positioning within a specific class has in the life-stage that represents old-age. Beyond that, it will contribute to the understanding on the origins of inequality by determining the continuing impact of class.

As far as social stratification research in Switzerland is concerned, Levy and Suter (2002a)note that the majority of studies employ a status attainment paradigm (as discussed in Bornschier, 1991). In isolated cases, other approaches chose a more multidimensional framing such as Levy and colleagues (1997). Hence, the Marxist class framing of this thesis might be considered as going somewhat against the mainstream paradigm.

### 2.1.4 Social mobility and old-age

Within a social stratification framework social mobility plays a key role. As Keister and Southgate (2012) indicate, low mobility rates are an important element for the auto-reproduction of the social order. Alternatively, high mobility rates can be a source of transformation for social stratification structures. The mechanism for the latter is often referred to as an“elevator effect” which enables individuals in a society to pursue trajectories of social ascension. This in turn might lead towards a general rise of well-being and the emergence of a significant middle class.

The most significant piece of research for this thesis is given by Falcon (2012) who analyzed the mobility regimes of cohorts born between 1912 and 1970 in Switzerland. This population includes precisely the cohorts that are studied in this research project: People born between 1907 and 1947. Her analysis is based on three key hypotheses: First, whether social mobility has increased over time in Switzerland; secondly, whether social mobility fluctuated across specific historical periods; and thirdly, whether there are gender differences.

With respect to the first hypothesis Falcon's findings suggest that there has been little increase in social mobility over time, which supports the traditional constant flux theory (Erikson & Goldthorpe, 1992). Beyond not detecting any significant changes in mobility rates the author also posits that it can be said that there has been no significant reduction in the inequality of opportunity. Concerning the second hypothesis she finds very little evidence for real temporal fluctuations. The only cohort that showed significant but only slight increased rates for upward mobility were men born between 1936 and 1940 – these are generations whose professional careers largely coincided with the most significant economic upswing, the time known as „les trentes glorieuses“. However, Falcon concludes that their impact is to marginal as to have produced any shifts in the mobility regime on a more general level. Finally, she finds that the biggest shifts were experienced by women. Switzerland generally remains a highly sex-segregated social structure. Yet, Falcon finds that women show significantly increased mobility rates, especially in younger cohorts. They seem indeed to have experienced an increase of opportunities.

Given these results, the general hypothesis of Keister and Southgate (2012) can be supported: Social mobility plays a role, albeit a relatively limited one and thus it can be expected that it should not interfere with more significant social stratification and class dynamics. Nevertheless, social mobility will be integrated as a control variable in a specific model that aims to determine its impact of social mobility on inequalities in old-age.

This concludes the general outline of the social stratification and the Marxist class-framework for the study of inequalities in old-age. The next section will now focus on how this general framework can be applied to empirically test these dynamics.

### 2.1.5 Operationalizing class in old-age

Given the broad outline of the theory on social stratification and class as well as the application of these concepts with regards to the retired population, this section mobilizes these previous elements to discuss and define the choice of the indicator for class that is used in this thesis, notably for the following empirical analyses. This section is therefore structured as follows: I start with a broad outline of all the requirements that the final indicator has to address or balance among each other, respectively. After that, I define the chosen indicator and discuss this choice according to each of the previously listed requirements.

*Requirements*

The indicator of class that is used in this thesis has to respond to four interconnected areas of requirements:

1. *Theory:* It has to be in line with the Marxist class-analysis framework as defined by Erik Olin Wright.
2. *Availability:* It has to be available in the datasets that are used in this thesis.
3. *Appropriateness:* It has to be appropriate to the various analyses that will be performed in this thesis.
4. *Target population:* It has to be adapted to the population of retired people on which this research focuses.

As has been discussed in the previous part (2.1.3), the two most important aspects in Wright's framework are given by the concepts of exploitation and domination. In his view, these two core topics are pivotal in the explanation of inequalities. Hence, the measure of class (or in Wright's terminology, the measure of “class location” - therefore has to reflect these logics adequately. In order to verify the presence of domination and exploitation Wright has identified three principles: The inverse interdependent welfare principle, the exclusion principle and the appropriation principle. A measure that truly captures a exploitation and domination logic has to answer to these three criteria. Moreover, regardless of the level of “precision” or how “fine-grained” the typology ends up being, the measure has to correspond to Wrights logic regarding the incorporation of complexity: He is a strong proponent of defining class-locations *in relation* to the original two-class system (instead of breaking away from the original system by introducing complexities that are not regarded as being directly related to *class*-locations, as is done by such scholars as Goldthorpe).

Secondly, the measure has to be available – directly or indirectly by construction of a secondary variable – in our datasets that are used in this thesis. Without going into too much detail, we are dealing with the VLV dataset on one hand, and the COMP dataset on the other. The former dates to 2011, whereas the latter reunites data from three waves of a survey that were collected in 1979, 1994 and 2011.

Third, related to the previous criteria, the measure has to be appropriate for the analyses that will be performed in this thesis. More specifically, there are two main *angles* of analysis that will be adopted: On one hand and based on the COMP dataset there is an analysis regarding the historical evolution of inequalities and class dynamics from 1979 to 2011; and on the other hand, an assessment of class-dynamics in function of life course variables that are only available for the VLV dataset in 2011. This implies, above all, the need for an indicator that is stable between 1979 and 2011. This is not obvious, given that Switzerland has seen profound socio-economic and structural changes in that time-period.

Fourth, the measure has to be adequate for the population in which the analyses will be performed: The retired population. This particularity implies a series of sub-criteria. Above all, given the broad interval regarding the cohorts that are included in the survey this requirement also stresses, once again, the stability of an indicator in spite of far-reaching economic and socio-structural changes, similarly to what was argued in the previous paragraph. Moreover, the focus on the elderly population also raises the issue of how women are included and represented by this measure. In these specific cohorts (particularly for the wave in 1979) women would often not or only briefly participate in the formal labor-market in order to prioritize informal activities centered on family and domestic activities. Hence, this indicates that one has to be aware of any biases that could be introduced that way.

*Solution: Education in a three-level coding*

In the context of these presented requirements, the operationalization of the Marxist class framework is done with a single simple indicator: Education. Furthermore, I suggests to code education in three levels: High (regrouping all people with any kind of higher education); apprenticeship, regrouping all people with a professional education;and low (regrouping people with a level of education that is lower than that of an apprenticeship, basically people with little or no formal education at all).

In doing so, I chose a coding that basically introduces one additional level of precision into the Marxist two-class framework. Following Wright's logic of increasing complexity while respecting the relations to class, I consider people with a high education as belonging to the dominating, exploiting or capitalist class; those with an apprenticeship to the working class; and those with a low-education as well. However, the two latter ones distinguish each other with the level of assets (skills) they possess. In essence, the suggested typology consists of the Wright-typology reduced only to the dimension of “skills”.

In order to be precise, I adopt the following terminology when referring to this classification (the terms in the brackets are the those that will be used as variable coding and variable labels in the analyses):

- People with any form of higher education (“high education”) represent the “capitalists class”, the “upper class” or the “bourgeoisie”.
- People with an apprenticeship (“apprenticeship”) represent the “skilled working class” which also might be referred to as “skilled workers”.
- People with little or no formal education (“low education”) represent the “unskilled working class” composed of “unskilled workers”. These can also be referred to as the “lowest class”.

However, at times the thesis might aim to draw interpretations concerning the “traditional” two-class system where “upper” or “capitalists” class is compared to the “working class”. Where this is done, without any further specification, this refers to the comparison between people with a high education versus people with an apprenticeship *and* those with a low education.

*Discussion*

First, we have to discuss whether education complies with the outlined criteria regarding the Marxist class analysis framework elaborated by Wright. Central to this question is to assess to what extent education represents an asset that can be used to exploit and to dominate other people.

As has been indicated before, Wright posits that there are three criteria which have to be fulfilled to determine whether exploitation is present. The first is the inverse interdependent welfare principle. Here we have to ask: Does the material welfare of people with a high education depend on the material deprivation of people with an apprenticeship or of people with no education? Very closely related to this first principle is the second, the so-called exclusion principle. For this second principle the question to ask is “does the inverse interdependence (first principle) of well-educated people depend on the exclusion of people with an apprenticeship or with little or no formal education (low education)? The answer for both questions and principles is yes. In fact, the possession of (scarce) intellectual assets that is a specific type of higher education – say, for example, an engineering degree – enables the holders of such a degree the access specific and high-paid professions from which other less educated people are excluded. Hence, their wealth directly depends on the exclusion of these other people. The same principle then applies to the level of workers: Between people who have an apprenticeship and those who have no education. Similarly as in the previous example, the possession of intellectual assets and skills acquired with an apprenticeship is a means of domination as it offers access to positions and jobs from which people with no education are excluded.

The third is the appropriation principle. Here, the question to ask is whether the exclusion mechanisms (principle 2) generate material advantages to the exploiters (people with a high education) because it enables them to appropriate the labor effort of the exploited (in this case, people with an apprenticeship or people with a low education)? Specifically, as Wright explains, this criterion is about the “transfer of the fruits of labor from one group to another” (Wright, 2005, p. 24).In fact, this criterion is

crucial in the detection of exploitation since its absence might reveal that there is a situation of so-called “non-exploitative economic oppression” (Wright, 2005, p. 24). The difference between that and exploitation is that in the latter case the exploiters *need* the exploited. Is this the case for education? Again, the answer is yes. If we think of a firm in which there are only two types of people, well-educated experts who run the firm and unskilled typists, do the experts need the typists? Of course they do, because without them their firm would not continue to run. As Wright specifies: The experts *need* the typist workers.

Furthermore, what about domination? As a quick reminder, Wright defines this as the power that one group of people has to direct and control others. If we take the example of an expert-engineer and an unskilled worker in a factory. Does the difference in education, the possession of skills and intellectual assets give the expert the power to direct and control the worker? The answer is positive: With his knowledge he has power to give orders to the worker.

Regarding these key features of exploitation and domination that are at the core of the Marxist class-analysis framework according to Wright, we have seen that education (and particularly in its three-level coding) does fulfill the required properties.

A further element regarding the theoretical framing based on Wright concerns the inclusion of complexity in the class-measure. As I have pointed out before, the key criterion is that the additional complexity is in relation to the class-system and *not* based on other forms of social organization or other social systems. As I have already indicated when presenting the solution, the classification into three levels is quite straightforward: High education regroups all people with any kind of higher education; apprenticeship all people with a professional education; and low reunites those with little or no formal education at all. The first level corresponds directly to the capitalist or upper class. The two additional ones correspond to the worker class, whereas there is just one additional level of precision which distinguishes between skilled and unskilled workers. Hence, this class-typology is in line with a Wrightean logic of increasing complexity while adhering to the original class-relationships.

The second point of discussion concerns the availability of education in the datasets. Here, it must be said that the dataset would have offered the choice between the measure of education as well as a typology of socio-professional categories (CSP). However, the latter have been somewhat adjusted between the first wave of the COMP dataset in 1979 and the final iteration of the survey in 2011 in order to reflect certain socio-economic changes. Nevertheless, the CSP indicator would have been readily available. The reasons why I have decided against the CSP measures are described in the following paragraphs and are mainly related with the requirement of a stable and predictable indicator of class in the face of profound socio-structural changes over the last decade.

The third requirement was the adequacy of the measure given the analyses that will be performed. Above all, the fact that the historical analysis captures multiple populations of old people at different moments in time leads to strong implications regarding the

indicator of class. We are studying cohorts that have been born between 1885 (the oldest participant in the 1979 survey) and 1947 (the youngest participants in 2011). These are people which, at different ages of course, have traversed almost the totality of the 20st century: The participants from the 1979 survey (generations born between 1885 and 1924) having predominantly traversed the first part of the 20th century, participants from the 1994 survey (generations born between 1900-1929) having lived the majority of their lives in the middle of the 20st century and the participants in the latest survey (born between 1905-1947) having traversed the middle and second half of the 20st century and lived well into the next millennium. Covering such a vast time-period, it could almost be regarded an understatement to call the context in which these people have lived simply *changing* or evolving. Between the youngest and the oldest participant born in 1905 for VLV – or even in 1885 for the first wave in 1979 of the COMP dataset – lie multiple generations and fundamental political, economic, social, technological and socio-sanitary changes.

Hence, with regards to the use of an indicator for class for this analysis, this means that it has either to be one that remains stable across time or one that is at least predictable in the face of profound socio-structural change. And herein lies the problem with the use of such advanced composite indicators such the CSP for Switzerland, which are strongly dependent on the country's social and economic structure. Over the stated time-frame there have not only been changes in the economic sector with a transition away from an agricultural and industrial economy towards a service-based tertiary economy (this going in hand with the decrease of certain professions). Beyond these changes there have been changes in the occupational structure, in the way that companies are organized and employers are situated in a professional hierarchical structure. The same is true for the prestige that was associated with certain professions. In short: There are multiple dynamics which can affect these measures. Even though his analysis does not lend itself for a dismissal of class analysis or giving support to the hypothesis of a „moyennisation“ of Swiss society, Tillmann (2010) shows the impressive socioeconomic and structural changes that Swiss society has undergone over the last decades.

This strongly supports the decision to focus on education exclusively. It is relatively predictable, especially when used in a three-level coding as outlined in the first paragraph of this subsection. It is easily interpreted based on the fact that there is a relatively well-known tendency which points towards wide-spread formal schooling from the 1950s onwards (Chauvel, 2001a).I posit that the structural changes that affect this indicator are less multidimensional and thus easier to interpret than CSP measures. Differently put: The interpretation between being making a living as an unskilled manual worker in the 1930s in comparison with one in the 1970s, the effects for other areas of life as well as inequality, are much more difficult to interpret than, for instance, having to face the labor market without a formal education or, on the other side of the spectrum, with a very high education. In the latter example, the first intuitively making a successful professional career and success in other areas of life much more difficult whereas the second clearly improves the chances for it markedly. There was perhaps an improvement in the quality of schools and education at large as well, but this does not change anything in the fact that it is a solid indicator.

Regarding the second block of analyses where I assess the impact of class in function of life course variables, there is a need for a measure of class at the beginning of life, in order to determine and conceptualize the following life course. Hence, the second reason for the choice of education as a measure of class and social position is because it is the closest measure of social class at the beginning of life. As will be presented in the following part (2.2), this thesis' main innovative approach is to combine a social stratification framework with a life-course paradigm, respectively. Unfortunately, the dataset which this thesis is based on does not include a variable on parent's social position or class membership. Hence, in focusing on education I am aiming to have the closest proxy to social position and class-membership early in life. Using the measure of education, which captures the acquired social capital in the early stages of life, it will be possible to measure such life course dynamics/effects such as cumulative advantages or critical life period (this will also be described in the following part). The literature on intergenerational social mobility indicates that generally the up- or downward movements between children and their families of origin are relatively low (for the Swiss context, this has been demonstrated by Angelone & Ramseier (2013) and Falter, (2012). For this reason, I consider education to be a satisfactorily measure for initial class and human capital. Furthermore, the literature on educational and professional trajectories in these cohorts indicates that the amount of post-graduate training in these generations is close to zero. Cases in which people have gone back to school are relatively few and largely, post-graduate training was restricted to on-the-job training (Höpflinger, 2001)

The fourth and final requirement is the adequacy of the class-measure given the targeted population aged 65 years and older. Principally, this concerns the representation of women. As has briefly been touched upon before, in the studied generations women are more likely to have stopped work in the formal labor market in order to focus on domestic and family-related work. Often, such individuals would be classified as „inactive“ in the CSP system – at least as it has been implemented in VLV -and thus this would practically exclude them from the analysis. However, by focusing on education it is still possible to measure their skills and thus their command over a specific resource that distinguishes them on the labor market and that potentially has strong implications on their exploitation and domination, regardless of the actual employment status over their lives.

*Additional support for education as class-indicator*

Finally, there are four additional arguments that can be brought forward in defense of education as the primary measure of class in this thesis.

Firstly, it has been shown that the correlation between education and SES/CSP scores is extremely high, largely because education is often directly or indirectly part of the latter (see for example Levy et al., 1997). This is even more true for the generations which are studied here. For this reason, the use of education can also be considered as reducing complexity in the statistical models that are to be implemented in the analytical part of

this thesis. Indeed, the analysis in the VLV data for the correlation between education with CSP for people's first jobs on one hand, as well as the correlation with education and people's last job confirm this statement. For the first, the Cramer's V is 0.372 and for the latter it is of 0.358. Clearly, the results indicate a correlation that justifies the choice for education as a good proxy for social position.

Secondly, an argument that can be put forward in defending the utilization of education as an indicator of socioeconomic position and class is that it is, despite the wide-spread availability of more complex measures, still widely used in the literature. (Galobardes, Lynch, & Smith, 2007; Galobardes, Shaw, Lawlor, & Lynch, 2006a, 2006b). The reasons for this continued use principally lie in the availability of education as a variable in most major datasets as well as the simplicity this indicator offers with respect to more complex measures of socioeconomic position.

Thirdly, another element that can be considered as support for this is the social structure in Switzerland. As has been briefly mentioned before, perhaps the most complete piece of research on social stratification in Switzerland has been elaborated by René Levy and colleagues (1997). Their analysis reveals that Switzerland is a country with quite strong stratification dynamics and a high degree of social crystallization. In this context it becomes evident that the role education plays is significant.

The final element to be considered in this discussion is the unit of measurement. As will be described in the following chapter on data and methods, household income was measured, as the name clearly suggests, at the household level. Even though the initial response is readjusted to account for household size, using the OECD methodology for equalized household income, there could be effects of distortion if the partner or other household member possesses a higher educational status than the person in question. Again, this concerns principally women. For this reason I will also build a model that accounts for household differences by introducing a household-class variable.

*Implications for class-analysis: Inter- and intra-class dynamics*

As mentioned above, the presented typology introduces an additional level of complexity among the working class through the distinction between “skilled workers” and “unskilled workers”. This does have a significant impact regarding the underlying hypotheses since it shifts the traditional Marxist class-analysis hypothesis regarding the exploitation and domination of the working class by the upper or capitalist class towards a two-fold question: On one hand, we have to ask: Is there exploitation and domination from the capitalist class over the working class? This is the traditional question of Marxist class analysis – as interpreted by Wright. And on the other hand we have to ask: Is there exploitation and domination *within* the working class between the skilled workers and the unskilled workers?

This raises the issue concerning the second pattern within the working class. Regardless of its actual empirical relevance, one needs to ask what such a pattern could be called.

What does it signify on a theoretical level? Referring to Wright's discussion on the growing complexity in class-relations this could just be interpreted under two possible angles. First, it could be seen as “complexity of locations derived from complexity *within* the relations themselves” (Wright, 2005, p. 16). This situation has often been described by Wright under a different head, namely “contradictory locations within class-relations” (see chapter 1, Wright, 1985). An example hereof would be that of a corporate manager. He is employed and that aspect of his situation places him in the working class. Yet, he has the power to hire and fire people, something which is usually attributed to being situated in the capitalist class. Secondly, the alternative consists of looking at this “layering” of the working class as what Wright calls *strata.* The idea here being that there are differences within a class with regards to the scale of assets people possess: Among the members of the upper class, the capitalists, there might be large differences in the scale of capital that they possess. Among workers, highly relevant for this discussion, there might be substantial differences regarding skills.

Between those two options, I claim that the second *strata* interpretation is more fitting than the first. The reason for this conclusion lies in the fact that the first, the complementary location” concept indicates complexity situations where people suddenly have characteristics that can be attributed to another class. However, in this particular case of skilled workers versus unskilled workers, the differences do not concern power and control over assets which is attributed to the capitalist class. At no point has a skilled worker the power to hire or fire people or to sell productive assets.

In conclusion, the introduction of an additional level among the working class to distinguish between unskilled and skilled workers actually introduces an additional hypothesis as well: The question of *intra-class* dynamics. Hence, this thesis sheds light on both, the traditional class dynamics between working class and capitalist/upper class (*inter-class* dynamics) but it will also shed light on the hypothesis of a process of increased complexity among the working class (*intra-class)*. This second process could almost be termed “stratification among class”.

### 2.1.6 Summary: Old-age inequalities, social stratification and class-analysis

The following statements summarize the main elements that have been posited in this first part that was dedicated to inequality, social stratification and the Marxist class-theory. These elements will be taken up in the final part of this chapter to constitute the key research questions as well as the main working hypotheses.

- Inequality is defined as the distribution of resources, among a specific population,measured and summarized in a particular way.
- This thesis analyzes inequalities using a “problem-oriented” approach which focuses on the lower end of the distribution of resources. Accordingly, it looks at poverty, precarity, functional health problems and depression among the elderly population residing in Switzerland.
- There is an ongoing debate whether inequalities within the elderly population

persist, whether they are increasing or whether they are on the decline.

- The main framework that this thesis employs is a social stratification framework. It claims that inequalities are the result of social structures.
- The most widely used categories of social stratification are sex, race (ethnicity) and class.
- Within the social stratification framework this thesis will focus on the Marxist-class theory and more specifically, on the interpretation of it by Erik Olin Wright. Accordingly, social class is posited as being related to dynamics of exploitation and domination. Thus it is the main variable of influence for inequalities in old-age.
- Within the Marxist framework, social welfare institutions are regarded as being part of the discriminatory social structure that creates inequalities. Given the context of this thesis, the Swiss pension system is to be regarded as such as well.
- This thesis will operationalize the concept of class by using the variable education in a three-level coding.

## 2.2 The life course perspective

The main originality of this thesis is to extend the social stratification and Marxist class-analysis framework with a life course perspective. This section is dedicated to introducing the life course perspective and show how it is applied to the social stratification framework to build the main theoretical framing of this thesis.

Accordingly, I will first give a general definition of the life course, define its main components in light of a multidisciplinary view on the life course, sketch out the main principles of life course analysis and discuss the main issues that have been studied in this field (2.2.1). The second section (2.2.2) discusses how the life course perspective is an integral part of gerontological research and notably, how and which main areas it has influenced the latter. The third section (2.2.3) then brings forward one of the most significant and ongoing debates in life course research, namely the debate on de-standardization and de-institutionalization of the life course. Section 2.2.4 then transitions towards a more applied description of the life course – how it can be useful for the study of the construction of inequalities. This is done by focusing on the two main bodies of literature that link social stratification and the life course together. Finally, section 2.2.5 summarizes this part.

### 2.2.1 What is the life course?

*A general definition of the life course*

In one sentence, the life course can be defined as „a sequence of age-graded events and social roles that are embedded in the social structure and historical change“ (Elder., 2001, p. 8817) Thus, it is made up by three main components: First, analyzing the life course means looking at a sequence of age-graded events and social roles. This is probably the most significant element and fundamentally distinguishes the life course perspective from traditional sociological analyses. Traditionally, a person is observed at a given moment in time *t.* At this moment it is considered as possessing a number of characteristics and traits: Social position, education, marital status, employment status, etc. Usually, these information are then used in order to determine the relationship between such characteristics. In doing so, the characteristics a person possesses are considered as being *static*. However, most characteristics that people can have are anything but static. They are *dynamic* and change throughout a person's life. This dynamic perspective, the inclusion of all transitions and changes regarding a certain life domain is what this first life course postulate is about. A typical example might be a person's professional status. At a given time *t*, a person might be unemployed. Two years previously, this person might have still been in school, then gotten out of school a year later and finally, become unemployed. A traditional analysis would only consider the current professional status of being unemployed. In doing so, the *sequence* of statuses leading to the current situation is neglected (the sequence here being education-employment- unemployment). Obviously, this postulate concerns multiple areas of life such as work, family life or educational-trajectory. Furthermore, Elder cites both *roles* and *events.* This specification results from the fact that a researcher can typically focus on either the evolution of a person's role or status over his or her life, or on the occurrence of certain events. Naturally, in most cases a change of status coincides with a certain event: The birth of a child (event) signifies the transition into parenthood (status), the event of a marriage (event) changes the marital status into „married“ (status).

The second aspect that Elder brings forward is that of a socio-structural (one might also call this socio-*cultural)* embedding of the life course. This refers to the fact that a person is always situated in a specific cultural and social context which might have important influence on his or her life and thus on the sequence of events and roles. An example would be the migratory trajectory and thus the sequence of locations a person lives over the course of his or her life. In a country such as Switzerland where rural and peri-urban regions are relatively well-connected and offer plenty of work-opportunities, a person might be much more likely to only change locations in a rural area (leading towards a migration sequence in the form of rural-rural-rural, etc.). In a different cultural context, notably in countries with a very high degree of urbanization such as Japan, the likelihood of such a predominantly rural migratory sequence is very small.

Thirdly, the same is true for historical periods. The most-cited example therefore is the period of the large economic upswing in the post-war era. In this time, the chances for a

work-trajectory that was characterized by full-employment whereas a person who was born at the turn of the century and who experienced the periods of the great depression might find its professional-trajectory, the sequence of work-statuses or work-events, to be much different.

The life course perspective has since become an important tool in social sciences and has tremendously grown in importance. It has, also seen a significant process towards its institutionalization; there are dedicated journals, research institutions and professorships dedicated to this field. Moreover, this perspective has had a significant impact in many research areas, such as public-health or poverty research, just to name two more prominent examples. Some authors consider the introduction of a dynamic, life course based perspective for the analysis of social phenomena as one of the most significant social science developments of the last quarter century (Settersten, 2006).

*Components of the life course*

If this were a mono-disciplinary thesis in sociology, the general definition given the previous paragraph might be sufficient. However, given that it features a fundamentally interdisciplinary approach and studies objects as diverse as poverty, functional health and depression,it is necessary to deepen the definition of this framework by defining each of the composing elements of the life course more specifically. This has to be done since similar terms are used differently in different disciplines. In this regard, I follow the framework for the interdisciplinary study of the life course outlined by Levy and the PAVIE team (2005). Accordingly, there are four main elements that need to be specified: Trajectory, stage, transition and event. In the following list, each of the composing elements is discussed.

- Trajectory: As outlined by Levy and colleagues (2005), a trajectory can be defined as „model of stability and long term changes“(Levy, 2005, p. 11) or „sequence of profiles of insertion“ (Levy, 2005, p. 11). In that regard, the term trajectory is used to describe the movements and developments that occurred and characterize the *whole* span of life. On a more formal level, trajectories are made up by a sequence of transitions (signifying changes in the life course) and stages (signifying times of stability). As Levy (2005) explains further, in theory a person's global life trajectory contains all the elements that can occur over a lifetime as they influence each other. Additionally, this „global model“ of the life course would also consider historical, institutional and geographical contexts. Finally, a trajectory is also dependent on other people's trajectories, following the linked lives principle. In its pure theoretical formulation, a life course has to be studied holistically including all of the elements and dynamics that influence it as one unit. However, for reasons of practicality and feasibility, most researchers prefer to distinguish specific trajectories such as marital, professional, health or residential trajectories (Ritschard & Oris, 2005).
- Stage: There is a general consensus among disciplines regarding the meaning of stage. A life stage refers to a period in a person's life that is characterized by

relative stability. In a more dynamic view, stages can also be seen as „the stable state between two transitions“ (Levy, 2005, p. 13)Other terms that mean the same concept are: Episode, state, phase.

- Transition: As was the case for the previous concept, there is once again general agreement in terms of meaning of the concept transition. Transition, clearly, refers to the idea of change: „Change from one state or situation to another, from one life period to another, from one status or role to another. [...]we might define a transition as the (short) period of change relating consecutive stages. [...] Examples of transitions are [...] from single life to marriage, from adolescence to adulthood, from the status of an employee to that of a manager“ (Levy, 2005, p. 15). One aspect which will be important for this thesis is that there are different concepts, different interpretations regarding the *nature* of transitions based on different disciplines. They can generally be divided into two groups: A first one refers to transitions as relatively normative and neutral events. Opposed to this, a second group considers them as non-normative and thus potentially disruptive critical life-events (Vandecasteele, 2010).

The first group refers to events which bring a change of situation but with little or no significant implications. These events are usually experienced by a majority of a birth cohort as well as at a certain “normative” age. As an illustration, one might think of a couple who is already living together in the same household and that already has a child together getting married. This transition can be considered as a transition into a new status while being highly „regular“. The event of marriage does with a very high likelihood not signify major changes for the life trajectories of these two people but rather it is a transition that happens in absolute coherence with their previous life trajectories.

In the second group, there are events that are non-normative and possibly disruptive. Here, one can place the sociological concept of „turning point“ which refers to a transition that brings on a change of direction. A turning point is not „just a mere confirmation of this trajectory by a transition that fits into a general pattern“ (Levy, 2005, p. 15). An example hereof would be to lose a partner by death. This is an event which is most likely not expected, which does not harmoniously fit into a life trajectory and therefore might possess great potential to create specific new life-dynamics, negative or positive (Perrig-Chiello, Spahni, Höpflinger, & Carr, In Press).

- Events: The last element is given by events. Obviously, this concept is heavily related to the previously described concept of transitions since it is generally (but not necessarily) events that signify transitions. Levy (2005)defines them as „what happens at a given time in a given place“ (Levy, 2005, p. 15). but notes that this definition is ambiguous. The reason for this ambiguity is that some events are expected and regular, whereas others are singular and unexpected. The differing nature of transitions (which are usually brought on by certain events) has been outlined in the previous point on transitions. As in the previous discussion on transitions, this distinction is once again highly interesting to note. This different nature of events is operationalized and considered to highly

> varying degrees in different disciplines. In sociology, being mainly focused on social structures rather than individual behavior, scholars generally insist on the expectedness of events. In complete contrast to this, cognitive psychology conceptualizes events as a certain stimulus which can trigger a certain amount of stress, depending on the unexpectedness of it. Social demography, as Levy claims, lies somewhere in between the two and generally uses statistical regularity to classify events.

The distinction in terms of the *nature* of occurring events and transitions is highly relevant for this thesis given that it focuses on the construction of inequalities. Naturally, unexpected non-normative events do by far not have the same meaning in this regard than expected, normative ones. This aspect will feature as a key component in the analysis of inequalities in the empirical part of this thesis.

The following section will put forward how this newly defined object of research has been analyzed based on six main principles.

*Principles of the life course perspective*

The piece of research which is considered as the defining work for the life course perspective is Glen Elders „Children of the Great Depression“ (Elder, 1999). First published in 1974, it studies a birth-cohort starting in the United States from their childhood all through their lives up until adulthood and old-age. The publication earns its title based on the fact that the studied cohorts have indeed lived through the period of the Great Depression.

Elder himself did not initially conceive his book to define a new sociological paradigm and thus, in its first publication it was more about the results in themselves rather than generalizing ways of conceptualizing different aspects and dynamics of the life course. In consequent republications and with the growth of the life course paradigm a number of general principles, based on the initial results, have been formulated. The following list describes them as they are presented in (Shanahan & Macmillan, 2008, pp. 57–58)It is to note that some of these principles are at the same time specific mechanisms, capturing specific life-course *dynamics:*

- Principle 1, Time and Place: This first principle refers to the historical and spatial embedding of people's life course. Specific historical as well as geographical settings provide people with different life-chances or constraints, respectively. People with comparable profiles (sex, age, socioeconomic status, etc.) that are studied at different historical times or in different geographical contexts might have experienced different outcomes and different life-course patterns.
- Principle 2, Situational Imperatives: The second principle refers to specific social demands and can also be regarded as a mechanism of life course dynamics. To a certain extent it is the consequence of the first principle.

According to such specific settings social dynamics may be different.

- Principle 3, Linked Lives: The third principle regards the influence of relationships that a person maintains on his or her life course: With friends, a partner, family, etc. This principle is also an important mechanism for life course dynamics and can be tested in empirical analyses.
- Principle 4, Agency: The fourth principle concerns an individual's personal motivation, ambition and values. This might be responsible for different outcomes even if people that are studied are situated in the same geographical, historical and social context. As will be explained further on, there is an ongoing debate on whether it is agency that is the key determinant of people's life-course (a position which is usually attributed to scholars with a more psychological approach) or whether it is social structures (this position is more often attributed to sociologists, notably European sociologists). Furthermore, a number of scholars have started to acknowledge that it is impossible to determine which is more crucial and that more holistic approaches are required accounting for both forces. Most prominently, "agency within structures" has become an approach which takes both into consideration. Even though this principle is also regarded as a mechanism, as a life course dynamic, it is in most cases not easy to disentangle agency from social stratification effects (see (Marshall & Clarke, 2010; Settersten & Gannon, 2005).
- Principle 5, Life-Stage: The fifth principle posits that social phenomena across the life course have to be studied in function of the particular life-stage at which they occur. Similar events have different effects and implications for specific life-stages. The loss of a parent, for example, can have a different impact. This is also a life-course mechanism.
- Principle 6, Accentuation: The sixth and final life course principle is also a life course mechanism. I claim it can be regarded as a combined result from all the previous principles: A specific historical and geographical setting (principle 1) creates a specific social environment (principle 2) which, in function of a person's social resources (principle 3), personal motivation (principle 4), and age (principle 5) can be regarded as a certain pressure that *accentuates* a certain response, behavior and outcome of the studied person.

As Shanahan and MacMillan (2008) conclude, the life course is obviously a construct with these six principles as possible factors or *angles* of influence. None is hierarchically superior to any of the others. For the analysis of inequalities in old-age the first, fourth and fifth principles are primordial: The historical (cohort effects), geographical (cantonal differences) and social embedding (social structures and social stratification) of people's trajectories, individual agency and the focus on different life-stages and their influence on inequalities in old-age. The second and sixth principle are applied to a certain extent as different historical and geographical settings might influence the occurrence of specific events that are looked at in this thesis. The third, linked lives, cannot be regarded due to the lack of such data.

Up to this point, this part has introduced the life course framework and its main working components as well as its principles of analysis. In the following parts, we move on to

life course *theory*. In the following section I briefly outline the different traditions in life course theory, the North American perspective and the European one. Following this, there is an overview of the classical issues of this framework.

*Origins of life course theory: North American and European contributions*

As is usually the case with the formation of social theory, there are numerous contributors that can be associated with a certain body of literature. They may range from scholars who explicitly invested themselves in the process of theory building in a certain discipline or topic to scholars who have (often unconsciously) only contributed indirectly but whose work has significantly influenced the formation and development of a perspective or theory (Szacki, 1979). The life course perspective is no exception to this rule.

As has been discussed so far, it might seem that the life course perspective has grown out of an North American tradition. And there is indeed a very rich history of life course research that has been done by American scholars: In a review on the origins of life course theory, Marshall and Mueller (2003) cite numerous North American key influences starting from early contributors such as C.W. Mills (2000) and Leonard Cain (2009), to the important groundwork laid out in the 1970s by Mathilda White Riley (1979) and Berenice Neugarten (1970) to, of course, Glen Elder who produced the largest contribution for the formalization of what Marshall and Mueller call the North American life course tradition[11]. However, the life course perspective has also been cultivated in Europe, most notably by the Bremen school but also elsewhere. The contribution of these authors and this tradition as a whole should not be neglected.

While there are numerous similarities and mutual influences between the two traditions, Marshall and Mueller (2003) conclude that the main differences can be found in the fact that "Bremen and other European life-course researchers have paid more attention than North American researchers to macro-level social structure, and especially concerning the role of the state" (Marshall & Mueller, 2003, p. 23). In other words, the *institutionalization* of the life course has been an important emphasis for the European tradition of life course scholars. Accordingly, Marshall and Mueller identify some differences between the two approaches with regards to following specific topics (see Marshall & Mueller, 2003, pp. 18-22)[12].

- Social time: This concept is used by life course theorists across the globe to refer to the order of life-course events, and the fulfillment of social roles in function of age, social expectations and sanctions. In the north American

11 These authors are just some of the numerous contributors that are identified by Marshall and Mueller. Not mentioned are authors to which the cited scholars refer themselves - such as Linton (1940, 1942) and Eisenstadt (1956), for example- ,scholars using Status-Attainment models – like Blau and Duncan (1967)-, For the complete retracing of life course theory see the full article by Marshall and Mueller (2003).

12 It has to be said that the discussion by Marshall and Mueller (2003) is based on a comparison of North American life course scholars and the *Bremen* school. The latter being taken as a proxy for the European tradition.

tradition these norms seem more elusive. In the Bremen tradition, however, they are considered to be strongly institutionalized, particularly with regards to education and work. Walter Heinz has been an important contributor to this area of institutional regulation of life course transitions (Allmendinger & Heinz, 1992).

- Linked Lives: While the principle of linked lives is certainly a prominent issue in North American life course research, it is one of the primary focuses in Bremen. Above all, Peter Blossfeld has produced significant contributions in this regard, notably with his analyses on work careers of couples (Blossfeld, 1995a, 1995b)
- Conceptualizing social structure: According to Marshall and Mueller, the North Americans had a somewhat narrow focus on social structure in the sense that they saw age structure as one of the key aspects of social structure. Bremen and the Europeans, however, paid much more attention to the broader aspects of social structures. René Levy (1997) emphasized the importance of the constituting sub-systems of social structures, not only their vertical hierarchies of social differentiation but their horizontal differentiation, including the corresponding institutions and their resulting implications on the life course. Martin Kohli (1985b)argued that the life course itself had become a social institution with work being one of the driving forces of structuration. He was also one of the authors who contributed to the individualization debate. Furthermore, Karl Ulrich Mayer emphasized the role of the state in the regulation of the life course. In one of his main works he analyzes people's lives in relation to their framing by state structures (Mayer, 1997). Similarly, the works of Leisering and Leibfried (2003) emphasize this connection by analyzing the German welfare state and its impact on people's life courses. As Marshall and Mueller conclude, no comparable analyses exist for North America.

Given that this thesis inscribes itself in a political economy tradition – which is the impact of a person's position in the economic structure on their resources – and that it aims to extend this theoretical framework with a life course perspective, the European perspective offers a highly interesting point of departure. Following its lead means incorporating the focus on people's embedding within social structures, not only vertically (as is done through the Marxist emphasis on the position in an economic structure) but also horizontally, with regards to the various other social settings that can impact people's lives. As will be seen in the following parts, this entails not only limiting the analysis (or interpretation) to the role of classes, but also taking into consideration the multiple other sub-systems and sub-dynamics people can be associated to: gender, cantonal settings, cultural settings, etc.

Having so far sketched out a somewhat abstract macro-perspective on life course theory, the following section will summarize the classical issues where life course research has been carried out.

*Classic issues of life course research*

There is considerable research that has been done using the life course paradigm. According to Macmillan (2005), traditional life course research has four main axis of research: The first concerns the order and timing of the sequences that compose the life courses. The two central concepts in this first line of research are those of trajectories and transitions (Elder, 1985).On one hand, „trajectories are life course dynamics that take place over an extended period of time. Traditionally, they reference time spent in specific social roles“ (Macmillan, 2005, p. 5). They can also be understood as specific „careers“. Typical examples therefore are work-trajectories (professional careers) or family trajectories. Transitions, on the other hand, „are marked at the beginning and at the end by transitions. Transitions are shorter in duration. They index change as people move from one role to another, begin or cease a course of activity, experience a particular sate, or stop doing so.“ (Macmillan, 2005, p. 5). The difficulty in this line of research consists in the fact that, remaining true to Elder's conception, the life course is multidimensional; it encompass multiple dimensions that are interlocked with each other. This conceptual specificity poses substantial methodological challenges, notably how sequences of events and statuses across multiple life-domains can be captured, described and possibly empirically related (see for example the approach by Gauthier, Widmer, Bucher, & Notredame, 2010). This line of research has given rise to a large body of literature studying various objects, such as the entry into the labor market (Falk & Weymann, 2002) or more recently, the (delayed) entry into adulthood (Settersten & Ray, 2010).

The second large body of literature emphasizes the cultural and historical embeddedness of the life course. Accordingly, in this line of research the objective is to study trajectories and transitions „as a means of understanding how individuals construct different types of life courses within the opportunities and constraints of society and history“ (Macmillan, 2005, p. 8). Scholarship in this area generally follows one of two main approaches: The first is cohort-based as it was employed by Elder in *Children of the Great Depression.* This consists of studying a specific population and determining how they construct their life courses in function of opportunities and constraints that the historical and cultural setting provided them with. The second approach emphasizes social change. It has produced highly interesting pieces of research, such as the effects of the Second World War on people's life courses (see Hillmert, 2005).

The third area of research looks at social differentiation, social stratification, inequality and the life course. This area of research basically concerns the application of the previously described stratification framework to the area of the life course. Accordingly, the key idea is that a person's social position has a significant impact on his or her life course. Hence, this line of research emphasizes, once again, the cultural embedding of the life course. In fact, the mechanisms for this influence are supposedly based on social norms that are represented and adhered to within such social groups. They impose a certain type of normative life course to its members. In line with this idea, a broad focus has been given to linking the structure of the life course with the large categories of social differentiation which are gender, ethnicity and class (Macmillan, 2005, p. 10).

Other scholars focused on specific domains and inequalities. One of the most prominent aspects is educational attainment as a key area of social reproduction (see for example Shanahan, 2000). In Switzerland Angelona and Ramseier (2013) have observed the same dynamics of stratification as elsewhere.

Finally, the fourth main axis of life course research specifically concerns the normative foundations of the life course. In this field, there is a large debate on the cultural nature of the life course. This topic has thus been studied historically in order to determine the stability of the life course over time and place (Marini, 1984) and with regards to normative beliefs such as „the best or „ideal“ age at which to leave school, work, marry, leave the family home, or have children“ (Macmillan, 2005, p. 12). Much research regarding the transition to and the definition of old-age (for example Neugarten, 1996) can be situated in this field.

With regards to the traditional issues of life course research that have been described in this section, this thesis mainly addresses the first three. The next paragraph highlights the interrelation and interconnection between the life course perspective and gerontological theory.

### 2.2.2 The life course perspective and gerontology

The history of the gerontology and the sociology of aging are very closely linked to the development of what is probably best described as a *paradigm*, or a *way of looking*, which is the life course perspective. As Settersten (2006) argues, gerontology *needs* the life course perspective and „great attention to the life course will continue to transform and even revolutionize theories, questions, methods and data in gerontology“ (Settersten, 2006, p. 4).This section will give a brief historical outline over gerontological theory development and will focus on highlighting the important influence of the life course perspective for it.

#### *A brief history of gerontological theory: Acknowledging heterogeneity*

The main reason for the importance of the life course perspective for gerontology, the study of old-age, is that it helps to shed light on important differences among the elderly population. This is in fact in strong contrast with the earliest theories in gerontology, which mainly saw aging as a inevitable, universal and largely biologically and psychologically determined process. In fact, gerontology started out as a „post-Second World War development [when] governments put resources into empirical studies of the consequences of increased longevity: medical services, pensions, housing, retirement, social care, intergenerational relations and what became known as „the burden of an aging population“. It initially grew out of public health and epidemiology. Both disciplines at the time being strongly concerned with the inequalities in health and longevity, a reaction to government's and health-professionals needs to determine factors of ill-health at various stages of life, particularly old-age“ (Formosa & Higgs, 2013b, p. xii).

The earliest attempts at linking these individual biological and psychological processes with the dynamics on a societal level „were [...] found in social gerontology, especially disengagement and modernization theories of aging in the 1960s and the 1970s(see Cowgill, 1974; Cumming & Henry, 1961). The former postulated that physical decline in old age, and the social withdrawal of old people, is inevitable and functional for both individuals and society. [...] These theories focused on individual behavior, but with an eye to social expectations and the greater social good. In contrast, modernization theory was crucial in taking a purer societal view on aging. It examined the status of the aged across cultures and identified how the social changes associated with modernization contribute to the disadvantaged position of older people“ (Settersten & Angel, 2011, pp. 4–5).

In the early 1970s, through the influence of such researchers as Mathilda Riley and her so-called age stratification framework, thinking about aging as a „deeply social process, an interaction of individuals with their social structure as they go through life“ (Settersten & Angel, 2011, p. 5) started to emerge. The sociology of aging slowly started to take shape. Old-age, in this new sociological view, was much more than the result of biological processes, it was believed to be something that is predominantly socially constructed. Similar to other transitions in life, the transition to old-age is by no means universal. In most industrialized countries it is determined by law. The latter regulates until when a person may or may no longer contribute to the economic system. Neugarten (1974) was another researcher who was crucial in this movement. She proposed that given this arbitrary definition of the „elderly“, the resulting population was quite heterogeneous, whereas previously, the elderly population was considered as a generally homogeneous group. She suggested that among the old people, there should be another distinction between the young-old and the old-old. Furthermore, any of these life stages – young-old, oldest-old - may be influenced by certain of an individual's characteristics, as well as by the framing within a particular social environment.

It was around that time in the late 1970s when Elder published his ground-breaking study (Elder, 1999). In doing so he would give a whole new set of tools and principles for scholars wishing to explore variability among the elderly population. It should be noted, however, that the life course perspective is not exclusive to the discipline of sociology and has been applied in the field of psychology under the term „life-span“ (for a discussion of the two concepts see Oris, Ludwig, de Ribaupierre, Joye, & Spini, 2009). The following section will outline the areas where the life course perspective was particularly influential.

*A life course perspective on aging*

As has been discussed, the life course perspective places crucial emphasis on historical context and geographical setting. In more gerontological terms: Elder gives an important framework for the interpretation of cohort effects. More specifically, as Settersten (Settersten, 2006, p. 4) explains, life course research has had important influence on the following general issues that gerontology aims to explain:

- The process of aging in multiple dimensions (physical, cognitive, psychological) and across different social spheres (family, work, education and leisure).
- The process of aging both in terms of growth or the loss and decline of certain capacities.
- Aging as the result of various interdependent trajectories.
- How the aging experience can be influence by earlier life-stages. The life course perspective has also given indications on what kind of processes and dynamics shape these influences.
- How the aging experience is shaped by a person's resources that are themselves nested in a social setting.
- More generally: How aging differs across cohorts, sex, race, and social class groups, generations, families and nations.

Furthermore, Settersten (2008, pp.5-6) also identifies several topics that are particularly interesting, given the presented areas where the life course can give specific insights: Work and retirement, leisure activities, family life, health and illness. This thesis focuses on studying poverty and health inequalities. These are therefore areas where the aforementioned suggestions fully apply: The inclusion of the life course as a further explanatory dimension has great potential for the analysis of these topics.

Finally, some old-age researchers such Berenice Neugarten (1996) even go so far as to claim that gerontology will eventually disappear as a discipline because such a narrow-minded focus on a specific life-stage does not do justice to the main idea of life-long development as captured by the life course approach. Settersten (Settersten, 2006) disagrees with this view, but he does acknowledge that life course analysis will further become an integral part of gerontology and in the way that it studies old-age.

The following section will focus on outlining a debate that has been an important and recurring topic in life course research over the last decade: The debate regarding the *de-standardization* and *individualization* of the life course.

### 2.2.3 The structure of the life course: The de-standardization debate

The basic idea behind these two phenomena is that there has been a profound transition and a reconfiguration of the basic structures of people's live courses over recent decades. In the course of this transition the main driver for life course structures shifted from what can be considered a modern paradigm characterized by a high level of so-called institutionalization and standardization of people's lives towards a *post*-modern paradigm characterized by *de-standardization*, *de-institutionalization* and *individualization.*

To a certain extent, this debate mirrors the discussion that has been presented in the part on social stratification regarding the continuing relevance of class in a postmodern world. The same macrosociological paradigms – a transition from modernity to post- or late-modernity – are employed for the defense or dismissal of these hypotheses.

However, given that the life course is a construct from a multitude of dimensions and thus it is more than just the result of general macro-structural changes - the discussion of the transitioning structure of the life course is a more complex than that.

This section discusses this debate which is of cardinal importance for the empirical part of this thesis. It starts by describing the background of this transition given by modernization, post-industrialism and globalization. Following this, it describes the three basic concepts which are often used interchangeably to describe the transition:de-standardization, individualization and de-institutionalization. In an additional part, the evidence found in Switzerland is presented. Finally, this section will end with a opening of the discussion regarding the nature of events and transitions in light of more holistic frameworks such as structure and agency.

*The influence of modernization, post-industrialism and globalization on the life course*

As Brückner and Mayer (Brückner & Mayer, 2005) explain, the structure of the main course can be seen as having passed through three phases. A first, traditional phase that was in place prior to the 19th and early 20th century was characterized by a high degree of variation in people's lives and a general large heterogeneity. The second phase was that of the modern life course in the 20th century. In this phase, life courses are strongly *institutionalized* as well as *standardized.* Currently, the discussion of the de-standardized and individualized life course regards whether there has a general shift in the structure of the life course towards a third *postmodern* phase. The consequences of this shift are potentially problematic: It dismantles traditional transitions (such as the transition to adulthood), there is a general reversibility and instability of social roles, as well as a decoupling of role trajectories over the life course (Macmillan, 2005, p. 4). To discuss this question, Brückner and Mayer argue that there are mainly three relevant backgrounds: Modernization, post-industrialization and globalization. They can be understood as general macrosociological processes that influence the life course structure.

The first process is thus that of *modernization* (Macmillan, 2005, pp. 14–17)It refers to the shift away from traditional structures that were in place up until the 19th and the early 20th century and which were strongly characterized by cycles of poverty (see the classic work on poverty cycles by Rowntree & Pigou, 1914) and a generally high degree of variability in life course. Driven by the process of industrialization of society and the consequent life discipline it demanded, life courses became increasingly *standardized.* This has been observed for multiple markers for the transition to adulthood including marriage, parenthood, leaving the family home, establishing an own, extra-parental household (Modell, Furstenberg, & Hershberg, 1976) as well as the transition from education to work in the labor market (Hogan, 1978). Generally speaking, Shanahan (2000) argues that „a key aspect of standardization is the general „compression“ of transition markers“ (Macmillan, 2005, pp. 15). Moreover, the previously high degrees of variation in life course patterns were significantly reduced with the expansion of state activities and the increased centrality of certain modern institutions such as marriage.

This is a general tendency which is referred to as *institutionalization* (Anderson, James, Miller, Worley, & Longino, 1998; Revenue, 1994; Kohli, 1985). Besides the already mentioned important influence of modern labor markets in industrialized economies, there are a number of other factors and processes that can be considered drivers towards more institutionalized, more standardized and altogether more predictable life courses (Mayer & Müller, 1986). First, „the expansion of secondary and tertiary education and training created career paths within and between educational institutions [...] securely launching them on employment trajectories“ (Brückner & Mayer, 2005, p. 29)Second, „larger work organizations, strong trade unions, and an increased prevalence of white-collars jobs enlarged the prevalence and length of working lives characterized as „careers“ [thus enhancing] occupational stability over the life span“ (Brückner & Mayer, 2005, p. 29). Thirdly, „the provisions of the welfare state institutionalized new kinds of statuses and events, like sick leave, maternity leave or child leave, and fostered continuity in lives by buffering the impact of income loss due to adverse events like unemployment or illness or old-age“ (Brückner & Mayer, 2005, p. 29). Concerning this point, the connections between modern welfare states and the life course are even more englobing and far-reaching as described here (for a comprehensive overview thereof (see Leisering, 2003). The fourth and final development regards the general extension of welfare states that guaranteed security of income and employment, therefore laying the foundation and promoting marriage and a higher number of children during the baby-boom period (Brückner & Mayer, 2005, p. 29; Gøsta Esping-Andersen, 1996).

In the second part of the last century there was increasing empirical evidence, that this general predictability and „orderliness“ of people's lives seemed to dissolve. This was supposedly caused by the process which Brückner and Mayer (2005) refer to as post-industrialization. In the literature this shift is also often found under the terms „postmodernism“, „late modernity“ or „late capitalism“ (Bauman, 1992; Beck, 1992; Giddens, 1991; Sennett, 2007). Regarding the effects of this transition on the life course, researchers observed „delayed marriage and childbirth, and beyond that [...] the rise of non-marital unions, divorce and remarriage. This was coupled with increasing claims to autonomy and self-realization which further mirrored earlier exits from the parental home independent of the event of marriage“ (Brückner & Mayer, 2005, p. 30). The causes for this transformation are once again diverse. In the sphere of education, authors claimed that there had been a tendency of „inflation of educational credentials“ (Brückner & Mayer, 2005, p. 30) with a large number of highly skilled people competing for a limited number of job openings. At the same time, there has been an important movement by women that led them to higher educational achievements and professional careers (Esping-Andersen, 1999). Furthermore, „All of this [...] occurred in a context of increasing welfare state provisions, continued increases in real incomes, and improvements in the material circumstances of parents, which allowed children to invest more in education, to experiment with private living arrangements and to pursue self-defined goals.“ (Brückner & Mayer, 2005, p. 30). Brückner and Mayer conclude: „It is this curious mixture of value changes, opportunities and adaptive constraints, which fostered the topoi of the „postponed generation“ (Mayer, 1994, 1995), individualized“ or „patchwork“ biographies“ (Beck, 1992; Brückner & Mayer, 2005, p. 30).
The third process and macrosociological context is given by globalization. The observed

main effects are largely the same as in the previously described postindustrialization framework. The main difference, however, lies in their interpretation. Whereas postindustrialization or post-modernity can be regarded as an either neutral or even generally positive increase of variation as a result of emancipation (of women, notably) and an overcoming of traditional structures and values (one might think of the diversification of family patterns). The interpretation emphasizing the globalization framework is much more pessimistic: In this view the observed changes in people's lives reflect the massive influence of globalization that signifies increased international competition, labor market de-regulation and heavy structural unemployment (Mills & Blossfeld, 2005). These developments are paralleled by reforms and cuts in the provision of social security (Esping-Andersen, 1999), notably with „cuts in the levels of unemployment benefits, health insurance, pension entitlements and benefits to unemployed or underemployed youth“ (Brückner & Mayer, 2005, p. 30). The best illustration of this new situation is the transition into the labor-market: Whereas for most people acquiring their secondary education in the last century the logical steps after were to start working and to keep at it for pretty much of a person's life. Nowadays, however, this transition is much less standardized and simple: People might work for a while, then go back to school for further training, would do internships before actually landing – if ever at all – a long-term job (Settersten & Ray, 2010).

In summary, while the transition from traditional life courses towards standardized and institutionalized life courses has been well-documented and is generally accepted in the literature there is still an ongoing debate whether the transition towards post-modernity really exists and if it really signifies the entrance in a completely new paradigm. Notably the interpretation of empirical evidence is strongly contested. The next section specifies the idea of a postmodern transition, notably with respect to various concept that are used to describe it.

*The postmodern transition: Individualization, de-standardization, de-institutionalization*

As Brückner and Mayer (2005) specify, one of the main defaults of the debate is its lack of precision. Several concepts that capture specific changes in the structure of life course patterns are often used interchangeably. Yet, each of these concepts captures different aspects of life course transformations. This section is dedicated to highlight the main composing concepts in order to disentangle what this overall concept of the „postmodern transition“ actually is – or could be. Thus, the following are the basic elements that make up this discussion:

- De-institutionalization (Mayer & Müller, 1986): Strictly speaking, it means the antithesis to the processes of *institutionalization.* As has been described above, the latter „refers to the process by which normative, legal or organization rules define the social and temporal organization of human lives [meaning] stages or states [...] like marriage, education and retirement“ (Brückner & Mayer, 2005, p. 32)Accordingly, de-institutionalization means that such institutional and social norms and regulations are dismantled which in turn gives rise to life

course structures featuring a high degree of variability. A very fitting example would be the transition towards an extra-parental household. As the authors explain, in a standardized life course paradigm this transition was in practically all cases preceded by marriage. Nowadays, this relationship, the institutional framing of this transition by marriage, has disappeared. Starting an individual household is no longer dependent on marriage and follows highly individualistic reasons (Schumacher, Spoorenberg, & Forney, 2006).

- De-standardization (Modell et al., 1976): This refers to the antithesis of standardization of the life course. The latter „refers to processes by which specific states or events and the sequences in which they occur become more universal [...] and their timing becomes more uniform“ (Brückner & Mayer, 2005, p. 32). A typical example for such a standardization is the retirement which in Switzerland is strictly defined to start at 65 years of age for men and at 63 for women. Accordingly, *de*-standardization refers to the fact that the timing at which certain transitions and events happen is once again highly variable. Reconnecting this particular process to the „main components“ that have been described as constituting the life course and particularly, the distinction which between normative and non-normative events, it can be said that the process of de-standardization creates a tendency where normative events disappear and most life events become structurally non-normative.
- Differentiation: The process where the number of distinct states or stages across the life time increases is referred to as differentiation of the life course. This tendency is best illustrated with the sphere of education (see Mayer, 2001). Half a century ago there might have roughly been a distinction between primary and secondary school and thus the educational trajectory was made up of these two states, the educational trajectory today has become characterized by the multitude of sub-institutions and sub-structures such as pre-school, kindergarten, elementary school, secondary and tertiary education (Brückner & Mayer, 2005, p. 33). In line with this logic, the process of de-differentiation would mean that there are trajectories which tend to get simplified. According to Brückner and Mayer (2005) such process is practically unheard of.
- Pluralization: Closely related to de-standardization and differentiation, this concept refers to an increase in the number of states or the manifestations of certain trajectories. This is most often to the sphere of the family. In this area, this concept would include tendencies such as non-marital unions or the increased share of people whose life course is characterized by a divorce.
- Individualization: This concept can be regarded as being the consequence of the two described elements. In a society which is generally characterized by an instability of both institutions and life courses, this puts a lot more pressure on the individual. Here the debates rejoin the previously mentioned debate on the relevance of structures, institutions for the analysis and interpretation of inequalities, versus an anti-class perspective that supposes that inequality is much more situated at the individual level, depending on a person's actions (agency) rather than the surrounding structures. It is for this reason that this interpretation is also called biographization hypothesis and is most often referred to as the "individualization thesis" (Beck, 1992; Layte & Whelan,

2002, p. 213; Leisering & Leibfried, 2001; Whelan, Layte, & Maitre, 2002).

In conclusion, Brückner and Mayer (2005) posit that while these processes are highly related they do not necessarily need to be unidirectional. It is imaginable that there is evidence for a de-institutionalization, yet life courses remain highly standardized. Or inversely, it could theoretically be possible to observe a de-standardization of life courses even though they are still strongly framed by institutions. The second conclusion that the authors offer is that the purely theoretical discussion remains inconclusive and thus, empirical evidence is required to understand the relevance of this supposed postmodern transition.

*Has it really happened? An ongoing debate on the postmodernist transition*

Given the current state of the literature, it must be repeated that the actual existence of this transition is still largely debated. While there may be empirical evidence that can be considered as supporting its existence, there are various authors that contest it or who call for a more nuanced interpretation. In a review on the last decades of theory-building on institutionalization of the life course, Martin Kohli (2007) points towards the observations of new forms of institutionalization, such as new forms of family life, for example.

An interesting outlook and is the broad interpretation suggesting that the situation of stability - of highly stable life courses, stable employment, stable or even continuously rising income levels, strong welfare protection, early marriages, stable family lives, high degrees of social integration at the work place and in the community – represents short and exceptional historical period that was at its peak during the Trente Glorieuses. In this view, the latter was a „Golden Age“ so to speak, that is preceded as well as succeeded by turbulent, instable and unpredictable periods in which people's life course once predominantly feature a high degrees of variability (Brückner & Mayer, 2005).

The analyses that are featured in this thesis will indirectly contribute to testing the relevance of this transition and will shed light on the existence of de-institutionalization, de-standardization and individualization. The following section offers a conclusion for this supposed paradigmatic shift for the structure of life courses by briefly reviewing the evidence from Switzerland.

*De-standardization and de-institutionalization in and around Switzerland*[13]

So what is the evidence for de-standardization in Switzerland? As the outline of the life course literature and the debate regarding de-standardization in this part so far should have conveyed, the answer can by no account be simple. The life course is a multidimensional, dynamic construct. Therefore, the postmodern transition is an equally complex process. However, the main aim in this section is not to give an exhaustive overview of evidence, but merely to have a first point of orientation for the empirical analyses to come. Such a first point of departure is given by Ritschard and Widmer (2009).

In their study, the two authors set out to shed light on the de-standardization hypothesis in Switzerland. Their theoretical framing emphasizes a gender perspective using the master status theory. Moreover, their study focuses on the spheres of the family and professional lives, effectively studying cohabitation trajectories and work-trajectories.

The results suggest that there is indeed evidence for a process of de-standardization in Switzerland. Younger cohorts show a significantly higher variation, confirming the pluralization hypothesis, in their life courses. This applies to both, the family life (cohabitation) as well as to professional trajectories. However, they emphasize that this finding must be nuanced based on their results for gender-differences. As it turns out, for work-trajectories Widmer and Ritschard find that men still have highly standardized life trajectories and that the main changes have taken place for women. As the authors put it: „Women took on their shoulders most of the flexibilization of the economy that has happened since the seventies“ (Widmer & Ritschard, 2009, p. 37). Furthermore, for the sphere of the family, the de-standardization seems to be more or less universal with comparable results for both men and women. Younger cohorts, as the authors claim, show significantly higher variation in cohabitation patterns and more generally, in the transition towards adulthood.

These findings confirm Brückner and Mayer's (2005) results for Germany. As these two researchers conclude: „Our observations from West Germany across half a century show considerable evidence supporting the de-standardization thesis in the area of private lives. Combined with the extant evidence on the rapid spread of non-marital unions before marriage and the rise of divorce, this de-standardization in the family sphere was coupled with some degree of de-institutionalization and a pluralization of family forms“ (Brückner & Mayer, 2005, p. 48)These authors are also much more reluctant to generalize their findings regarding a general confirmation of the de-standardization thesis. They argue that while there might be evidence in the markers for family life, this

13 As far as evidence from Switzerland is concerned, it has to be emphasized that this thesis is associated with the „NCCR LIVES – Overcoming Vulnerabilities Across the Life Course“, hence representing one of the main axis of research that is supported by the Swiss National Science Foundation. Generally speaking, this NCCR is the result of an academic structure that preceded LIVES: The Lemanic center for life course studies (PAVIE) that brought together life course researchers from both the University of Geneva and the University of Lausanne. Hence, a large part of life course research that has been done in Switzerland as well as *on* the topic of life courses in Switzerland can be found in the activity of both LIVES and previously, PAVIE (see Spini & Widmer, 2009).

is by no means a confirmation for a large-scale transition, encompassing all life-domains in multiple western countries.

Finally, and this is a highly important finding for this thesis, both studies find the strongest evidence for de-standardized patterns in the youngest cohorts, approximately born around 1955 and onwards. In the Swiss study, the oldest participants were 45 years of age, which limited the available cohorts to 1946-1957[14]. This finding signifies that cohorts born before are highly susceptible to show very weak signs of de-standardization. Given that the VLV project was mainly concerned with cohorts born between 1907 and 1947, this implies that we are looking at a population which is basically at the crossroad of the described transition. In other words, should the de-standardization thesis indeed hold true for younger cohorts, the generations of people studied in this thesis might be the last to have followed modern, standardized and institutionalized life courses.

### 2.2.4 Life course dynamics, inequalities and social stratification

As has been emphasized previously, the main innovation that this thesis suggests is to combine (or rather: to *extend*) a social stratification analysis of inequalities in old-age with that of a life course perspective. Doing so could potentially provide insights into (causal) mechanisms of social stratification and accordingly, determine pathways, specific structures of people's life courses that lead into specific situations in old-age, notably into situations of poverty or poor health.

So far, this theoretical chapter has outlined both main frameworks that are employed in this thesis – the social stratification framework as well as the life course perspective – and has shown them both to be at a point in time that could be called the crossroads between modernity and post-modernity. For both this supposed shift has far-reaching consequences. For social stratification the main question regards the continuing relevance of this type of social analysis of inequalities in general. For the life course perspective the question revolves around the structure of the life course. Hence, the empirical part in this research will above all give insights into what macrosociological paradigm seems to hold true for the specific generations of people who are studied. Depending on the findings, the interpretations, especially with regards to the life course, might slightly differ. Also, continuing the argumentation developed by Brückner and Mayer (2005), the two need not to be unidirectional. It could be possible that there is a general continuation of social stratification dynamics, yet the evidence for the life course of the same people reveals profound changes that would correspond to a postmodernist interpretation.

Given this truly dynamic theoretical context with both frameworks being on the verge of the age of postmodernism, the theories that can be used to link a social stratification approach with the life course perspective generally fall into two large categories or

14 Cohorts in Widmer and Ritschard (2009) were determined statistically using classification trees that where designed to maximize entropy. The German study used 5-year cohort groups.

corresponding bodies of literature, respectively. The first represents stresses the importance of social structures in both the creation of inequalities as well as with regards to the role that the life course plays in this process. It is typically referred to as a traditional „social stratification framework“ (Vandecasteele, 2011). In contrast to that view, the second stresses the importance of *events* and generally dismisses the influence of social structures. For this reason it is often called *biographization* or *individualization* framework. More generally, this second body of literature is most compatible with the idea of a postmodern transition and the dismantlement of social institutions and traditional social dynamics.

The following section will thus discuss the various theories in relation to their respective body of literature. However, as will be shown in the end, the two are not necessarily in competition with each other but can in many regards be seen as complementary. Also, for certain theories such as Pearlin's stress model, a clear attribution is not obvious since it features both, elements taking into account social structures as well as individual and psychological elements which usually are associated with the biographization framework.

*The life course as result of social stratification dynamics: Determining pathways*

The first body of literature thus focuses on the importance of social structures. Within that view, inequalities are largely the result of these structures. The life course, accordingly, is to a certain extent also the result thereof. Life events – marriage, having children, taking on a job, retirement, etc. - are generally standardized. Within this perspective, there are two notable theories that have come up in the literature: Critical life period theory and cumulative dis-/advantage theory.

The first theory emphasizes the importance of infancy and childhood as *critical life periods*. Epidemiologists, psychologists and sociologists demonstrated the importance of these phases and showed that they heavily affect the trajectories in adulthood (Grossmann, Grossmann, & Waters, 2006; George Davey Smith, 2003). Initial characteristics, acquired at birth or during the first period of socialization, have long-term impacts on the positions individuals might reach during their life. This theory is therefore practically overlapping with the social stratification idea and merely emphasizes the *temporal* significance of the earliest period in the life course. It explains intergenerational social reproduction of status (Grusky, 2001).

The second theory is that of cumulative (dis)advantages (Dannefer, 2003; DiPrete & Eirich, 2006; Ferraro & Shippee, 2009; O’Rand, 1996) Marshall and Bengtson (2011, p. 23) described it as one of the most active areas of theorizing in sociology. It was initiated by Merton's (1968) accounts of the “Matthew effect” (“those who have a lot receive a lot” Marshall & Bengtson, 2011, p. 23). It provided the foundation for the analysis of the interrelation between social status and its dynamics along the life course. The main principle is, as the name suggests, that an initial lack of resources in one area of life – say for example a disease in childhood – will create a dynamic of accumulation

according to which this initial lack will increase over the course of a lifetime. Also, the initial lack of resources in one area of life can have spill-over effects for other life areas. The theory can also be applied to having an abundance of resources in one area – specific talents, etc. - which over the course of a lifetime will increase as well and create benefits for other areas of life. It can be considered as a mechanism that explains social stratification dynamics and again, stresses the importance of the early life stages. Dannefer (2003) summarizes that minor initial differences ultimately result in increased systematic inequalities between individuals due to processes of accumulation over the life course. According to this approach, heterogeneity is at its peak among the "young old" (Nelson & Dannefer, 1992) but not necessarily among the "oldest old" because of the mortality selection that affects the frailest (Oris & Lerch, 2009). The cumulative (dis)advantages approach became extremely popular during the last 10 or 15 years. However, "there is surprisingly little evidence for cumulative processes" and a "wide variety of model specifications remain completely untested" (Elder et al. in press).

Hence, this body of literature emphasizes the importance of social stratification in the construction of inequalities. Should this theory hold true, the analysis of trajectories should reveal *pathways*, specific patterns in the life course that are associated with specific social classes and as a consequence, with specific outcomes in terms of inequality in old-age.

An issue that is often neglected in the literature is that this framework does not exclude the occurrence of disruptive non-normative events. A typical example would be having an accident which renders a person physically handicapped. Obviously, such an event is highly non-normative and will have significant repercussions on this person's further life trajectory. In all likelihood, this person becomes more at risk for poverty, the handicap might have an effect on this person's marital, family and residential trajectory. Having such an accident might be related to social position, for example because people of lover classes more frequently work in manual labor professions where the risk for such accidents is higher (De Veirman, 2013). Moreover,besides such increased relative risks for certain classes there is a certain random probability for the occurrence of certain negative life events that is universal and completely independent from class-membership. Should this thesis reveal both, the impact of certain life events and a continued impact of class at the same time, this specificity could be an important way of explaining such findings.

*The importance of life course events: Biographization*

Contrasting the previous framework is an almost exclusively event-based conceptualization of inequalities. This body of literature consists, above all,of one framework that is often called biographization or individualization theory.

For this event-based approach to inequality, one of the key works is given by Leisering and Leibfried's (2001) publication in which they introduced the term "biographization". As has been evoked before, the main grid of interpretation is one of post-modern society.

This encompasses a dissolution of traditional structures on a large scale including changes in the structure of families, profound changes in the work-place (flexibilization, rationalization, high-degree of competition, deregulation and precarisation of working conditions), a reduction in welfare-state support (cutting back of unemployment, disability and overall-social support contributions). Parallel to this or perhaps as a reaction to these structural changes, there is a large range of cultural and value-oriented change: Since there no longer are fixed institutional and normative trajectories, this places a lot more importance on the individual and on its actions. For that reason this perspective is often called the “individualization” thesis due to the fact that negative – as well as positive – outcomes are considered to be much more dependent on the individual. In terms of the life course, this position is highly compatible with theses of de-standardization, de-institutionalization, pluralization of the life course. It can be said that there no longer exist discernible key periods and there is a general decline in normative events and a rise of non-normative and potentially disruptive events. The risk for negative outcomes – poverty, health problems, depression -is constant all along the life course as it depends on various triggering events (losing a job, divorce, etc.) that can occur in a highly varying manner.

*Pearlin's stress theory*

An additional body of literature is given by stress theories (Pearlin, 2010). It is difficult to classify it in either the first or the second body of literature. In this theoretical framework, life events are always considered as singular events whereas each one has a certain degree of stress that it triggers. An individual will then have to cope with such stressors using various coping mechanisms. Coping mechanisms depend on both cognitive individual, economic as well as social resources. In this framework, negative life situations are strongly the outcome of certain life-events but also the result of lacking resources to cope with them – a lacking “resilience”. Thus, to a certain degree stress-theories incorporate elements of the first framework in so far that depending on a person's social position the capacity to cope can be higher or lower. Finally, this view does not strictly require a framework of postmodernist society. However, the link with the latter can be made with the fact that in such deregulated postmodernist risk-societies there is a general rise of constant structural stress that indirectly reduce people's capacity to deal with negative life events(Marshall, 2011, p. 11)

*Towards an integrated model of the life life course*

It should be noted that for many authors (Layte and Whelan 2002; Vandecasteele 2011; Bak and Larsen 2014), the presented bodies of literature are not necessarily opposing but can be considered as complementary: It is imaginable that even in an uncertain, post-modern world the “traditional” dynamics of social stratification remain important all the while there is a rise of risk and vulnerability with the occurrence of specific life-events. Especially, the interactions between them can provide interesting insights. As an illustration: Working on Europe and old-age poverty, Vandecasteelle (2010, 2011)

finds that childbirth has a higher poverty-triggering effect on lower social groups. In contrast, losing a job is a more universal risk for poverty and finally, in line with previous research, partnership dissolutions affect women more strongly than men. In the context of this thesis that looks at old-age poverty and health inequalities within the elderly population, such an integrated framework combining these approaches is highly relevant since looking at this population cannot be disentangled from looking at individual's life courses and their influence on the situation in old-age (Cutler, 2011). A meaningful application has to consider both frameworks potentially coexisting next to each other.

There are two propositions for a more general encompassing framework that incorporate all the aforementioned elements and dynamics. Settersten and Gannon (2005) suggest a framework that is composed of "structures and agency" claiming that for a long time there has been either research that accentuated structures but neglected agency, or the other extreme, research that has tried to conceptualize people's lives as being the result of "agency without structures". They conclude that life course research has to consider both.

Angela O'Rand (O'Rand, 1996, 2001, 2006) breaks this relationship between inequalities, social stratification and the life course down to the following even more synthesized framework: Her starting point is *life course capital*, which she defines as „interdependent stocks of resources across life domains that are accumulated and/or dissipated over the life course in the satisfaction of human needs and wants" (O'Rand, 2006, p. 146). With this capital, a person then faces various *life course risks*, which she defines as „differential likelihoods of exposure to adverse conditions (disadvantages) or structural opportunities (advantages) for the accumulation, protection, or depletion of forms of life course capital" (O'Rand, 2006, p. 146). The interplay of these two, capital and risks, creates the *life course*, which is the interdependent and variable sequence of social statuses across life domains (education, family, work, wealth, health, leisure, etc.) over the life span.

The following section describes the integrated model that is adopted in this thesis and that is strongly influenced by the synthesized approach suggested by O'Rand.

### 2.2.5 A unified model of social stratification and the life course for old-age inequalities

All the previous elements can now be synthesized into a formulation of an overall analytical model. Figure 2 shows a graphical representation of this overall model.

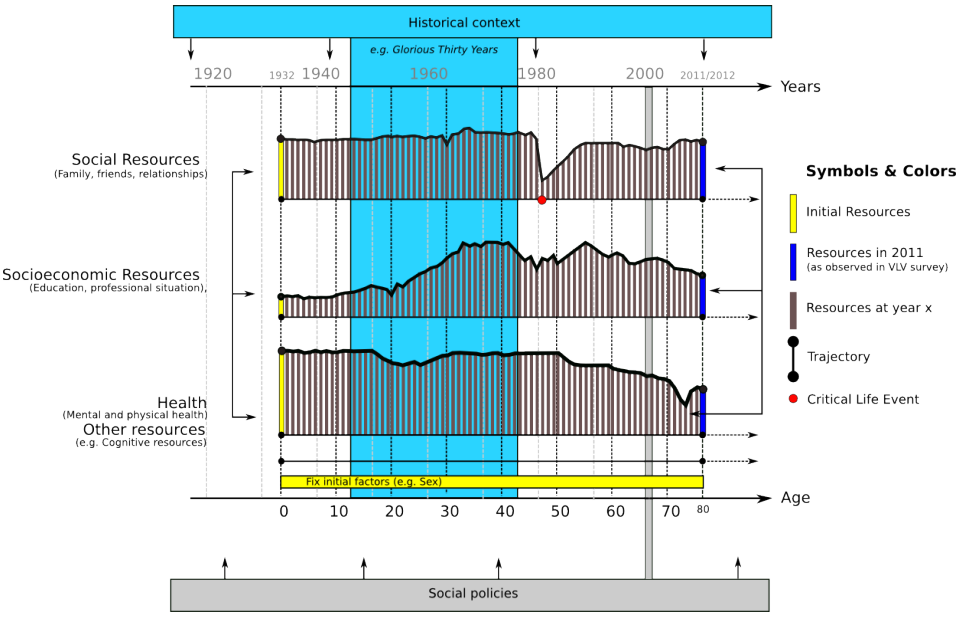


*Figure 2: Integrated theoretical framework*

Figure 2 basically shows how an individual is conceptualized in this thesis in light of the outlined framework(s). The individual in this figure is born in 1932. In the upper part of the figure, a time-line represents the historical time. The counter-piece of this historical time-line is found on the lower half of the figure, representing the person's age as it evolves in function of time. Hence, it shows how this person's life is embedded in history. In 2011 this person is interviewed for the VLV survey at an age of 80 years.

Firstly, we focus on social stratification and class-theory. The three main curves graphically represent different dimensions or resources of this person's life. It is important to note that they are not isolated but they are strongly interconnected; they influence each other and there are significant spill-over and contamination effects from one dimension into the other. Such effects can be both positive as well as negative. The first in the utmost part of the figure represents this person's social life (all the events, stages and transitions regarding the social sphere). The second captures this person's socioeconomic resources and finally, the last, lowest, one represents this person's health. The yellow bar at the very beginning of each of the graphs represents the initial resources that this person possessed at the beginning of his or her life. The dark blue ones on the very right side of the graphs represent the actual resources that this person disposes of at the time when he or she is interviewed in the VLV survey. Also in yellow there is a bar that remains constant along all of this person's life. This bar regards factors that remain unchangeable such as sex or ethnic background and might possibly influence on this person's resources all over their lifetime. The main postulate of social stratification is that there are social characteristics that a person disposes of, that will influence or even determine the levels of resources that this person has at the moment

when he or she is interviewed in VLV. These factors can be race, sex or, most importantly, class. The class theory in particular posits that class is given at the beginning of life through the social origin of one's parents. In the remainder of this person's life, the available resources at any given point of time are always a direct result of class, of this characteristic at the beginning of life. Obviously, there are certain retributive policies that intervene with these characteristics. These dynamics of intervention are depicted in the lower half of the graph in gray. The influence can be in the form of social welfare or social insurances, for example. The analysis whether inequalities in the economic dimension (poverty) as well as in functional and mental health are really dependent on class (as measured at the beginning of life) is the core hypothesis of this thesis. Furthermore, according to a historical-comparative perspective, the persistence of such social stratification and class-dynamics across time will be tested.

Secondly, this general framework is extended with the introduction of a life course perspective. The first element to note is that the latter emphasizes the dynamic nature of resources. In this view, the person is interviewed in 2012 and the observed resources and inequalities (in dark blue) it possesses at that moment are the result of a life-long dynamics. The second key element that is considered is the historical framing. Perhaps one of the most influential historical periods in the second half of the 20st century is given by the three decades following the second world war during which there has been a trend of important economic growth. This period has created highly favorable conditions for the accumulation of (economic) resources. In the specific example of the person illustrated in this figure, it can be seen that he or she has been affected (most likely at least) by the glorious thirty years from the age of 12 until the age of 42, approximatively. This framing corresponds with the age at which most people go through the transition of labor-market insertion: Basically, when people start working and pursue careers. Given this framing, the likelihood of a positive effect of the historical period on this person's professional life is quite high. This historical embedding will be particularly important to consider for the analysis of different cohorts and in the explanation why some perhaps might be better off than others. In a more applied perspective, this part of the analysis will then employ specific events that characterize certain trajectories – marriages, relationship dissolutions, etc.- to test whether they explain dynamics of social stratification (causal links) or whether they have an important impact on inequalities in old-age regardless of stratification dynamics (biographization hypotheses). Also very important in this regard are certain critical, non-normative and disruptive life-events such as the loss of a partner by death. The latter element is depicted in the graph with the red dot that occurs around the age of 46 and which clearly has a strong impact on the resources in that area of life.

With this general framework defined, the next step consists of applying it in empirical analyses. The theoretical foundations of such an operationalization are discussed in the following section. The straightforward, hands-on application in the empirical analyses is then described in the following chapter.

### 2.2.6 Operationalization of the life course framework

*Two cultures of life course data analysis*

With regards to the operationalization and the application of the aforementioned framework in empirical data analysis (empirical „life course analysis“), Billari (2003) identifies three main angles that have emerged: „Life courses analysis has been defined as the statistical analysis of data on the timing of events (when do events happen?), their sequencing (in which order to events happen?), and their quantum (how many events happen?)“ (Billari, 2005). In focusing on each of these thee angles of analysis and keeping in line with the principles of life course research, Billari argues further that life course analysis should thus include the possibility to analyze the timing, sequencing and quantum of events as depending on the elements of individual-level human development, social relations as well as location in time and place.

With these main angles of analysis in mind, the same author (Billari, 2005) explains that there are two cultures according to which the actual analysis has been carried out. Each of these two approaches emphasizes different aspects of the life course framework and has different epistemological meanings. Also, these two distinct approaches mirror a debate that has been going on in statistics (Breiman, 2001).

The first culture is what Billari calls the „event-based“, „causality“ culture. In the statistical debate this position is referred to as the „data modeling culture“. This culture emphasizes specific events as the cornerstone of their analyses. It is based on the underlying hypothesis that the observed data occur based on a stochastic data model. By exploiting this property, researchers following this culture rely on statistical modeling techniques known as *event history analysis* to test particular hypotheses regarding the influence of covariates – internal or external to the life course – on the outcome of the specific event in question.

Opposed to this, the second culture is what Billari as well as Breiman (2001) call the „algorithmic and holistic culture“. Unlike the first approach, the second does not specify any particular underlying model that generates the observed data. Also, it does not restrict the analysis on a singular event but looks at the whole life course and its composing trajectories in multiple areas of life. On a more technical level, the second relies on methods of sequence analysis or, in more general terms, methods of *data mining* (for a more technically oriented discussion of the two cultures see Ritschard & Oris, 2005). Thus, this second approach can be regarded as being a data-based *exploratory* way of analyzing the life course, as opposed to a hypothesis-based *explanatory* approach in the first.

Both of these approaches have been criticized and defended by their respective authors. The main reproach that is made towards the first culture, the one that prioritizes data-modeling, is that it has led to an overemphasis on statistical models and in the process of doing so, has generated irrelevant theory and questionable scientific conclusions. Finally, critics believe that it has kept researchers from moving on to new

exciting problems. In defense of this approach numerous authors have argued that on the contrary, an overemphasis on data – on singular events in particular - as suggested by the second approach leads to irrelevant findings: The starting point of scientific analysis should not be data but a question or a scientific hypothesis. Scientific research should be focused on unraveling causal links using statistics not on describing data regardless of theory.

Billari (2005) concludes ultimately the discussion is not about finding the better method but to outline the strengths and advantages, as well as the shortcomings and more problematic aspects of each. Ritschard and Oris (2005) echo this conclusion of a complementarity rather than an opposition of the two cultures.

This thesis employs both approaches. For the analysis of life course data it prioritizes the second culture by employing sequence analysis – for example for professional or residential trajectories. In other areas, for example for relationship trajectories this thesis focuses on specific events: Relationship dissolutions the loss of a partner by death. These events are then integrated in the analyses using statistical modeling, hence reflecting the first approach. However, this thesis does not feature any time-dependent modeling as is suggested by survival- and event-history analysis. The latter is more useful for research questions that specifically look at the timing and duration of certain events or states. This thesis is more about the impact of whole trajectories and specific events and thus the latter is not a useful approach to take.

In cases where specific events are considered, this thesis has aimed to determine whether these events can be regarded as being non-normative and disruptive events, this is done either by referring to the literature – the loss of a partner, for instance, is clearly documented as being a non-normative and negative life event – or based on a data-related classification. The latter has been used to determine the nature of the birth of a first child: Within a specific age-interval the event was considered as normative and outside that interval it was considered a critical and potentially disruptive life event. This data-oriented classification is quite a common approach in social demography (Levy, 2005).

The specific literature for critical life events and specific life-trajectories in relationship to their induced risk for the creation of inequalities – poverty, functional health problems or depression in old-age is described in the following three parts: Part 2.3 does this for poverty, part 2.4 for functional health and depression.

### 2.2.7 Summary: The life course and the construction of inequalities in old-age

Parallel to the last part on social stratification, this subsection summarizes the main positions that have been elaborated in this part on the life course. These elements will be turned into hypotheses at the very end of this chapter.

- The life course perspective offers a dynamic analytical framework to people's

living situations and social inequalities in particular. It can be defined as the sequence of age-graded events and social roles that are embedded in the social structure and in a historical context.

- Life course analysis focuses on trajectories (whole sequences of events and statuses), life-stages, transitions and events.
- There are six key principles that are put forward to studying the life course, three of which are most relevant for this thesis: The historical (cohort effects), geographical (cantonal differences) and social (class) contexts of life courses; human agency (as ways of explaining and interpreting events that are the consequence of a person's individual choice) and finally, the focus on life stages (which will be applied by testing for the impact of specific life stages and the events that occur within them).
- The life course perspective has been proven a key component of gerontological research and notably in explaining variability and social inequalities. This supports the choice for this method as a key component of the theoretical framework of this thesis.
- There is an ongoing debate regarding the structure of the life course given the (equally debated) transition towards post-modernity. The literature identifies five interrelated concepts of changes in people's life courses: de-standardization (the decline of normative ideal-typical life courses that are adhered to by a majority of the population), de-institutionalization (the decoupling of people's life courses from institutional settings including marriage, social welfare, etc.), differentiation (the increase of states that characterize a specific dimension of life), pluralization (the rise of distinct trajectories in life domains) and individualization (given the dissolution of institutional and normative framings, the life course is much more the result of individual agency).
- Evidence from Switzerland suggests signs for de-standardization but more testing is required to prove the postmodernist transition hypothesis.
- With regards to the construction of inequality, there are two main bodies of literature: One emphasizing the importance of social structures and thus being in line with a social stratification and class framework. The second is a more postmodern and event-based framework emphasizing the impact of negative events on the triggering of inequalities and negative life situations.
- The application in empirical analyses can either be done focusing on a event-based modeling approach or on a more data-based, holistic, exploratory approach. This thesis inscribes itself in the latter.
- This thesis will consider trajectories (professional, residential) as well as different events (loss of a partner, relationship dissolution, birth of first child, retirement timing).

## 2.3 Poverty in old-age and the life course

I have so far outlined the main global framework that will be tested in this thesis. This has been done in a somewhat abstract macrosociological perspective. In this section as

well as the following one, I will focus on specifying this global framework to the actual empirical dimensions that are studied here: Poverty and health inequalities. In doing so I aim to consider previous research which has attempted to contribute to a similar question. Besides those obvious elements of literature, however, I also consider the „micro-“ mechanisms, particularly other factors outside of the social stratification framework and life course perspective, that have been identified as having an impact on any of those measures. In fact, in order to disentangle the dynamics among empirical results and to be able to interpret what can be attributed to social stratification dynamics and what to life-course events, it is necessary to identify the various other factors of influence on poverty in old-age. Basically, this part establishes an analytical model for the description of poverty taking all the previous dynamics into account and extending it with the most relevant additional mechanisms.

I will start with a general comment regarding the specific nature of poverty in the elderly population (2.3.1). Following this, I will describe the institutional setting of old-age pensions in Switzerland since they are the primary source of incomes for elderly people (2.3.2). Moving on, I will describe the various factors (2.3.3) that have been found in the literature as having an effect on old-age poverty. Part 2.3.4 will review the literature regarding causal life course factors.

### 2.3.1 Conceptualizing poverty in old-age in Switzerland: Preliminary questions

When working with the concept of poverty, one of the main preliminary questions to ask is how it is measured. There is a considerable and still ongoing debate regarding this issue and multiple approaches have been suggested (Haveman, 2001). I am aware that when studying poverty, there are numerous objective and subjective dimensions which are associated with low levels of economic well-being and that they interact together. Poverty, obviously, is a multidimensional phenomenon (Henke, 2013; Pilgram & Seifert, 2009). However, I do not consider this ongoing debate in this thesis and employ a simple absolute poverty-line approach[15]. The specific properties of this approach are described in the following chapter regarding data and methods.

The second preliminary question regards the specificities of poverty when studied in the elderly population. For most people living in Switzerland, reaching the age of 65 signifies the entrance into retirement. When focusing on this particular population – the retired or “older” population – the effects of selection should be kept in mind: Due to the higher mortality of people in lower socioeconomic groups, this means studying a population of survivors, especially when considering the higher age-groups (Duvoisin & Oris, 2013; Menthonnex & Wanner, 1998; Oris & Lerch, 2009). Most importantly, reaching retirement also implies a shift in terms of income sources. Usually, a retired person's income no longer depends on work but turns towards other sources. In most cases, this entails a form of pension. Here, another key aspect of this thesis becomes relevant: The study of people living in a Swiss context and thus relying on the Swiss

15 This issue forms the core of the PhD thesis of Julia Henke. Just as this thesis hers is also elaborated as part of the CIGEV and NCCR LIVES research group.

pension-system. In fact, with this described shift in resources, old-age poverty is different from that in the active population: Rather than a momentary life-situation, it can be regarded as a permanent and of a more structural nature. Simply put: Analyzing old-age poverty is also to a certain extent the analysis of institutions which frame life courses, alleviate or discriminate based on specific individual characteristics. In order to adequately consider this specific institutional setting, the following section will describe the specific institutional context in Switzerland.

### 2.3.2 Institutional setting: The Swiss pension system

In this part, the aim is to identify the mechanisms of accumulation and redistribution in a complex pension system with its three main components, governmental, professional, and private funds, which are usually referred to as the three pillars.

*The 3 pillar-system*

The institutional setting of the Swiss welfare state is quite unique with its so-called three-pillar structure. According to Bonoli and colleagues (Bonoli, Bertozzi, & Wichmann, 2007) it is often cited as an example of a well-performing system among OECD countries. It is, however, also the result of a series of cohorts having spent most of their professional life in an economic upswing (Wanner and Gabadinho 2008). At the same time, there is evidence that the Swiss system also has its weaknesses. According to the Swiss constitution, the most central task that old-age social welfare and the pension system have to carry out is to prevent people from falling into poverty and to enable an existence in decent living conditions. That objective is not achieved. Estimates on current poverty rates among retired people are highly dependent on the data sources and methods used and range from 10 up to 20 percent (see the following chapter where poverty rates are discussed in detail). These numbers show that old-age poverty in Switzerland is a phenomenon that is by no means negligible and that an analysis of its underlying dynamics and causes needs to be a matter of importance on the political agenda. Given this context, the focus of this thesis on the root causes of poverty along the life course could help to shed light on the functioning – or malfunctioning - of the Swiss welfare state in general.

At the core of the Swiss pension system is the first pillar, the AVS, the old-age and survivor's insurance. It is universal in that it provides every retired citizen who has spent his or her professional life in Switzerland with a basic pension varying from 1’200 sFr. up to 2’450 sFr. (in 2012.). It is a system of solidarity between the rich and the poor in so far that people contribute a fix percentage of their work income, whereas the resulting pension has a set upper limit. Without going into too much technical detail, it can be said that the amount of AVS pension is calculated based on the number of years over which a person has contributed to this system and the amount of the contribution (Bertozzi, Bonoli, & Gay-des-Combes, 2005b). The AVS pension is supposed to cover the "basic vital" living expenses and can thus be considered the main tool in poverty prevention - in

fact, the amount of 2’450 sFr. roughly corresponds to the poverty line in Switzerland.
To ensure a living standard that goes beyond basic needs, people have to rely on the second and/or third pillar. The second pillar is given by professional pension funds, is maintained by employers and is mandatory for all employed workers[16]. It is designed to complement the AVS and should permit people to maintain an adequate living standard, guaranteeing roughly 60% of the income before retirement. This pillar is based on the principle of "capitalization", meaning it is a sort of "mandatory saving". The amount of savings determines the amount of pension in old-age (Bertozzi et al. 2005). Hence, it is clearly a system that benefits higher paid positions, discriminates against low-paid workers and penalizes any sort of interruption of formal work, for example in cases of family work, disability or unemployment. It was introduced as late as 198 so that it can be said that the oldest generations were more at risk of poverty, even if they had a complete professional career, simply due to the fact that the three-pillar system – which should enable a sufficient full pension at the age of retirement - was only established in the middle of their professional life (Wanner & Gabadinho, 2008).

The third pillar depends purely on people's individual initiative and can include life insurances or other forms of financial investment (for a comprehensive overview over these sources see Pilgram and Seifert 2009).

Finally, if the amount of basic pension is compromised and the pension from other pillars is either non-existent or simply does not reach an amount that is beyond the absolute poverty line, there exists an additional source of revenue called "complementary welfare" ("prestations complémentaires"). Basically, these are the equivalent of social welfare for the age of retirement. The maximum amount thereof enables to complement a minimal AVS pension towards its maximum of 2450 Fr. per individual per month[17]. However, complementary welfare is not automatically available but a person in need has to officially request such financial aid.

*Institutional loopholes for poverty*

Against the backdrop of this institutional framework, the pressing question to ask is how come there still remain a significant number of people in old-age who find themselves below the poverty line. Theoretically, the structures of social security in Switzerland should not allow such persistence of poverty. As it appears, there are three main mechanisms that could be identified as to explaining why poverty persists nevertheless.
The first concerns cohorts that have lived the majority of their work-lives in a historical period where the described social security systems had not been installed. Coherently with Paugam (1991) and Guggisberg et al. (Guggisberg, Künzi, Dubach, & Hüttner, 2007), it can be argued that this concerns people in higher age-groups who accumulated insufficient pensions and do not benefit from complete rents. To a certain extent this group of cohorts or groups with incomplete rents can be completed with the cases of

16 With the exception of employed with a low level of activity. Also, independent workers contribute only on a voluntary basis.

17 For a comprehensive overview see http://www.ahv-iv.info

women who suffer from the negative effects of a divorce or the loss of a partner by death. Even though about a decade ago major adjustments have been made to the Swiss pension system (notably the AVS) to account for such exceptional situations that discriminated women beforehand, there might still be cases where the negative scenario played out prior to the adjustments: Scenarios where women lost their husband who was the main breadwinner and in the process lost the majority of their AVS-capital, thus leaving them empty-handed.

The second mechanism would be that people who would have the right to complementary welfare do not request for it. This could be linked to informational biases (people simply do not know that complementary welfare exists or that they are eligible for it). Such informational biases could be correlated with educational levels or immigrant status – the latter population possibly having incomplete knowledge of the Swiss pension system and of complementary welfare structures. Or, this could be a interpreted as a social stratification mechanism: People might simply be ashamed to ask for help.

The third structural explanation is given by particular living circumstances that create a situation where monthly incomes are so low as to be situated in poverty and at the same time, the possession of real estate objects that render them illegible for complementary welfare. A typical example hereof would be the following scenario: A retired couple resides in a large house. They are alone in that house because their children have moved out long ago. As long as they rely on two rents, they have no problems to maintain the house and paying for the various expenses that this requires. Now the following happens: The husband suddenly dies. The immediate implications of this are that his monthly rent is lost and is replaced by the much more modest widow's rent. Suddenly, with this reduction in monthly incomes and with the continuing fixed costs of maintaining the house the woman might find herself with such a small amount of monthly income as to be situated in poverty. However, in this scenario the woman is not eligible for complementary welfare because the house represents a major object of (hidden) wealth. Theoretically, she would be forced to sell this house and move into a more modest housing in order to qualify for complementary welfare. It is possible, however, that the woman is at an age where such a major residential change is no longer feasible – effectively locking her into a structural trap where she suffers from poverty but does not qualify for additional governmental financial help. This mechanism has been one of the aspects that have resulted from qualitative interviews with various social workers and have been documented by Pilgram and Seifert (2009).

In summary, it has to be emphasized again that from a strictly institutional point of view the persistence of poverty in old-age should not be possible. The fact that it does can be regarded as a failure of social security systems in Switzerland or even more pessimistically: proof for the discriminatory role of governments in capitalist societies confirming the Marxist postulate that governments and governmental institutions are part of the structure that creates inequalities (Estes, 1998, 2011). This framework along with these possible explanations and interpretations of institutional mechanisms that could be behind the persistence of poverty, has to be retained for the interpretation of future

results.
The following section addresses the question of the persistence of poverty further by reviewing the literature on this topic. It will focus on factors that have been identified as being associated with poverty in old-age.

### 2.3.3 Factors of poverty in old-age

Generally speaking, most findings regarding old-age poverty – as well as poverty in general – are coherent with a social stratification paradigm. More specifically, class-differences have been documented, but more often theoretical frameworks have focused on gender differences, ethical or racial discriminatory dynamics or on cohort differences, thus prioritizing a larger social stratification framework than a narrower class-theory perspective.

More specifically, groups that have been identified as being particular high at risk of poverty are lower classes (with lower education and skills), people with disabilities (or health problems in general) as well as migrants[18].

Furthermore, as has already been evoked, practically all studies on old-age poverty in Switzerland find women significantly more affected (Pilgram & Seifert, 2009; Wanner & Gabadinho, 2008). The evidence found in Switzerland corresponds to the rest of Europe: Vlachantoni (2012) reviews the current literature on financial inequality and gender in older people and finds strong evidence for gender inequality all across the EU-27 countries. She posits that these differences result from "the combined effects of women's atypical life courses, which include interrupted employment records and periods of care provisions, and the fact that pension systems have generally been slow in mitigating 'diversion' from continuous and full-time working lives" (Vlachantoni, 2012, p. 104). As previously pointed out, however, certain gender inequalities have been addressed in the latest adaptation of the AVS system (10th AVS revision in 1997) which marked the introduction of mandatory contributions even for women who are not formally active, for example. This issue will be particularly interesting to confront with the available data, as will be carried out in the following parts of this thesis.

With regards to cohort differences, the main rationale has also already been explained: Older cohorts could show increased poverty rates due to the fact that they had not yet been protected by a fully developed old-age pension system during the time they were professionally active (Guillemard, 1996; Paugam, 1991a). Lalive d'Epinay and colleagues confirms this thesis for Switzerland and also emphasize the importance of social security systems in the prevention of old-age poverty (Lalive d'Épinay et al., 2000, p. 79)however, the cited findings date back almost two decades. It is thus crucial to update these findings in light of recent developments. On the other side of the coin, research has also shown that other cohorts in Switzerland have benefited from

18 In the words of Nolan and Marx in their contribution to the *Oxford Handbook of Economic Inequality* : "The types of individual or households seen as at particular risk [for poverty] include those with low levels of education and skills, the low paid, [...], people with disabilities, […] ethnic minorities, migrants and refugees" (Nolan & Marx, 2009, p. 326).

particularly beneficial historical dynamics, particularly with regards to the *trente glorieuses* and people whose professional careers have been influenced by it (Wanner & Gabadinho, 2008).

One of the most basic factors that has an important impact on poverty is that of household composition. The underlying rationale being related to economics of scale – it is more efficient to live in a multi-person household since a large number of fixed costs that are associated with having an apartment or a different type of housing can be divided between multiple people (Haveman, 2001). Budowski and Suter (Budowski & Suter, 2002) studied living arrangements in a gender perspective and find that it does have a significant impact on poverty, especially in combination with the life courses of single-mothers.

A factor that is related in a similar way to the previous one is that of living in a relationship with another person and more importantly, the social position of the partner. In fact, in a relationship or in a household with people of different levels of social capital, it is often the person with the higher capital that has a more pronounced impact on whatever phenomenon that is studied. An illustration hereof is given by Jaffe and colleagues who focus on exactly that framework, individual, household and even neighborhood socioeconomic status in the context of mortality (Jaffe, Eisenbach, Neumark, & Manor, 2005). For this reason, this thesis will also test for the effect of *household economic status*.

Another related factor is marital status. As Lalive d'Epinay and colleagues (Lalive d'Épinay et al., 2000) have shown, in 1994 widowhood as well as divorce were strongly associated with poverty in old-age. A likely explanation for this finding are loopholes in the pension system – notably in the AVS structure – that have since been addressed (Wanner & Fall, 2012). Nevertheless, this factor will also be controlled for in the analyses.

With regards to the institutional framework that has been described in this part, one important factor besides education (which will be *the* main variable of interest as has been pointed out so far), and cohort differences and the analysis of (incomplete) professional trajectories is that of homeownership. The reasons for this have been described in the section on the institutional settings. In that part we have seen that homeownership can, in conjunction with the loss of a partner, be an element of exclusion for complementary welfare and thus a factor for poverty. This trajectory is also identified, as has been evoked previously, by Pilgram and Seifert (2009).

A further dimension of poverty and poverty in old-age is the nexus between rural and urban areas. Lalive d'Epinay and colleagues (2000) found that in Switzerland there is a continuing and significant difference between Geneva and Valais or urban centers and rural regions with the latter clearly remaining behind in terms of economic well-being. This confirms theories of rural poverty (for example Milbourne & Doheny, 2012). Again, the problem with that study is that the results are almost two decades old and an updated description is required. Interestingly, recent advances in the literature regarding

the concept of *urban poverty* could be cited in this regard (Chamhuri, Karim, & Hamdan, 2012; Keels, Duncan, Deluca, Mendenhall, & Rosenbaum, 2005). The rationale behind these theories is that macrosociological changes create a dynamic for cities to become centers for global capitalism and the associated financial service industry. Arguably the most famous piece of work in this regard is Saskia Sassen's global city theory (Sassen, 2001). As a result, there has been a double-tendency between economic growth and at the same time, an increase of urban poverty resulting from people who work in non-financial professions and who might find it increasingly difficult to afford the expensive life in cities. This raises the general question of growing old in cities and urban areas (Phillipson, 2011) or aging in the context of globalization (Estes & Phillipson, 2002; Phillipson, 2013).

All of the aforementioned dimensions will be empirically tested in the analyses. This will be done with particular regards to the stratification dynamics. Hence, the question that will be the focus in a first part is to determine whether some of these factors *mediate* social stratification dynamics. In a second phase, the thesis will explore the impact of life course events and life course trajectories both for the influence on poverty in itself and for the effect they have on social stratification dynamics – the relationship between class and poverty in old-age. The following section will synthesize the research that has been carried out in that regard.

### 2.3.4 Life course risks for poverty

Based on the outline of the Swiss pension system, it can be seen that it might discriminate against people with deviant work trajectories. It does so against lower social positions and diversions from "standard" work-trajectories. The mechanisms of capital accumulation, especially in the second and third pillar, clearly penalize specific social classes such as immigrants who did not pursue all of their professional careers in Switzerland. This is equally true for women who, especially in the older generations, often focused on informal work within the family. In other words, personal choices for one's biography and specific events - like stopping to work to take care for one's children, or a divorce, for instance - may have a strong impact on financial resources in retirement, at least based on an analysis of pensions-system structures. More generally, a growing body of literature posits that today these trajectories and events might be the root causes for poverty (Vandecasteele, 2011), thus opposing the traditional idea that poverty is the result of processes of social stratification. It reflects the view that in a postmodern world people's lives have become more "liquid" (Bauman 2013), meaning they have become less structured and predictable, less standardized, less protected by traditional institutions and therefore, risk and uncertainty are believed to be the most influential aspects in today's western industrialized societies (Beck, 1992).

Accordingly, there have been numerous attempts to test this paradigm and show poverty to be a life course process rather than a result of traditional social stratification dynamics. Notably, Vandecasteele (2011) has tested the individualization and biographization hypothesis in comparison with social stratification. She found that some

critical life events such partnership dissolution or job-loss affect people from all social classes universally, thus finding evidence of this new paradigm. However, there are yet other areas in which Vandecasteele finds differential effects depending on social class. This could be regarded as a combination between stratification dynamics *and* critical life events as poverty triggers. For Switzerland, Budowski and Tillmann (2006) set out to study the persistence of poverty in the general population. In terms of theoretical framing, they opposed class-theory, cumulative disadvantage and individualization theories. They find the results somewhat inconclusive but claim that social stratification seems to be the most robust approach. In general it can be said that evidence clearly dismissing the social stratification framework in favor of biographization and individualization hypotheses is yet to be delivered.

Having briefly reviewed the literature for the social stratification paradigm of poverty in this part, this section will review the evidence for a second type of framework which mainly regards poverty as the evidence of life course dynamics and aspects. The following list summarizes the elements that have been identified as particularly linked with poverty and poverty in old-age:

- Professional trajectories: Given its obvious ties with old-age pensions, the center of interest in terms of life course risks has to be given to professional trajectories and within that, especially the structure of employment-disruptions. Vlachantoni (2012) for example, emphasizes that a large part of gender-related income inequality in old-age is due to such disruptive and incomplete work-trajectories. For this reason they have to constitute a main pillar of the life courses analyses found in this thesis.
- Family events: Another area which is often attributed as having a poverty triggering potential is that of parenthood. Vandecasteele (2010, 2011) studies this life event and generally finds proof of its relevance. With reference to the theoretical outline of the life course perspective, I argue that it is necessary to classify this event in terms of its normality or on the other hand, on its non-normality and unexpectedness. For this reason I will use a reclassification of this event based on the age at birth of the first child compared with the average age in the age-cohort.
- Relationship-events: Another key aspect which has been studied is that of relationship dissolutions and most importantly, divorce. Vandecasteele (2011) shows how divorce is generally a strong risk for poverty, yet that it affects women more substantially than men. This view is echoed by evidence from Switzerland who particularly shows how divorce in conjunction with life trajectories that are characterized by lone-parenthood are strongly associated with poverty (Budowski & Suter, 2002).
  In the same breath, the event of partner loss by death has to be mentioned. There is abundant literature of this event in psychology focusing on the stress(Lalive d'Épinay, Cavalli, & Guillet, 2010; Li, Liang, Toler, & Gu, 2005; Moss & Moss, 2014; Michel Oris, Zufferey, & Schumacher, 2014; Spahni, Hutchinson, & Perrig-Chiello, 2015) and health consequences that such an event generates (Jones, 1987; Stimpson, Kuo, Ray, Raji, & Peek, 2007;

Subramanian, Elwert, & Christakis, 2008). There is less evidence with regards to financial consequences of this event. One important insight is given by Valtorta & Hanratty (2013) who show that women as well as certain lower socioeconomic classes are generally more affected by widowhood than men. In this regard, widowhood can be considered as an event that has a multitude of negative effects in many areas of life (Bíró, 2013)However, research on civil status as has been shown in the previous sub-section has shown that widowhood as a civil status is generally strongly associated with poverty (Lalive d'Épinay et al., 2000). In this sense, a life course perspective focusing on the particular *event* leading to this particular civil status could be considered more robust, since a number of people might marry again and thus their observation is lost by such a limited view on widowhood as a civil status.

All of these elements will be addressed in this thesis and will be synthesized into specific hypotheses to be tested. This is done at the very end of this chapter. The next sub-section will carry out the same overview of associated factors for the area of functional health and mental health (depression).

## 2.4 Health in old-age and the life course

The second main dimension of inequalities that is analyzed in this thesis is health - or functional health disabilities and depression, respectively. The main aim of this part is exactly the same as the previous part focusing on poverty: To outline the specificities of health in old-age, overview the general framework of social stratification and the life course perspective in the study of health as well as identifying other relevant factors which have been identified by the literature to influence and affect health.

The structure thus parallels that of the previous part: It starts with a general discussion of health and health in old-age (2.4.1). Since health is not as directly dependent on social institutions in Switzerland as poverty is, the following section moves directly on to the description of factors affecting health (2.4.2). Finally, part 2.4.3 outlines the life course approach in health.

### 2.4.1 Conceptualizing health in old-age: Preliminary questions

Within the study of aging health has been the most important topic for over half a century now. It is perhaps the most crucial component to the aging experience and even research that primarily focuses on other issues -retirement or religion for example – usually include measures of health as important covariates. The main motivation for all this attention is the outlook that research on aging can contribute to the improvement of quality of life in old-age by reducing the likelihood of premature morbidity, disability and ultimately, death (Ferraro, 2011).

With regards to studying the health of elderly people, I would like to clarify two issues. I

do this in the form of two preliminary questions. The first is: What distinguishes the study of health in old-age from the study of health in younger people? Here, Ferraro (2011) suggests looking at the paradigmatic shift that has taken place over the last decades among old-age health researchers. Before,the focus of this field was to stress the specific health of the „elderly population“: People's health condition, the diseases and health problems that concerned them. The paradigmatic shift then brought a realization that the key to understanding the situation in old-age was to consider health more holistically and to conceptualize it with regards to the „process of aging“. Today, this main idea is still primordial. As part of the so-called normal aging process, people's health might deteriorate. However, such „normal aging“ should be distinguished from pathological aging, cases where people fall victim to certain sicknesses and makes them deviate from the normal aging process (Ferraro, 2011, pp. 239–240). This „long view“ of aging and health, an analysis based on a life course perspective, has yielded in the establishment of the discipline of *life course epidemiology* (Ben-Shlomo & Kuh, 2002; Davey Smith, 2003; Wadsworth, 1997).

Life course epidemiology thus incorporates the structural elements of influence on health (social stratification), lifestyles and health behavior (agency), as well as dynamics across the life course in relation with aging. Therefore, the initial question of departure whether the analysis of health in old-age is different from that in younger people has to be answered in two ways. In the first view, the answer is that it does not: By adopting a life course epidemiology perspective, as this thesis does, the study of elderly people is *conceptually* not different from that of younger people. All elements from the life course in all dimensions of life have to be taken into consideration as they all contribute to the aging process and may be the cause for pathological aging processes.

The second answer, however, revolves around the fact that studying health of elderly people is does have certain specificities compared to its study among younger generations. Notably, there are certain dynamics that characterize the health among the elderly which their younger peers do not experience. The direction of such dynamics, however, is still debated. Generally, there are two competing ideas: The first is a „convergence/divergence“ or „age as leveler“ theory. According to this theory, inequality decreases from a certain age on, because people who survive into old-age have increasingly similar characteristics – that means they are generally better educated or highly resilient (Beckett, 2000; Herd, 2006; Herd, Robert, & House, 2011). Opposing this idea is the theory of cumulative disadvantages which has already been discussed previously (Dannefer, 2003). Regardless of the discussion on the direction of these dynamics, it can be said that there is an important body of literature proving that health in elderly populations follows certain specific patters. These patterns thus can be considered as as setting health in old-age apart of that in younger ages.

In summary, it can be said that the *way of looking* when studying health among elderly people is the same as when doing so for younger ones. However, the negative *outcomes (*a higher frequency of health problems), among elderly people may be characterized by different dynamics and age-related patterns that set the apart from their counterparts in the younger generations.

The second preliminary question that is crucial to this part of this thesis regards the concept of health itself: How can health in old-age be measured? One of the most prominent definitions is given by the World Health Organization: „Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.“ (“Preamble to the Constitution of the World Health Organization,” 1946). This definition has entered into force in 1948 and remarkably, has not been modified since. The most crucial aspect that it captures is the multidimensionality of health. In this definition, the WHO evokes three main components of what commonly is referred to as „health“: Physical status, mental status as well as social well-being. Obviously, within those broad dimensions there are again internal and ongoing debates on how to best operationalize and measure these concepts and indicators. This thesis aims for a relatively pragmatic approach. It relies on the following assumptions:

- First, given that health is a multidimensional concept, it will use two of the stated main dimensions to measure it. I assume that by doing so, the results – social stratification and life course effects on socioeconomic inequalities in health -should generally be conclusive with regards to the overall concept of health.
- Second, the choice regarding the dimensions that are observed lies on „physical“ and „mental“ health. The reasons behind this choice have been extensively discussed in part 2.1, notably the “problem-oriented” vision that this thesis employs and those two dimensions being key resources to give people a basic degree of freedom to pursue their lives objectives (Sen, 2001).
- Third, physical health is measured using the functional health indicator (Cavalli, Fagot, Oris, & Tholomier, 2013) which is based on the Katz Index for activities of daily living (ADL) (Katz, Ford, Moskowitz, Jackson, & Jaffee, 1963). Mental health is assessed using the Wang score (Cavalli, Fagot, & Oris, 2013) which corresponds almost entirely to the Wang depression score (Wang, Treul, & Alverno, 1975, p. 197) whereas only minor adjustments have been made to account for the specific population that is studied in this thesis. These two indicators are described in detail in the following chapter. I assume that these two indicators are confirmed and proven measures for their respective dimensions of physical and mental health.

Having so far defined the particularities when studying health in old-age I may now outline the literature regarding the factors that affect health.

### 2.4.2 Factors affecting health

Similar to what has already been established for the dimension of poverty, this section overviews the literature regarding inequalities in health. These associated factors will then be tested in the empirical part of this thesis as to determine whether the findings are in line with the literature or whether there are incongruities which could have further influence on the analyses, notable those focusing on life course impacts.

Above all, there are significant age- and gender-related health-differentials. Following the discussion of the previous section, there are well-documented age-related patterns in health. As has been discussed, there is still considerable discussion whether inequalities generally increase – meaning that there is an increase of health-problems of only a certain part of the population whereas others remain in very good health – or whether the contrary is the case: The older people get the more they are a selected and highly homogeneous population which suffers from comparable health-problems. Despite this ongoing discussion, it is generally undisputed that there are important age-effects on an overall level. This should be seen in the analyses (Ferraro, 2011).

Gender-differences are equally important and well-documented in health. An important factor in the creation of such health differences is the fact that women have a higher life-expectancy than men. Since they live longer, they are more likely to be experiencing various health problems in old-age that their male counterparts do not experience, since they are "selected" and on average die at an earlier age. To this can be added a multitude of negative lifestyles which men are shown to engage in: Amongst other factors these are health-damaging behavior such as smoking, drinking or risky activities in their free time (Matthews, Manor, & Power, 1999).

In line with a social stratification paradigm, research has confirmed a very high persistence of socioeconomic inequalities in health (Marmot, 2006; Stansfeld, Marmot, & Wilkinson, 2006). These have been shown to be related to geographical areas (Dorling, 2012; Minton, Pickett, & Dorling, 2012) race and ethnicity (Nazroo, Falaschetti, Pierce, & Primatesta, 2009) and of course social class (Muntaner & Lynch, 1999). These „basic dimensions" of social stratification will thus be a first core part of the analysis.
Furthermore, as international research (Goldman, Korenman, & Weinstein, 1995) as well as from findings from Switzerland (Lalive d'Épinay et al., 2000) suggest, marital status does have a significant impact on health. Particularly married couples benefit from a protective dynamic. Widows on the other hand, seem much more exposed to negative health outcomes. A similar measure regarding living situation and the related health impacts is loneliness and social isolation (Cacioppo & Hawkley, 2003; Cattan, White, Bond, & Learmouth, 2005; Wenger, Davies, & Shahtahmasebi, 1996). Both of these measures will feature in the analysis.

A specific dimension which affects mental health (depression scores) is personality (Chow & Roberts, 2014; Hayward, Taylor, Smoski, Steffens, & Payne, 2013; Koorevaar et al., 2013). There is also evidence that it influences functional health (Löckenhoff, Sutin, Ferrucci, & Costa Jr., 2008). Hence, incorporating the effects of personality into the analysis is crucial.

As has already been outlined in the part on poverty, these „static" variables will constitute a first part of empirical analyses designed to determine general dynamics, notably social stratification and class dynamics. The following section will now sketch out how the life course perspective is applied to the study of health and which areas of the life trajectory are incorporated.

### 2.4.3 Life course perspective on health

It must be pointed out that for health inequalities, in contrast with poverty, the situation of departure is slightly different. Whereas there is an ongoing general debate in the field of poverty research regarding the continuing relevance of the social stratification framework – the influence of socioeconomic position or class on poverty in old-age – this relationship is not up for debate for the dimension of health. The continuing explanatory power of indicators of socioeconomic position for health is practically unanimous and valid throughout all European high-income countries even those with a strong welfare state as in Scandinavia. This is considered by many a paradox and a „puzzle“ that calls to be solved (Mackenbach et al., 2008; Marmot, 2006). The life course perspective is thus not regarded as a competing paradigm but much rather, it has been identified as offering insights into the *mechanisms* of social stratification (Bambra, 2011; Mackenbach, 2012). As Corna (2013) summarizes: „Social scientists and public health researchers have long known that social position is related to health and that socioeconomic inequalities in health persist in later life. Increasingly, a life course perspective is adopted to understand the socioeconomic position (SEP)-health dynamic“ (Corna, 2013, p. 150). In other words, in the area of health the complementarity of the two described paradigms for the explanation of inequalities, as it has been discussed in section 2.2.4, is fundamental.

Various researchers see large potential in the life course approach towards solving the paradox of persisting socioeconomic inequalities in health. However, I argue that the formal operationalization of the life course perspective – how *exactly* the life course could contribute to the solution of the paradox - remains unclear and fragmented. Most importantly, many authors confound the life course perspective with an actual theory. As has been emphasized in this thesis, the life course perspective is merely a manner of looking at and conceptualizing certain social phenomena, not a theory in itself. Mackenbach (2012), for example,summarizes that the life course „may explain why health inequalities at adult ages respond with long delays only to more equal living conditions. However, there is no evidence that health inequalities are smaller in generations exposed to more extensive welfare arrangements“. (Mackenbach, 2012, p. 763). In my interpretation the author makes a rather obscure and indirect reference to the cumulative disadvantage theory that might explain the growing inequality among cohorts even though their initial conditions of departure may be equal. In light of this situation, there is a need to re-discuss what the life course perspective specifically refers to in health research.

Recently, Corna (2013) suggested a conceptual framework for the study of socioeconomic inequalities in health. In it, she basically echoes some of the founding publications of life course epidemiology (Wadsworth, 1997) and merely emphasizes an integration of „policy contexts that shape resources and opportunities“ (Corna, 2013, p. 150) as well as an increased consideration of gender differences in the life course (Corna, 2013, p. 157). Unfortunately,she also falls short in establishing a coherent framework of what mechanisms, what dynamics and what kind of variables to integrate in a life course analysis of health inequalities.

I argue that a simple yet comprehensible starting point for the life course paradigm in health is given by Ferraro (Ferraro, 2011). He identifies three main areas where the life course offers clear hypotheses: First, the impact of early childhood, second, the dynamics of cumulative advantage and third, health-protective and health-destructive behaviors *within* the general life course dynamics.

The first is what he refers to as „early origins of adult health“. This corresponds to theories of „critical life period“ which have been described previously. Authors who represent this position stress the cardinal and lifelong impact of childhood conditions on a person's life and notably, a person's health trajectory. There is controversial as well as enlightening research by David Barker and colleagues (Barker, 1997, 1998; Barker et al., 1993) that shows the impact on health even starts in the womb: They demonstrate that nutrition during pregnancy as well as birth-weight (a direct result thereof) are correlated with health outcomes in late adulthood. More recent examples have been provided by Cheung (2002) who shows such early origins of psychosomatic distress and Eriksson and colleagues who have shown that low birth weight is highly correlated with type 2 diabetes (Eriksson, Forsen, Osmond, & Barker, 2003) as well as obesity (Eriksson, Forsen, Osmond, & Barker, 2003). Other works have focused on the effect of early *childhood* experiences. Felitti and colleagues demonstrate how abuse in childhood can cause substance abuse and thus causes a wide range of mental and physical health problems (Felitti, 2013). The same has been found for children who lived in households where they were mistreated (Anda et al., 2006).

The second area where Ferraro (2011) identifies a clear contribution of the life course perspective is that of cumulative disadvantage theory. In a nutshell, as also has been described previously in section 2.2.4, the cumulative disadvantage theory (Dannefer, 2003) offers an explanation of growing inequalities within a birth-cohort („cohort differentiation“) over the course of their lives. As Ferraro summarizes, according to this theory a researcher has to „see the substantial variation in functional ability and health behavior in later life and look backward over cohort history and personal biography to the events, experiences, and inequalities that raise the risk of adverse health outcomes“ (Ferraro, 2011, p. 242). Cumulative health research is in many regards similar to critical life theory in that it emphasizes the importance of early life conditions and the long-lasting „scarring effect“ (Preston, Hill, & Drevenstedt, 1998) over the course of people's lives they generate. In terms of the suggested analytical framework, however, cumulative disadvantage puts forward the importance of trajectories in the construction of such disadvantages. Critical life period theory is less specific in this regard. Following this idea, various researchers have set out to test the relationship of early life conditions (usually measured in socioeconomic status), trajectories and health outcomes in adulthood and later life. Angel and colleagues (Angel, Buckley, & Sakamoto, 2001; Angel, Venegas, & Bonazzo, 2010) find effects of socioeconomic status on health mediated by residential and migration trajectories. Elder and colleagues (Elder, Shanahan, Colerick & Clipp, 1997) focus on linking a combat experience of men in world war II to health outcomes in adult life. As Ferraro explains, one way of thinking about cumulative disadvantage is to suppose that it explains how „low SES is associated with both risk exposure and risk amplification [and how] research on health trajectories

[...] makes use of multiple measurement occasions to track the changes, thereby permitting more rigorous tests of competing mechanisms such as life events and health behavior“ (Ferraro, 2011, p. 243).

The third and last element that Ferraro (2011) puts forward is that of health-protective and health-destructive behaviors. Conceptually, this element corresponds to what has been introduced as „agency“ in the discussion on life course mechanisms and social stratification (section 2.2.4). In this field research shows how health behavior is strongly dependent on socioeconomic position. Accordingly, lower classes are more likely to smoke (Barbeau, Krieger, & Soobader, 2004), be less active (Crespo, Smit, Andersen, Carter-Pokras, & Ainsworth, 2000), or to be obese (Ferraro, Thorpe, & Wilkinson, 2003; Sobal, 1991).

Generally, this area of research is once again quite overlapping with critical life period theory and cumulative disadvantage theory as well. However, the agency aspect emphasizes health-*behavior* as *mechanisms* rather than general principles and dynamics. Also, the logic can be inversed, as Ferraro concludes: „despite what may appear to be strong patterns of social influence, health behaviors are modifiable“(Ferraro, 2011, p. 244) which shows that it is possible for individuals to break through certain structural logics. This corresponds to what Settersten and Gannon describe as a model of „agency and structures“ (Settersten & Gannon, 2005). To a certain extent, this model can also be used to emphasize the individual responsibility that people have with regards to their health.

In summary, the life course perspective is broadly accepted as possessing tremendous potential in enlightening the construction of health inequalities with regards to two main areas: First, with regards to the *temporality* which consists of determining which life period is the most crucial for future health outcomes (childhood, early adulthood, midlife stages or perhaps later life-stages). Regarding this dimension, my dataset disposes of various indicators that capture different stages and offers to analyze their potential impact on health: Education (as a measure of teenage conditions), birth of the first child (as a measure of entry into adulthood), work-trajectory, social mobility and residential trajectories (as a measure of middle-age), and retirement timing (as a measure of late-adulthood). Secondly, the same indicators can be read with regards to *cumulative dynamics* across the life-course. Additional variables are relationship-dissolution, loss of a partner which I both consider as non-normative life-events. Both have been shown to induce a great deal of stress and thus health consequences, reflecting a more event-based model of health-inequalities. With regards to relationship-dissolution, this can also be regarded as a conceptualization of individual agency as it is more the result of individual actions rather than random occurrence, at least in for a majority of cases. All of these variables are described in detail in the following chapter.

This concludes the outline of the theoretical framework upon which this thesis builds its empirical analyses. The following part synthesizes the main elements that have been discussed in this chapter. It formulates key questions along with working hypotheses.

## 2.5 Chapter summary and hypotheses

The main aim of this thesis is to explore social inequalities within the elderly population in Switzerland. This will be done by analyzing poverty, functional health problems and depression. In terms of theory, the thesis primarily focuses on a social stratification framework and aims to determine whether the latter can be explained, or extended or disqualified using a life course perspective. Specifically, there are three main angles that are featured: The first is a historical-evolutionary angle in which the persistence of social stratification dynamics over the last three decades among the elderly population in Switzerland is questioned. The second angle focuses on the evolution of the life courses of Swiss pensioners. These results will then be incorporated into the analysis of poverty and health inequalities in the third part of the thesis.

This final part aims to formulate key research questions and working hypotheses for each of the following analytical chapters. The structure of this presentation follows that of the following analytical chapters.

*Historical evolution of old-age in Switzerland 1979-2012*

Key research questions

- How have inequalities in poverty, functional and mental health evolved over the period from 1979-2011?
- What are the underlying dynamics in these two areas over the same period?

Working hypotheses

- Inequality in both health and poverty has remained constant over the observed period. Inequality is an inherent characteristic of contemporary capitalist societies.
- The underlying dynamic in both dimensions of inequality is one of class-exploitation and domination or, more generally speaking, of social stratification. Class, as measured by education, is a strong and constant predictor of poverty and health in old-age over the observed period.

*Poverty in old-age and the life course*

Key research questions

- What factors affect poverty in old-age?
- What impact have life-course trajectories or specific events in people's biographies with regards to poverty in old-age?

Working hypotheses

- Poverty in old-age is primarily a result of class.
- Other areas of social stratification – race, gender – may explain but not fully capture class differentials in poverty.
- The pension system in Switzerland is discriminatory with regards to class and is a structure that produces poverty.
- There are additional factors that negatively affect people's situation with regards to poverty (household composition, civil status, urban area) but none of them is able to entirely capture the effects of class.
- Professional trajectories are strongly linked with poverty. They partially capture class differences (measured with education) and thus give insight into pathways into poverty in old-age.
- Other life events have an impact on poverty, but do not capture class differentials.
- There is little or no evidence for the weakening impact of class in old-age poverty.

*Health in old-age and the life course*

Key research questions

- What factors affect functional health and depression in old-age?
- What impact have life-course trajectories or specific events in people's biographies with regards to health problems and depression in old-age?

Working hypotheses

- Health, both functional as well as mental health, in old-age is primarily a result of class.
- Other areas of social stratification – race, gender – may explain but not fully capture class differentials in health.
- Personality is an additional factor that affects health in old-age but is unrelated to class dynamics.
- There are additional factors that negatively affect people's situation with regards to health. These are civil status, ethnicity and gender. However, none of them is able to entirely capture the effects of class.
- Professional trajectories are strongly linked with health.
- Other life events have an impact on health, but do not capture class differentials.

# 3. Data and methods

This chapter has two main aims: Firstly, it describes the two datasets that are used in this thesis. On one hand, there is a dataset that is referred to as the COMP dataset. It is a comparative dataset consisting of three waves of a cross-sectional interdisciplinary survey on the living and health conditions of elderly people residing in Geneva and central Valais. The waves were collected in 1979, 1994 and in 2011/2012 by the Center for interdisciplinary gerontology (CIGEV) at the University of Geneva[19]. On the other hand is a dataset that is given by the third and most recent wave of this survey on its own. In 2011/2012 this survey was run under the name „Vivre-Leben-Vivere“ or „VLV“ in short. Secondly, it describes the key variables from the two aforementioned datasets that will be used in the empirical analyses. Within that part, particular emphasis is given to missing data. Also the second part presents all of the employed methods.

Accordingly, there are eight parts. It begins with an overview of each wave from 1979 until its third iteration in 2011 (3.1). The second part (3.2) focuses on the COMP dataset, the comparative dataset that is composed by these three described waves. The third part (3.3), describes the VLV dataset and in particular the module on retrospective data, the so-called „event history calendar“ or „life calendar“. In the fourth part (3.4) the dependent variables on which this thesis bases its analyses are described. These target variables are given by monthly household income (and the constructed variables poverty and precarity), functional health status and the Wang depression score. Part 3.5, 3.6 and 3.7 briefly describe the covariates for the three chapters: The historical evolution of inequalities, economic resources and the life course and socioeconomic inequalities in health and the life course, respectively. Each of these parts features an analysis of complete data-profiles. The eight and final part in this chapter (3.8) summarizes the employed methods of data analysis.

19 Strictly speaking, the first wave was carried out by a different entity, the GUGISPRA, a research group at the University of Geneva. In 1992 the group is transformed and officialized in 1994 into the Centre interfacultaire de gérontologie (CIG). The name CIGEV (Center interfacultaire de gérontologie et des études des vulnérabilités) was only introduced recently. The addition of “études des vulnérablitités”reflects the key role the institute plays as part of the NCCR LIVES by the Swiss National Science Foundation.

## 3.1. Thirty years of gerontological research at the CIGEV

As opposed to most other research institutions which usually outsource the data collection to external partners, the research teams at the CIGEV have continuously decided to carry out each wave of the survey in-house. The reasons for this fundamental choice are threefold: Data quality, costs and ideological reasons. First, the main aim, which - despite changing social, scientific and institutional circumstances - has remained identical over all three waves has been to create an in-depth description of the elderly population. Such an undertaking relies on an adequate representativity of respondents for the overall population on one hand, and a high reliability of the data on the other. In order to assure these two elements, an essential starting point is to control the entire process of the data collection from its first to its final stages. Secondly, it is highly likely that outsourcing the survey would have been more costly. Thirdly, it has always been a fundamental choice of the institute's directors to refuse the distinction between the „noble“ intellectual stages of research and the „lower“ stages, those stages concerning the hands-on technical and logistic aspects of carrying out a survey (Bétemps, Bickel, Brunner, & Hummel, 1997, pp. 24–25; Nicolet & Oris, In Press.). Simply put, carrying out the survey in-house is strongly carried by the belief that researchers should not limit themselves to analyzing and theorizing about social science data, but they should also go out on and get their hands dirty while collecting it. The author of this thesis has participated in the data collection of the 2011 wave and has experienced – and gained insights from -all stages of the data collection process: The preparatory stages, collecting the data in the field as well as cleaning and coding of all collected data.

Describing the characteristics of each wave of the survey becomes also a task of revisiting „intellectual preoccupations of particular times“ (Settersten & Angel, 2011, p. 11). This illustrates, to a certain extent, the development of both, paradigms and concepts in gerontology and the sociology of aging, as well as the methods and approaches used in order to collect data in these fields. It therefore seems useful to consider the aims and methods used in each survey by taking into account their respective intellectual and scientific contexts. For that reason this first section also emphasizes these contexts and backgrounds.

### 3.1.1 Wave 1979: Pioneering the field

The first wave of the survey was collected in 1979 and was entitled „Social retreat and dependency of elderly people“ („Mise à l'écart et dépendance des personnes âgées“). This title partly reflects the social stigma surrounding old-age that was still significant in the 1970s: Old-age was strongly associated with a series of negative consequences relating to physical decline and most importantly with the loss of autonomy (Bourdelais, 1993). In the field of gerontological theory, the idea of old-age as an inevitable period of physical decline and social detachment can be found in the disengagement theory(Cumming & Henry, 1961) according to which „the social withdrawal of old

people is inevitable and functional for both individuals and society“ (Settersten & Angel, 2011, p. 4). From its first formulation in 1961 it remained strongly supported – though by far not undisputed – up until the time when the first wave of the survey was constructed. At the same time, there were already continuing demographic and socio-structural changes (such as the rise of life-expectancy and the increasing weight of the elderly population; changing family patterns or transformations in the economic system) which required a deeper understanding of the living and health conditions of the elderly population (Betemps et al., 2005a; Lalive d'Épinay et al., 1983; Christian Lalive d'Epinay & Kellerhals, 1983).

In such an intellectual and socio-demographic context, the research team led by Christian Lalive d'Epinay set out to with the main objective of studying the „factors (internal and environmental) and the processes that favor the continuation of autonomy of elderly people in its entirety: physical, psychological as well as in terms of social participation.“ (Betemps et al., 2005a, p. 5). To this end, the team constructed a cross-sectional survey targeting the aged population in two regions of Switzerland: Geneva (representing an urban area) and central Valais (representing a rural and alpine area). The survey was constructed to be interdisciplinary and covered topics ranging from demographic and socio-economic characteristics to physiological (health) condition.

In terms of theory, the research group around Lalive d'Epinay refrained from drawing on the then popular disengagement theory by Cumming and Henry (1961). Rather, they emphasized the works of Maddox (1964a, 1964b, 1968) and Palmore (Palmore, 1968) who can be considered critiques with regards to the former. Furthermore, the survey was centered around a life-course approach, extending the traditional approach of „horizontal“ stratification (in social classes) with a „vertical“ stratification, meaning a social organization of stages and transitions in the life-course (Betemps et al., 2005a, p. 5). Despite the fact that they used a not-ideal cross-sectional survey design, the research team behind this first iteration of the survey can be considered as early adopters of the life-course perspective. This is especially interesting given that the field of life-course sociology was at that point only in its early stages of development (Settersten & Angel, 2011, p. 10). One of the discipline's most influential works, Glen Elder's „Children of the Great Depression“ (Elder, 1999), had only been published for the first time a mere five years earlier than the survey was launched. However, the emphasis on the life-course is an aspect which would persist and remain one of the central pillars regarding the theoretical framework of the following waves. Another fundamental element that has efficiently been incorporated into the first wave of the survey is the age-stratification approach which has most prominently been introduced by Berenice Neugarten (1970) and which has been formalized even further by Riley and colleagues (Riley, Johnson, & Foner, 1972). The analysis of society in terms of age-based layers contributed significantly to the more refined conceptualization of the elderly population. In fact, previously, “the elderly” or “the old” were more or less considered a homogeneous population. As has been shown in the previous chapter, the age-stratification framework introduced some much needed subtleties and showed that within “the old” population

there were in fact multiple groups such as the young-old, the old-old or even the oldest-old (see the discussion in Dannefer, 2001).
Concerning the social and political context, the study had the ambition to contribute to the establishment of scientific knowledge regarding old-age and thus to define the needs of this part of the population. It placed particular emphasis on shedding light on the interplay between the family and social institutions in maintaining autonomy (Betemps et al., 2005a).

Key information wave 1979 (Betemps et al., 2005a, p. 8):

- Target population: Men aged over 65 and women aged over 62 residing in Geneva and central Valais (districts of Conthey, Hérence, Sion and Sierre).
- Sampling strategy: Stratified random sampling, whereas the stratification criteria were sex and region.
- Data collection type: Closed-end standardized questionnaires. Half of the questionnaire was filled in by each respondent independently, the other half was completed during a face to face interview with a trained interviewer.
- Institution: GUGISPRA at the University of Geneva
- Financing: Swiss National Science Foundation Grant, National Research Program Nr. 3 “Problèmes d'intégration sociale”
- Time of data collection: 1978-1980
- Treatment of non-responses and refusals: Pairwise replacement („méthode de jumelles“)
- Number of cases: 1608

The main findings of this first survey challenged the idea of aging as a universal and homogeneous process. Instead, the researchers insisted on the multitude of aging experiences and the general heterogeneity of this population. Moreover, the study was able to show how such differences could be explained – or contextualized – by social characteristics and by people's social embedding. This entails class-belonging, region(canton) and of course age (Lalive d’Épinay et al., 1983).

### 3.1.2 Wave 1994: Changing dynamics among the Swiss elderly

Whereas the survey's title in 1979 still reflected a certain stigmatization of old-age, the one it carried in its second iteration in 1994 shows a shift towards a more positive vision: „The autonomy of elderly persons in their socio-cultural environment“ („L'autonomie de la personne viellissante dans son environnement socio-culturel“). No longer did the

study emphasize elderly people's isolation and withdrawal from society but the elderly population was seen as an integral and active part of society. Again, this shift in social representation can be found in the development of gerontological theories. Generally speaking, gerontological theory had at that stage altogether moved away from „grand“ theories and moved into an era that allowed for more refined analyses of the elderly population. In 994, the autonomy of old people -along with the factors that enable and sustain it -remained the key concept. Contrasting the earlier wave, the study in 1994 strongly emphasized people's socioeconomic status. The latter was incorporated in the questionnaire based on the works by Desrosières and Thévenot (1992) for the INSEE in France. Furthermore, as gerontological theory had at that stage become strongly influenced by growing importance and the institutionalization of the life-course perspective, this also represents a key influence on the study's theoretical framing. As has been described in the previous chapter on theory, the life course perspective can be regarded as having a strong North American tradition but there is an equally important European branch of life course research with such authors as Martin Kohli (1985b) Karl-Ulrich Mayer (Mayer, 1995) or Anne-Marie Guillemard (Guillemard, 1972). It is this European life course perspective which was very much a key influence for the team surrounding Lalive d'Epinay and the survey in 1994. In fact, Lalive d'Epinay can be considered as one of the key promoters of the life course perspective in Switzerland as well as for French Sociology.

The survey's main objectives therefore were: Firstly, to create an in-depth update regarding the knowledge on living and health conditions of the elderly population and secondly, to pursue the analysis of autonomy and to determine factors on how it could be kept and promoted. There were three main axis, or angles, according to which the project was constructed: The first is, identical to 1979, a „differential approach“ following the age-stratification scheme and a life-course perspective (Lalive d’Epinay et al., 2000, p. 7). Secondly, the project was again constructed to allow for the regional comparison between Valais and Geneva and thirdly, the second wave of the survey in 1994 should enable an in-depth comparison with the first wave and therefore represent the empirical basis for an evaluation of the dynamics of social change within the elderly population (Betemps et al., 2005b). The topics covered in the questionnaire were largely a replication from the previous wave with necessary modifications made due to the changing socio-structural circumstances[20]. Given the strong concern with social participation, the questionnaire in 1994 also included additional variables concerning activities and socio-cultural participation.

20 A typical example of such adaptation was the omission of any questions regarding livestock and farm-animals, given the decreasing importance of the agricultural sector.

Key information wave 1994 (Betemps et al., 2005b, pp. 2–3)

- Target population: Men and women aged over 60 residing in Geneva and central Valais (districts of Conthey, Hérence, Sion and Sierre).
- Sampling strategy: Stratified random sampling whereas the stratification criteria were 5 year age-groups (60-64, 65-69, 70-74, 75-79, 80-84, 85+) sex and region.
- Data collection type: Closed-end standardized questionnaires. Half of the questionnaire was filled in by each respondent independently, the other half was completed during a face to face interview with a trained interviewer.
- Questionnaire types: There were five distinct questionnaires that were applied to specific living situations: The majority of cases relies on the standard, two-part questionnaire. Additionally, there was a simplified version of this questionnaire designed for individuals over 80 years of age, one simplified questionnaire for individuals living in a care institution (but who were able to fill in the questionnaire themselves), one minimalistic questionnaire used to collect information on individuals who no longer had the capacity to fill in the questionnaire themselves- and in which cases the care-giving staff provided the information-and finally, an almost similar minimalistic questionnaire designed for incapacitated individuals living at home and where a relative would provide the basic information on behalf of the interrogated person.
- Institution: CIG at the University of Geneva
- Financing: Swiss National Science Foundation Grant, National Research Program Nr. 32 “Vieillesse”
- Time of data collection: 1994
- Treatment of non-responses and refusals: Pairwise replacement (jumelles)
- Number of cases: 2101

The comparison of the data collected in 1994 and its previous wave in 1979 revealed a profound and continuous transformation of the living and health conditions of aging individuals. These findings are reflected in the title of the main publication from the survey: „Aging throughout time: A silent revolution“.When comparing people of the same age from both waves it became evident that in 1994 the aging population showed important progresses in health and living conditions. Respondent's well-being increased, as did the density of the family and relational life. Aging individuals in 1994 were more active, able and willing to benefit from the modern world than their counterparts in 1979 (Lalive d’Epinay et al., 2000).

Also important to note, based on the findings of the 1994 survey, a research program was launched to shed light on the living and health trajectories in very old age. The Swiss Interdisciplinary Longitudinal Study on the Oldest Old (Lalive d'Epinay, Guilley, Guillet, & Spini, 2008)followed two birth cohorts of octogenarians. One consisted of birth-years from 1910 through 1914 and was followed over a period of 10 years (1994-2004). The other cohort was born between 1915 and 1920 and was observed over a period of five years (1999-2004). The core assumption of SWILSOO was to demonstrate that while very old individuals greatly vary in their life and health conditions, they nonetheless share the experience of frailty (Fried et al., 2001; Lalive d'Épinay & Spini, 2007). Results showed indeed that frailty is the dominant health status in the oldest-old; it affects individuals to varying degrees in a continuum between autonomy and dependence (Lalive d'Epinay et al., 2008; Lalive d'Épinay & Spini, 2008b)

### 3.1.3 Wave 2011/2012: Vivre / Leben / Vivere: Inequalities within progresses

In 2011 the main context for the third iteration of the survey was given by two opposing observations. On the one hand, there was evidence that the positive developments which had been the driving force behind the structural changes in the elderly population from 1979 to 1994 seem to persist. At the same time, the arrival of new cohorts and their fundamentally different characteristics into the elderly population raised the issue of whether these positive trends are universal or whether there are patterns of inequality *within* the aforementioned progress. This dynamic – inequalities within progress – has been described and discussed at length in the previous chapter. It has been outlined in a more general manner in the context of social development in Western industrialized countries and more specifically, it has been described for the elderly population. Thus, this „paradox" and this particular dynamic created the main starting point for the survey in 2011. Accordingly, it assesses whether the progress has been universal and has been sustained all the way from 1979 up until 2011 or, whether there are indeed persisting inequalities. The aforementioned double-tendency also gave the survey its title: „Vivre-Leben-Vivere: Old-age democratization? Progresses and inequalities in Switzerland", the acronym being „VLV".

As with the previous two, the main objective of the third wave was again to provide an in-depth and global update on the living and health condition of the elderly in Switzerland, given the outlined social-demographic context. Also following the previous studies, the VLV survey adopted a life-course or life-span perspective, respectively (for a discussion on the differences and similarities between the two (see Oris, Ludwig, de Ribaupierre, Joye, & Spini, 2009b). VLV was centered around the concept of resources, the latter encompassing physiological, psychological, economic and social resources. However, not only did the project in 2011 aim to statically describe and shed light on what resources individuals dispose (and to what degree there is variability in the disposal thereof), but it should be determined to what extent individuals actually put these resources into practice in order to pursue the lives they wish to have(Sen, 2001), how

these resources were formed over the life-course (Dannefer & Daub, 2009; Shanahan & Macmillan, 2008) and how the institutional and socio-political setting had and have an influence on them (Leisering, 2003). Given its rising popularity in life-course sociology and even in other disciplines, the theory of cumulative (dis-)advantages (Dannefer, 2003) was to be analyzed empirically.
The second main aim that was pursued with this survey was a temporal comparison. In fact, VLV creates the rare opportunity to have a comparative dataset over the time of 30 years that should enable to closely study the changes and dynamics in the elderly population over that period.

In 2011, the VLV survey extended the original survey design of its predecessors by including three additional cantons. The reason for this is found in the particularities which are given by the Swiss context. What distinguishes a survey in Switzerland from surveys in other countries is the large political autonomy that cantons have in Switzerland and the resulting multitude of social policies, infrastructures and welfare-strategies this creates. Not only do these diverse situations render it difficult to coherently place Switzerland in an international context in terms of social policy (Gøsta Esping-Andersen, 1996) but they can significantly influence health- and living conditions of our target population,given their strongly varying contextual situations. It is for this reason that the VLV survey choses to focus on a small number of cantons or regions -this could actually almost be considered as a qualitative case-study aspect (Bennett, 2001; Orum, 2001; Yin, 2003) within a quantitative framework - as to control for this contextual variable.

Given that the survey had been conducted in Geneva and central Valais in 1979 and 1994 it was obvious that these two regions had to be included in the 2011 design in order to enable a temporal comparison that spans over 30 years. Originally, they were chosen with regards of their radically opposing characteristics: Due to its relatively small size Geneva has always been a highly urbanized canton whereas central Valais is a (semi-)rural, mountainous region that stands in strong contrast to Geneva. Additionally, the semi-cantons of Basel-Landschaft, Basel-Stadt, three districts of Bern as well as Ticino were included in the third wave in 2011. This choice is based on the desire to represent all three major linguistic and cultural regions in Switzerland, and in order to replicate the contrast between urban versus rural regions in the German speaking part of Switzerland, with the city Basel in the semi-canton Basel-Stadt and the district surrounding the city Bern (so-called Bern-Mittelland) being highly urbanized areas, Basel-Landschaft, Bern-Oberland and Bern-Seeland mainly rural or peri-urban areas, respectively and an alpine area with Bern-Oberland, comparable to that of central Valais. The survey thus represents a balanced typology of regions that could serve as ideal-types for other regions in Switzerland. Bern-Emmental and Jura Bernois are two other districts in Bern that have been dropped mainly due to logistical and financial reasons (Ludwig, Cavalli, & Oris, 2014)

Operationalizing these basic aspects of the VLV sampling design meant that the baseline sample-size of 720 individuals per canton (N=3600 in total) was to be divided into their

corresponding sub-groups (according to the stratification criteria) and within these sub-groups random sampling was to be performed using the registers of the residing population in question. The following table 2 summarizes the baseline-samples for each canton and sub-group:

| Canton | Geneva | | Valais | | Basel | | Bern | | Bern | | Bern | | Ticino | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | Whole canton | | Conthey, Sion, Sierre et Hérens | | Basel-Landschaft and Basel-Stadt | | Mitelland | | Seeland | | Oberland | | Whole canton | |
| Sex | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| 65-69 | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| 70-74 | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| 75-79 | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| 80-84 | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| 85-89 | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| 90+ | 60 | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 13 | 13 | 17 | 17 | 60 | 60 |
| Total | 720 | | 720 | | 720 | | 360 | | 156 | | 204 | | 720 | |

*Table 2: Baseline sample targets for VLV survey according to sub-groups*

The project was also constructed with an ever stronger emphasis on multi- and interdisciplinarity. In 2011 the research team consisted of 17 researchers from 6 disciplines (geriatrics: 2; psychiatric geriatrics: 1; psychology: 5; sociology: 7; social policy studies: 1 as well as demography and socioeconomics), and numerous Ph. D. Students across all these disciplines.

Key information wave 2011 / Vivre-Leben-Vivere (Ludwig et al., 2014).

- Target population: Men and women aged over 65 residing in Geneva, central Valais, Bern (Berner Oberland, Seeland and Bern-Mittelland), Basel-Landschaft, Basel-Stadt and Ticino. An additional sample of migrants was collected in Geneva and Basel.
- Sampling strategy: Stratified random sampling whereas the stratification criteria were 5 year age-groups, sex and region. Additionally, a migrant sample was collected. It consisted of individuals originating from Italy, Portugal and Spain. It was a stratified random sample of men and women with these selected national backgrounds and between the age of 60 and 80 in Geneva and Basel. This original random sample was in a later phase of the project completed using a snowball-sampling approach.
- Data collection type: Closed-end standardized questionnaires. Half of the questionnaire was filled in by each respondent independently, the other half was completed during a face to face interview with a trained interviewer.
- Questionnaire types: There were three distinct questionnaires that were used. The first was a two-part questionnaire (one part to be completed by the respondent autonomously, the other part was completed by an interviewer during a CAPI). The second questionnaire was a life-event history calendar that respondents also filled in independently. The third questionnaire was designed to capture individuals who no longer had the capacity to undergo the standard questionnaire. This third questionnaire, the so-called „proxy-questionnaire“, was supposed to be filled in by either care-giving staff or a person close or related to the respondent.
- Institution: CIGEV at the University of Geneva
- Sinergia project, n° CRSII1_129922/1 and the IP 13 of the National Centre of Competences in Research “LIVES- Overcoming Vulnerability: Life course perspectives”, both financed by the Swiss Science Foundation (SNSF). Furthermore, the field-work has also been supported by Pro Senectute Switzerland.
- Time of data collection: 2011/2012
- Treatment of non-responses and refusals: Random selection
- Number of cases for standard questionnaires : 3080
- Financing: Swiss National Science Foundation (NCCR LIVES [IP13] & Sinergia) with a contribution by Pro Senectute Schweiz.

## 3.2 COMP dataset

The comp dataset is a comparative and merged dataset consisting of all three of the previously described waves of the survey in the cantons of Valais and Geneva. The broad and multidisciplinary nature of the survey combined with the fact that it covers 30 years of development for a specific region represents a rare and very unique opportunity to analyze the social dynamics in aging for the elderly population in Switzerland.

Generally speaking, the overall survey methodology – a stratified random sample according to sex and five-year age-groups, a two-step questionnaire design - has remained nearly identical over all three waves (the only major transgression being the absence of age-related sampling in 1979). However, there are minor differences which have to be taken into account when aiming for a comparison and a unified database between them. These variations principally concern the ages of the target population and the treatment of individuals with cognitive impairments - inclusion using specific questionnaire or their exclusion -, and the treatment of people residing in institutions. This section outlines the common population that is then merged

### 3.2.1 Harmonization of target population

All the minor variations in terms of sampling methodology, survey design, and the specificities of the actual collected data, have to be taken into account when establishing an uniformization of the three waves. Table 3 summarizes the comparable population:

| Regions / living arrangements | Valais central, Geneva / Community dwelling |
|---|---|
| Age-groups | 65-69<br>70-74<br>75-79<br>80-84<br>85-94 |
| Individuals with cognitive impairments | Excluded |
| Individuals residing in institutions | Excluded |

*Table 3: Comparable population of the COMP dataset*

It is to note, that strictly speaking it would have been possible to remain with age-groups ranging from 65-69 up to 90-94 in 5-year steps. However, due to the lack of cases in the higher age-groups I decided to merge the last two age-categories into a single 85-94 class.

Given this comparable population, table 4 summarizes the modifications that have to be

performed to each wave in order to render them comparable:

| Wave | | 1979 | 1994 | 2011 |
|---|---|---|---|---|
| Modifications | *Region* | - | - | Omit cantons Ticino, Bern, Basel |
| | *Age-groups* | Omit individuals <65 and >94.<br>Merge age-groups 85-89 and 90-94 into 85-94. | Omit individuals <65.<br>Merge age-groups 85-89 and 90-94 into 85-94. | Omit individuals >94.<br>Merge age-groups 85-89 and 90-94 into 85-94. |
| | *Individuals living in institutions* | - | Omit | Omit |
| | *Individuals with cognitive impairments („non-apte“)* | - | Omit | Omit |

*Table 4: Necessary modifications of individual waves to assure comparability*

### 3.2.2 Sample composition COMP dataset

The comparative dataset thus consists of 4061 cases (1519for 1979, 1445 for 1994 and 1097 for 2011). The repartition among the sub-groups is shown in table 5:

| | 1979 | | | | 1994 | | | | 2011 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GE | | VS | | GE | | VS | | GE | | VS | |
| | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. |
| 65-69 | 108 | 148 | 134 | 171 | 86 | 82 | 84 | 82 | 58 | 58 | 60 | 57 |
| 70-74 | 115 | 104 | 113 | 119 | 87 | 81 | 80 | 79 | 56 | 54 | 54 | 60 |
| 75-79 | 79 | 71 | 74 | 52 | 70 | 86 | 71 | 73 | 57 | 55 | 52 | 59 |
| 80-84 | 54 | 41 | 35 | 29 | 74 | 84 | 67 | 75 | 43 | 49 | 43 | 52 |
| 85-94 | 26 | 13 | 18 | 15 | 40 | 54 | 43 | 47 | 62 | 58 | 49 | 61 |

*Table 5: Distribution of individuals in the COMP dataset according to sampling sub-groups*

In cases where analyses are made with the aim of giving information on the totality of the elderly population, each wave is readjusted with their corresponding sampling-weight variable. For the wave in 1979 the weights correct for the sex-stratified sampling, for 1994 and 2012 they correct the distortions introduced through the age- and sex-stratified sampling design. Basically, the stratified sampling approach guarantees a

sufficient number of respondents in each of the chosen sub-groups, even those where very little individuals are found, like in the case of men in the very high age-groups. However, by adhering to such a methodology, this distorts the representativity of the collected sample, which usually is guaranteed through a completely random selection process. In statistical terms, the introduction of stratification criteria modifies the probability of individuals in the sub-groups to be included in the sample. The sampling weights correct these distortions(such as the over-representation of certain groups such as 90-94 year old men, or the underrepresentation of others, such as men and women between the ages of 65-69). These sampling-weights variables had been delivered by the respective research teams along with each dataset.

### 3.2.3 Critical evaluation of comparability

Analyzing survey data that has been collected at different time-periods creates a number of epistemological issues, mainly related to the comparability of the collected information. Post-structuralist scholars such as Michel Foucault emphasize the fact, that ideas and thus in our case, certain information collected in a survey, are to a large degree the product of a certain social and intellectual context, as has been shown in section 3.1 of this chapter (see for example Foucault, 1988). Therefore, it can be argued, that for certain variables there is no such thing as a continuity and stability in what people - or participants in a survey, respectively -understand and thus might answer when asked the same question. Additionally, as time passes there are a number of structural changes that modify the signification as well as the relevance of certain questions and variables. These are issues which I am aware of, but will not consider in this thesis, since they are not the main focus of this project[21]. However, it can be said that the risk of such biases is reduced in this research, since for the majority of the analyses the variables of interest are objective measures and not subjective evaluations or opinions that are prone to certain cultural and temporal influences.

The second main dataset in this thesis is made up by the third wave of this gerontological survey on its own. Its description is the focus of the following part.

## 3.3 VLV dataset

As has already been described in the overview of each wave, the VLV survey in 2011 extended the original survey design to include three additional cantons, an immigrant oversample and most important for this thesis, it included a module, a so-called life event history calendar (or „life calendar“ in short). This module was constructed to collect retrospective data on people's life trajectories in five main areas of their lives. The following section briefly describes the VLV dataset, then summarizes the rationale behind the calendars, their application in the VLV survey and briefly recapitulates the

21 For a more in-depth discussion of these issues, see the PhD thesis of Marie Baeriswyl.

experience made with this innovative tool. The last part regarding the experiences, both positive and challenging, was written in the hope that researchers who wish to use calendar for their projects might benefit from it.

### 3.3.1 VLV sample composition

Table 6 shows the absolute numbers for each stratification sub-group that had finally been collected. Due to logistics and organizational constraints these effective numbers slightly diverge from the initial target values as indicated under 3.1.

| Canton | Geneva | | Valais | | Basel | | Bern | | Ticino | |
|---|---|---|---|---|---|---|---|---|---|---|
| Region | Whole canton | | Districts Conthey, Sion, Sierre et Hérens | | Whole semi -cantons (Basel-Landschaft and Basel-Stadt | | Mitelland, Seeland, Oberland | | Whole canton | |
| Sex | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| 65-69 | 58 | 58 | 58 | 60 | 57 | 58 | 69 | 62 | 45 | 48 |
| 70-74 | 54 | 56 | 61 | 55 | 64 | 58 | 63 | 65 | 70 | 63 |
| 75-79 | 55 | 57 | 59 | 52 | 55 | 53 | 63 | 62 | 58 | 53 |
| 80-84 | 49 | 44 | 52 | 44 | 48 | 53 | 60 | 55 | 43 | 47 |
| 85-89 | 45 | 43 | 42 | 35 | 46 | 49 | 59 | 48 | 53 | 43 |
| 90 | 35 | 24 | 30 | 28 | 58 | 37 | 40 | 38 | 46 | 37 |
| Total | 296 | 282 | 302 | 274 | 328 | 308 | 354 | 330 | 315 | 291 |

*Table 6: Sample composition according to sub-groups VLV survey 2011*

As was the case with the comparative dataset, for any analyses that refer to the total population over 65 in those target areas, case-weights are used to correct for the stratified sampling methodology.

It is important to note that, as has been explained in 3.1, VLV offered the possibility for people with physical or cognitive difficulties to be included in the survey. This was done by interviewing a person that was close to the question that was supposed to be included. This “proxy-person” responded to a simplified version of the questionnaire. The data of these so-called „proxy-questionnaires“ is not included in the presented database. The reason for this exclusion is that the available information in these questionnaires are of a very reduced nature and thus the scope of possible analyses is very restrictive. Notably, these questionnaires did not contain any information on monthly incomes and on depression scores, two of the main dependent variables in this thesis. The reason for this absence, obviously, is that it was not possible for external people to provide accurate information in lieu of the original person. The exclusion of these proxy-questionnaires

has a number of implications for the interpretation of the results. Above all, people who chose this simplified questionnaire were usually situated in the highest age-groups. Thus, there is a slight risk for the under-representation of the “oldest-old”.

### 3.3.2 Collecting longitudinal data: The life event history calendar

The life course approach generally posits that the situation at any given stage of a person's life depends among other factors also on this person's life trajectory up until that point: In other words, the life course is both a result of certain characteristics (eg. gender, lower social class) that position an individual in a social structure and of a specific time and context people lived their lives in. As a consequence, studying it can give insights into dynamics of vulnerability as well as in maintaining well-being in old-age (Giele & Elder, 1998; O’Rand, 1996, 2001; Shanahan & Macmillan, 2008). Central to this approach is therefore the analysis of such life course patterns. All three waves of the presented survey are fundamentally centered around the life course perspective. In the first two waves in 1979 and 1994 this approach has been operationalized and articulated by the integration of various life-course variables: For example in both 1979 and 1994 it was not only asked if somebody was married or not, but also *when* the person got married. Parallel to this, the parts of the questionnaire on social participation aimed to evaluate whether there had been any significant changes compared to when the person was 45 years of age (Lalive d’Epinay Bickel, 2001). In 2011 this approach was taken a step further with the inclusion of a life event history calendar. In fact, the inclusion of isolated, static life course variables that are centered around key events such as marriages, unemployment, health problems, and so forth is the most basic and simplest manner of how to achieve such information. Ideally though, a life course researcher would wish to have access to more information than such isolated events: If possible it should be aimed to possess longitudinal data for a part or for the whole life of a respondent.

Such (quantitative) longitudinal data can be collected using either prospective or retrospective approaches (Giele & Elder, 1998; Levy, Ghisletta, Goff, Spini, & Widmer, 2005). In prospective studies such as panels, cohorts studies or other longitudinal designs, people are continuously followed over time and at fixed intervals information on their current situation are collected. A typical example for such a survey design is the SWILSOO study which has been conducted at the CIG (Lalive d’Épinay & Spini, 2008a).

In contrast, in retrospective studies data of people's lives are collected at one specific moment in time *retrospectively*, meaning the respondent will reconstruct his or her past life-trajectory when the person is participates in a survey (Kempeneers & Lelièvre, 1993; Le Goff, Levy, Sapin, & Camenisch, 2009)
Naturally, both approaches have their advantages and disadvantages. Some authors consider prospective designs, above all longitudinal panels, as much more efficient and reliable, claiming that retrospective designs strongly depend on the respondent's

willingness to reconstruct their lives with an interviewer, thus making them much more prone to interviewer effects (Bidart, 2009). Retrospective designs have the strong advantage of being more cost-effective as well as not having to deal with the problems that follow-up studies are typically concerned with such as sample drop-outs and the resulting selection biases (see for example Ryser & Voorpostel, 2013; Voorpostel et al., 2013 for insights into how the SHP deals with this delicate matter). Among the retrospective methods, the life calendar seems to show particularly promising results (Belli, Stafford, & Alwin, 2009).

The life calendar is essentially a two-way grid with a temporal dimension on one side and columns that are reserved for various domains of life such as employment, family or residence. Respondents are then asked to fill in those columns with the various life-events and the temporal point they happened: Marriage, divorce, children, unemployment, change of residence, etc. There is a growing body of literature which shows that retrospective data collected using this tool are reliable, have very little memory recall biases, are consistent and might even perform better than traditional question-lists (Becker & Sosa, 1992; Belli, 1998; Belli, Lee, Stafford, & Chou, 2004; Belli, Stafford, & Alwin, 2009; Engel, Keifer, & Zahm, 2001; Martyn & Belli, 2002; Yoshihama, Gillespie, Hammock, Belli, & Tolman, 2005; Zahm et al., 2001).

### 3.3.3 Design of the VLV life calendar

Given the growing literature documenting both the importance of life trajectory data as well as of the advantages that life calendars hold over other, more costly longitudinal data collection designs, the research team in 2011 thus decided to integrate a module with a life calendar into the survey to obtain such valuable retrospective life course information. Life calendars are still a relatively new tool and to date, there is no consensus on formal rules, criteria or even basic recommendations for their use in surveys (Morselli et al., In Press.). Therefore, adopted implementations vary strongly and range from computer- based visualizations, paper-pencil grids which need to be completed with arrows, or more open-ended solutions where respondents are relatively free in their interpretation of what kind of information to include. The VLV life calendar was strongly inspired by Eva Lelièvre's adopted solution that was used in a biographical survey (Vivier & Lelievre, 2001) and followed a relatively open-ended structure.

Technically, the VLV calendar was self-administered. The results were later checked by an interviewer. In this step, the interviewer had to correct or complete the collected information. Also, the VLV team provided general guidelines on the type of events to be considered and two examples of correctly filled-out calendars. It was structured in five life domains: residence (1), family and relationships (2), professional life (3), health (4), and nationality (5).

In order to assess the subjective interpretation, the interviewer asked respondents to indicate with an orange marker directly on the calendar sheet the periods during which

they felt most vulnerable (also defined as fragile or difficult periods), and with a yellow marker the periods considered as the happiest. Through this procedure, important data about respondents' perception of their vulnerability were collected (Morselli et al., In Press., pp. 17–18). The following figure 3 shows a part of a completed life calendar.

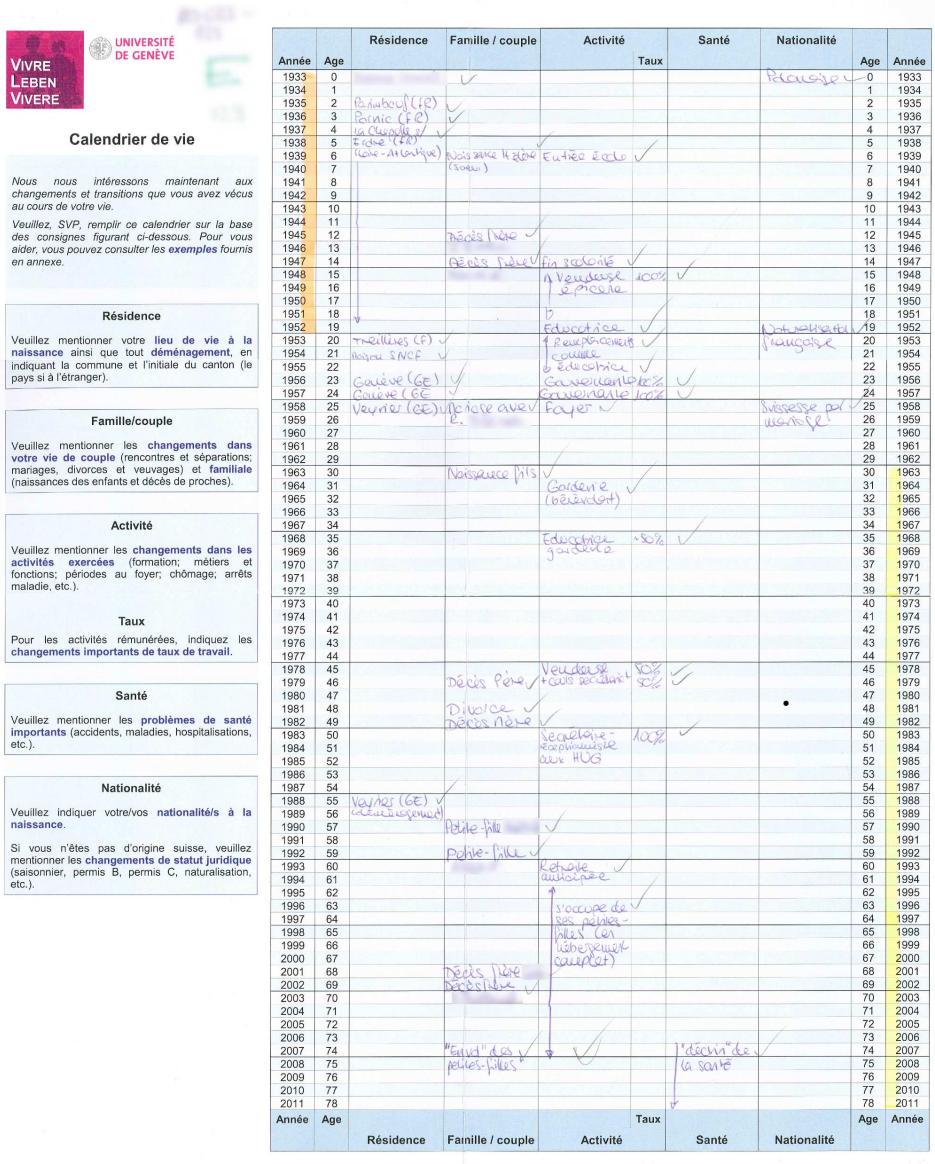


*Figure 3: VLV life calendar*

### 3.3.4 Experience with the VLV life calendar: Large heterogeneity

As a result of the open ended nature of the calendar, the collected data was extremely heterogeneous. On one hand, this could have been an interesting object of research in itself: To determine, for example, what kind of events and people the respondents ended up indicating in their „family“ column[22]. On the other hand, however, and in a more pragmatic perspective, this wealth and depth of information created serious problems and a significant amount of work for the post-fieldwork coding process. For instance, the column dedicated to people's professional lives ended up including roughly 38'000 answers. Among all these answers only very few could easily be grouped into the same category[23] . Ultimately, among those 38'000 initial responses, about 34'000 were unique responses, requiring time-intensive manual coding or more complex solutions using automated text-mining procedures. The latter is in fact a rapidly growing field in computational sciences as well as in applied statistics and offers very interesting possibilities that could have facilitated the encountered problems. The umbrella term that is most often used for this field is „natural language processing“[24]. In terms of application, there even exist quite powerful, open-access software packages that could be used for this end[25]. Unfortunately, none of the more advanced techniques were employed in this project, given that their utilization require rather sophisticated programming skills, which poses a significant barrier to entry.

Generally speaking, we found this result, this extremely large heterogeneity, to be related to three main issues: Firstly, people mixed two rationales for filling out the calendar: Some people indicated *events*, and others indicated *statuses* or *episodes*. To be more specific, this means one person would indicate „married“ in a specific year, whereas others would trace an arrow ranging from age 0 to the year in which they got married indicating „single“ up until that age, and then tracing another arrow until their current age that they labeled with „married“. Secondly, we underestimated the range of possible events that people are likely to include. Even in areas where the number of possible information that could be reported intuitively seemed limited, there were a multitude of answers which we did not account for initially. For one's professional life, for example, one might think that this should be restricted to either being employed, unemployed, retired or in training. As it turns out, however, many people also indicated activities which they were not related to their formal employment such as being member of a cooperative, being a member or having a function in a club, or doing military service. More common even, especially with the professional trajectories, was that people indicated company names rather than their employment status, rendering the

22 See Myriam Girardin's PhD thesis which investigates this topic.

23 By this I mean cases where the French „employed“ could easily be grouped with the German „angestellt“, for example.

24 See Jackson & Schilder, 2006 for a general overview and Pang & Lee, 2008 for an interesting example of applied natural language processing with the aim of extracting specific information, as would have been the case for the life-calendars.

25 See for example Natural Language Toolkit for R http://cran.r-project.org/web/views/NaturalLanguageProcessing.html which offers highly promising functionalities for similar problems.

operationalization of such information much more difficult. Thirdly, the simple nature of language and its treatment with statistical software revealed itself to be quite complex and time-consuming. Given the nature of the survey in three main linguistic regions the answers given were trilingual by default. On top of this, within each language the variety was very high already with people choosing to use different expressions, words or even phrases to describe the same event or situation.

The adopted coding solution, the so-called „alphabet“ of considered states and the process of creating a typology of representative trajectories is described in the section 3.6 dedicated to the variables used for the analysis of economic resources. This section includes results for the actual trajectories (professional, residential, etc.).

Having so far described the datasets that are used in this thesis, the focus will now shift on the second main aim of this chapter which is to specify how the research questions and hypotheses from the theoretical chapter are operationalized. The following part will start this presentation by describing the three key dependent variables.

## 3.4 Target variables

This section describes the main dependent or target variables on which this thesis focuses its analyses on: Monthly household income, the indicator of functional health and the Wang depression score which is used to capture mental health. Whereas the conceptual prerequisites for the indicators of inequality have been discussed in the previous chapter, this part emphasizes their various technical aspects. For each of the variables this part thus presents the underlying original question that was featured in the questionnaires, whether and how the answers have been recoded and their specific distribution in the VLV and the COMP dataset. Furthermore, for the variable of monthly household income the performed transformations into poverty and precarity indicators are presented. This part also contains the results for the non-response analysis for each variable.

### 3.4.1 Economic resources

*Monthly household income*

For the analyses on economic resources, the main point of departure is self-rated monthly household income[26]. Household income is one of the most used indicators in studies on poverty. It is generally considered to be a meaningful measure of people's

26 Original phrasing of the question in French was: „Sur la base de l'échelle de revenus que je vais vous énoncer, pouvez-vous me dire à combien se monte le revenu mensuel total-brut de votre ménage?“. The interviewer would then show a card with the scale of income classes (see below for the exact description).

economic well-being. However, it has also been criticized for having a number of shortcomings. It does, for example, not reflect people's true consumption and the resulting economic well-being. It measures the overall amount that people have at their disposal but *not* how and on what it is spent. It does not shed light on whether people save, invest and how their spending is composed. Also, it does not capture and reflect non-monetary benefits such as owning one's housing which effectively reduces the amount of fixed costs people have to face each month. As such, income-based indicators might under-estimate the actual consumption in old-age (Gilleard & Higgs, 2011). To address these points of critique, there are various other indicators of economic well-being. Most prominently, there are consumption-based indicators which offer powerful insights into people's actual spending (see Haveman, 2001). However, in the datasets on which this thesis is based on the only indicator on objective economic well-being consisted of household income.

*Adjusting for household size and composition*

More specifically, for the VLV dataset this question consisted of a categorical scale of nine classes[27]. All answers have been adjusted to household size using the OECD equivalence scales methodology. According to this approach the first adult in the household counts as 1. Each additional adult in the household only counts 0.5. Each child living in the same household accounts for 0.3[28]. This adjustment procedure thus permits to render the data for people living in different household compositions and of varying sizes comparable. It has to be said that while the OECD methodology is widely used approach – it is also used by the Swiss Federal Statistical Office in their reports on poverty (see (Guggisberg & Häni, 2014; M. Guggisberg, Müller, & Christin, 2012) – there is an ongoing debate about the validity of universal equivalence scales. Critics suggest the use of country and context-specific equivalence scales instead of universal ones because these better reflect the economic and socio-structural context in each country (see Gordon, 2000).In Switzerland some organizations in the field of social policies such as the SKOS/CSIAS – whose poverty-definition is outlined in the following paragraph – use such scales that are specific to the Swiss context. The main difference is that the Swiss specific scales do not attribute each additional adult member or child a fixed value, but that the values vary according to the actual household sizes. Differently put, each household size has a specific adjustment or weighting value: A two-person household therefore has to be adjusted by 1.53, a 3-person household by 1.86 and a 4 person household by 2.14 and so on (see SKOS & CSIAS, 2013). This approach is not employed in this thesis for two main reasons. Firstly, we aim to contribute directly to the discussion on poverty and notably old-age poverty in Switzerland. Therefore, it is beneficial to use the methodologies used by the Swiss Federal Statistical Office, the publisher of numerous important baseline-studies in this area. Secondly, on a more

27 Less than 1200, between 1200 and 2400, between 2400 and 3600, between 3600 and 4800, between 4800 and 6000, between 7200 and 10'000, between 10'000 and 15'000 and finally, over 15'000 Swiss Francs per month

28 See www.oecd.org/.../OECD-Note-EquivalenceScales.pdf for detailed methodology

pragmatic level, given that this research analyzes the elderly population in Switzerland, the implications of using the OECD and Swiss-specific scales are only marginal. In fact, the vast majority are either single or two-person households. The difference in the adjustment variable of 0.03 for a two-people household when using the Swiss scale is not sufficient to cause any fundamental differences in the response categories.

*Construction of a poverty variable*

Following the conceptual and theoretical arguments laid out in the previous chapter, the first constructed indicator is that of *poverty.* While this application might seem somewhat straightforward, it is not. In fact, "although reducing poverty is a nearly universal goal among both nations and scholars, there is no commonly accepted way of identifying who is poor" (Haveman, 2001, p. 11918). What poverty is and who can be identified as poor depends strongly on social, cultural and political contexts. It it not possible to define it independently from such value-systems (Guggisberg et al., 2012, p. 9). The approach that is used in this thesis is principally determined with the key variable of interest, monthly household income. However, the following section discusses the problems and the background of such a definition in order to give a clear context of the approach that is used here. It describes the main conceptual blocks and the corresponding indicators that are adopted in this study. In doing so, I closely follow the discussion found in Guggisberg et al. (2012).

The first element to consider is the angle of analysis of poverty. This refers to the distinction between objective and subjective poverty. The former is given when poverty is formally defined by experts such as researchers or policy makers. In this first view poverty is something tangible and concrete. The latter emphasizes people's perception of being poor (or not). Thus, it is something much more difficult to grasp and to analyze (Guggisberg et al., 2012, p. 10). This thesis uses the former approach – also given that it relies on an objective measure with monthly household income.

Secondly, the units of analysis have to be defined. Above all, poverty has to be defined in terms of material or immaterial poverty. Traditionally, poverty had a very strong material orientation. It refers to an (absolute) minimum amount that people need to have at their disposal in order to cover their very basic daily needs to survive. In early theories such daily needs were considered to be principally consisting of a basic caloric intake, meaning food. However, as theory progressed in the course of the 20$^{th}$ century, the signification of this basic amount has somewhat shifted. Today, the definition has considerably broadened and the minimum amount of income not only reflects basic caloric needs to survive, but it reflects a minimum amount that is necessary to be able to sustain oneself and to partake in social activities given a certain society, hence embracing a considerably immaterial dimension as well (Haveman, 2001). As will be explained below, we employ a threshold for poverty that incorporates a great deal of such immaterial aspects.

Furthermore, there are a number of additional elements that have to be considered in this second step of defining the units of measurement. One is the question of whether to measure incomes (the actual financial resources people have at their disposal) or whether one needs to assess what people actually spend their funds on (consumption-based measures). Similarly, other issues regard the treatment of taxes (pre-taxes and pre-redistribution, or gross earnings) and finally, there is a large discussion regarding the problematic issue of "hidden" poverty. In cases where people do not ask for financial help (social welfare, complementary welfare, etc.) they can live in poverty and remain so undetected for the state and authorities (see Guggisberg et al., 2012, p. 10). Again and without going into further details, it can be said that this thesis focuses on gross incomes, without any particular consideration of taxes or consumption patterns. Finally, as for hidden poverty, preliminary analyses show that the VLV survey scores considerably well regarding the inclusion of vulnerable populations – people which might be excluded from official poverty statistics (Guichard, Nicolet, Monnot, Joye, & Oris, 2012)

Third, there is an important distinction between temporary and permanent poverty. In the last decades the study of poverty has seen a shift from a strictly static analysis ("is a person poor at a given time t") towards a more dynamic analysis: How long is a person in a situation of poverty, does a person move in and out of poverty or what preceded the slip into poverty (see Layte & Whelan, 2002). No such follow-up data are available in the VLV and COMP datasets on which this research draws its study of economic resources of the elderly. However, given that the population which is studied in this analysis is given by retired people, this point of critique is less important. In retirement, incomes do not fluctuate as they do in the active population – by, for example, losing or taking up a job- and accordingly, poverty is much more structural in this segment of the population.

Given this context, the poverty measure that is used here is centered around the absolute poverty line to split the population in two segments: Poor (meaning people clearly suffering from economic hardship) versus non-poor. Hence, it clearly is an *absolute* poverty measure. Beyond that, it is also in line with the outlined Wrightean neo-Marxist framework.

In their latest significant publication on the topic of poverty in Switzerland, the Swiss Federal Statistical Office (BfS / OFS) employs three different measures: Absolute poverty, at-risk-of-poverty and material deprivation. This three-pronged approach is followed in order to maximize the insights of each indicator and thus to shed light on how different poverty measures might capture different aspects. However, at the core of their publication remains the absolute poverty measure which is also used here. It can therefore be said that this thesis employs very similar tools for its analyses as notable research institutions in Switzerland, rendering the results directly comparable.

On a more technical level, the poverty threshold was set at 2400 sFr. per person. This amount corresponds to the maximum AHV/AVS rent in the year 2011 (AVS rents are adjusted yearly to reflect a variety of changes ranging from prices, inflation as well as

living-standards). It should be noted that the maximum rent for couples was situated at 3600 sFr. per household per month. In fact, the amount of this maximum rent can be reached with a standard work-biography in 2011. For people with incomplete work-biographies, this amount can also be reached through complementary welfare support that is provided by the state (see section 2.3.2 on the Swiss pension system).

This threshold is supported by various other institutions. It is almost identical with the suggestions of 2450 sFr. by SKOS/CSIAS, the largest organization in the field of social welfare in Switzerland that each year issues its own calculations (SKOS & CSIAS, 2013). The SKOS/CSIAS estimates for 2013 diverged by less than 100 sFr, and thus were practically identical with the chosen amount of 2400.- sFr. Also, our threshold is nearly identical with the often used SILC definition of 60% of median income which was situated at around 2500 sFr. in 2012[29]. Based on this limit we thus established the binary variable poverty (poor vs. non-poor).

*Construction of a precarity variable*

In order to address some of the various critiques related to the use of a single binary approach to poverty,I opted for a secondary approach. Again, the rationale behind this indicator is discussed in the previous chapter on theory. Briefly summarized, the indicator is inspired by my predecessors at the CIGEV[30]. In fact, in *Vieillesse au fil du temps* (Lalive d'Epinay et al., 2000), the main publication resulting from the 1994 wave the researchers opted for an interesting solution: They considered an intermediary group of people in situations of *precarity*. People in this group are thus not poor, but very close to the poverty line and thus are *vulnerable* to economic stress, meaning they have an increased risk of becoming poor, should they experience unfavorable circumstances or other negative developments in their lives. An example for such a case would be the event of loss of a partner by death. For people living in a financial situation that does not leave any margin for financial fluctuations, such an event could immediately become a heavy burden, making people slide into poverty (Vlachantoni, 2012).

The limits for this intermediary group are defined as the absolute poverty-line on the lower end and at 150% of the poverty-line on the upper end. This corresponds roughly to the next category of income-classes in VLV, meaning people who indicated a monthly household income of 2400-3600 Swiss Francs. Based on this definition, roughly 34 % of all people in the VLV sample are in a situation of economic vulnerability at the age of retirement. In order to be able to compare the results from the binary analysis (poor vs. non-poor) with those for this group of precarious people, the categories of poor and precarious were merged to create a second binary variable which regrouped „poor and precarious" versus „non poor, nor precarious" or, "economically vulnerable" versus "secure", respectively. According to this categorization, almost 55% of all participants in the VLV study are in a situation of economic vulnerability or poverty.

29 See http://www.bfs.admin.ch/bfs/portal/de/index/themen/20/03/blank/key/07/02.html

30 For a more detailed discussion on this matter see part 2.3 in the theoretical chapter.

Hence, this second variable could be interpreted as simply a second, much less strict threshold to define situations of financial hardship. Insights on the differences between these thresholds will shed light on the importance of the actual threshold to measure economic difficulties. However, this secondary indicator does not simply serve as a technical confirmation of the previous results on poverty. It also has a strong social-policy component: Depending on whether the characteristics of the population that is considered below a certain level of economic well-being change this might shed light on whether social policies which are currently directed at the "poor" are also useful for those who are economically vulnerable.

Finally, parallel to what has been discussed for the poverty variable, it must be said that it would be equally important to study the temporal patterns of precarity and economic vulnerability. It would be highly interesting how people move in and out of precarity, how they transition between financial security, precarity and poverty. However, there are no such data for the target population which is studied here with the VLV and COMP datasets.

*Poverty and precarity in the VLV dataset*

Figure 4 shows the distribution of household incomes based on the VLV dataset. The red line depicts the poverty threshold and the blue line the precarity threshold. Figure 5 then shows the resulting constructed variables. The first panel shows the original distribution of household incomes, the second the constructed indicator of poverty and in the third panel the indicator of precarity/vulnerability is shown. It can be seen that, the major part of the population is only just above this poverty line and thus falls into the category of precarity. Hence, it can again be concluded that this approach of modeling two different indicators does indeed capture the distribution of incomes adequately all the while reducing the complexity of a 9-class categorical variable.

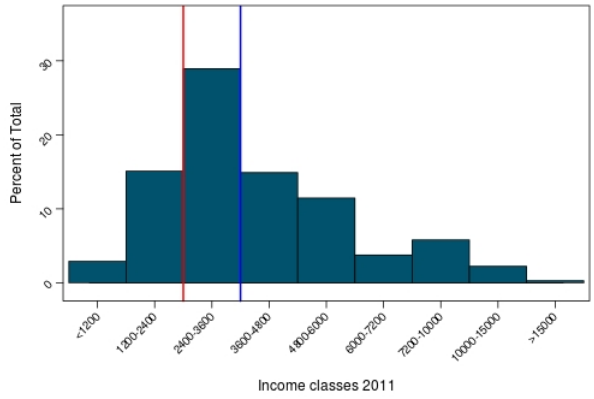


*Figure 4: Distribution monthly household income VLV*
*Source: Own calculations, estimates based on VLV using weights to adjust for stratified sampling approach*
*Note: Red line = absolute poverty threshold, blue line: precarity (150% absolute poverty tresh.)*

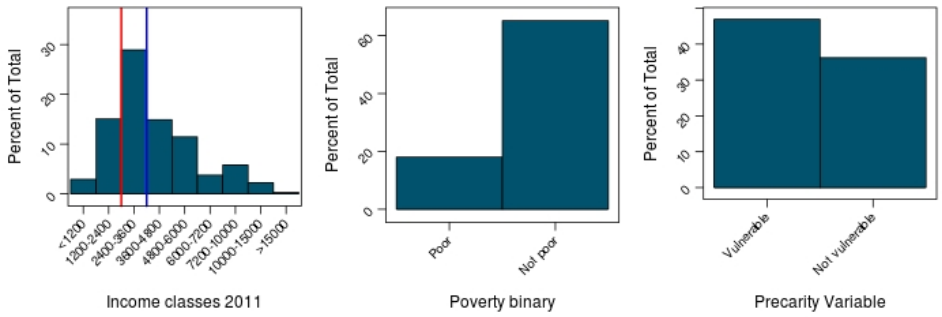


*Figure 5: Recoded monthly household income VLV*
*Source: Own calculations, estimates based on VLV using weights to adjust for stratified sampling approach*

Table 7 shows the precise numbers which are represented in these figures.

| <1200 | 1200-2400 | 2400-3600 | 3600-4800 | 4800-6000 | 6000-7200 | 7200-10000 | 10000-15000 | >15000 |
|---|---|---|---|---|---|---|---|---|
| 3.42 | 17.67 | 33.87 | 17.45 | 13.42 | 4.41 | 6.80 | 2.62 | 0.34 |

*Table 7: Relative frequency for self-rated monthly household income VLV 2011*
*Source: VLV*
*Note: Unweighted data showing the distribution in the sample only*

Again, the overall distribution of incomes in the VLV dataset shows, above all, two important properties of this variable: Firstly, there is a strong concentration around the class of 2400-3600 (33.87%). This class is just above the threshold for poverty and in fact, corresponds to the group of people in precarity (see below). Secondly, there are relatively few cases towards the higher end of the distribution. As this thesis is centered around the problematic of inequality, and especially on the opposition between those who are well-off and those who are in situations of hardship, I decided to recode this income variable into one, respectively two new variables which are poverty and precarity. The rationale behind such an approach based on these two indicators is discussed in the previous chapter. Here, the presentation focuses on the technical properties and the operationalization for the empirical analyses.

Table 8 shows the specific values for these transformations – it shows, so to speak, the counter-piece to the graphical representation shown in figure 5: From the initial income distribution in the first column it shows the binary poverty variable in the second, then the second binary poor+precarious and non-poor/non-precarious typology.

| Income categories | <1200 | 1200-2400 | 2400-3600 | 3600-4800 | 4800-6000 | 6000-7200 | 7200-10000 | 10000-15000 | >15000 |
|---|---|---|---|---|---|---|---|---|---|
| Rel. Frequ. | 3.42 | 17.67 | 33.87 | 17.45 | 13.42 | 4.41 | 6.80 | 2.62 | 0.34 |
| Poverty vs. non-poor | 21.09 (20.84) | | | | 78.91 (79.16) | | | | |
| Poverty+ Precarity (Vulnerability) vs. non-vuln. | 54.96 (54.94) | | | | 45.04 (45.06) | | | | |

*Table 8:Monthly household incomes, poverty and precarity for the VLV dataset 2011*
*Source: VLV*
*Note: All unweighted data except for values in brackets (estimates for the population based on VLV data)*

*The (impossible) use of wealth measures*

Finally, there is one last point of critique that can be made concerning the simple use of household income for the analysis of people's situation in terms of economic resources: Even though the concept of monthly household income does measure the existence of capital stocks or other sources of financial investments (since these possessions generate monthly revenues that should also have been reported by the respondent) I do not consider other types of wealth and possessions, notably housing. In *Vieillesse au fil du temps* Lalive d'Epinay and colleagues did consider the additional elements of being owner of one's housing on one hand, and the amount of a person's wealth. In the present analyses on economic resources the inclusion of these information was not done, principally due to the fact that there were slightly illogical answering patterns for the variable wealth. Above all there were incoherent answers between the variable wealth and the variable where respondents had to indicate whether they own their housing or not. Frequently people reported being homeowner but reported amounts for wealth in the area <100'000 CHF which is very unlikely, given average prices for even modest real estate objects. Hence, it can only be speculated that it was not clear to numerous respondents whether the value for their housing should be reported as wealth or whether wealth only referred to savings. Reconstructing or reconciling these incongruities is nearly impossible without branching out into the area of sheer speculation. For this reason it was unavoidable to drop these additional pieces of information, even though they could have helped with the understanding of the dynamics in this area[31].

31 For a more in-depth analysis of incomes and other indicators of economic well-being see Julia Henke's PhD thesis at the CIGEV at the University of Geneva.

*Missing values in the VLV dataset for household income*

Finally, there are 518 missing values (out of a total of 3080 individuals) for the variable monthly household income representing roughly 15%. A simple binomial logit regression reveals that the following socio-demographic groups have significantly been more likely not to have answered this question: Women, with an odds ratio of 1.51; people residing in Bern and Ticino as well as those with a higher education. As is to be expected, the older people are, the more likely that they do no longer take care of their own finances individually and therefore they are no longer able to provide information on this issue, thus leaving the question blank. The full results of the binomial regression are presented in table 9.

| | |
|---|---|
| Women | 1.51*** |
| Canton Valais (Ref. Geneva) | 0.92 |
| Bern | 0.57*** |
| Basel | 0.94 |
| Ticino | 1.61*** |
| Age group 70-74 (Ref. 65-69) | 1.24 |
| 75-79 | 1.04 |
| 80-84 | 1.52** |
| 85-89 | 1.82*** |
| 90+ | 2.29*** |
| Low education (Ref. apprenticeship) | 1.03 |
| Higher education | 1.59*** |
| Constant | 0.09*** |
| Observations | 3,038 |
| Log Likelihood | -1,316.30 |
| Akaike Inf. Crit. | 2,658.59 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

*Table 9: Non-responses monthly household income VLV*
*Source: Own calculations based on VLV*
*Note: Binomial logit model displaying odds-ratios*

Given the relatively high number of missing values in this variable for the VLV dataset, combined with the fact that the non-responses seem to be situated in specific socio-demographic groups, the decision was made to use techniques of multiple imputation to solve this problem. This procedure is described in a following section on methods.

*Monthly household income in the COMP dataset*

Self-rated monthly household income is also the main variable in the COMP dataset for the analysis of economic resources. As for VLV, the answers were adjusted with the OECD methodology for equalized household incomes. However, there is one key problem related to this variable, which is the use of different scales across the waves. In 1979 the researchers used a 12 level scale[32], in 1994 a 7-level scale[33] and in 2011 the VLV survey used the previously described nine classes.

*Poverty variable for the COMP dataset*

For this reason, the variable of monthly household income was once again transformed into a new generic variable. As is described for the VLV dataset, the reclassification was based on the amount of a standard AVS rent which, as has been shown, is a relatively good proxy for the absolute poverty line[34].

This reclassification has been performed separately for each of the three surveys that compose the COMP dataset: For 1979, 1994 and 2011 using the respective amounts of standard AVS rent in each year. As has been described before, the amount of the AVS standard is also a good indicator for poverty in a comparative setting over a longer time-frame due to the fact that the amount of a standard rent gets adjusted in regular intervals to reflect changes in price-levels and in living standards. Therefore, using this amount to split the population into segments of poor versus non-poor is clearly the most adequate solution that can be employed in this situation.

Tables 10, 11 and 12 show the distribution of incomes with their varying scales over the three waves, as well as the percentage of people below the poverty-line for each year.

The use of these two concepts perfectly captures the distribution of monthly household incomes in the two datasets that are used in the following analyses[35].

32 The income classes were <800, 800-1000, 1000-12000, 1200-1500, 1500-1800, 1800-2100, 2100-2500, 2500-3000, 3000-4000, 4000-5000, 5000-6000, >6000), in 1994 a 7 level scale was employed (<2000, 2000-3000, 3000-4000, 4000-6000, 6000-8000, 8000-10'000, >10'000).

33 <2000, 2000-3000, 3000-4000, 4000-6000, 6000-8000, 8000-10000, >10000.

34 As has been previously pointed out, this methodology has been taken from (Lalive d'Epinay, Bickel, Maystre, & Vollenwyder, 2000).

35 The datasets are described in detail in the following third chapter on data and methods. Very briefly summarized it can be said that there are two main datasets corresponding to the two main angles of this thesis: The COMP dataset covers the historical-evolutionary angle. It is a comparative dataset consisting of three waves of a survey among people aged 65 and older in the cantons Valais and Geneva. It was conducted in 1979, 1994 and 2011. The VLV dataset represents the second angle that is featured in this thesis: The in-depth analysis of inequalities in 2011 with a life course perspective. It consists of the last wave of this survey that was carried out in 2011 and includes data from three additional cantons: Bern, Ticino and Basel.

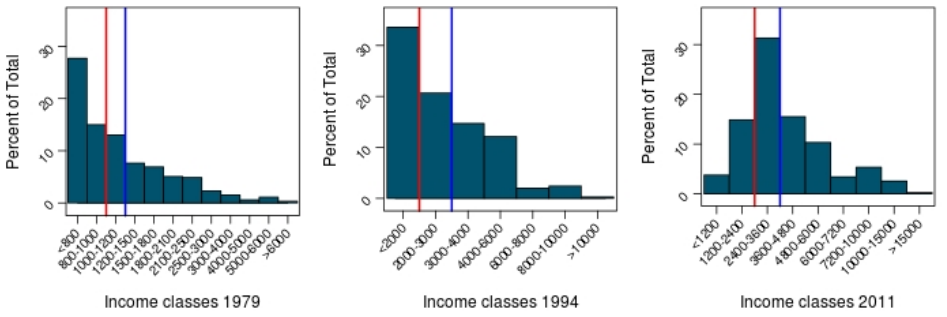


*Figure 6: Monthly household Incomes Geneva & Valais 1979-2011*
*Source: Estimates based on COMP using weights to adjust for stratified sampling approach*
*Note: Red line = absolute poverty treshhold, blue line: precarity (150% absolute poverty tresh.)*

Figure 6 shows the evolution of monthly household incomes for people aged 65 and older between 1979 and 2011 in Geneva and Valais. It shows two points of reference. The line of absolute poverty is indicated in red in all three graphs. People below that line are considered as "poor". The blue line shows the threshold for "precarity". The population that is precarious is thus defined as lying between the red and the blue line.

Particularly the distributions for 1979 and 1994 are strongly situated at the lower end of the distribution. They are heavily skewed to the left and in both years poverty is the most frequent economic situation of elderly people. In 2011 the situation changed somewhat. No longer is the majority of people situated in the lowest income category but there are still little individuals who are situated in the upper income classes. The most frequent income category is that of 2400-3600 which corresponds to the precarious population. Precarity, as is suggested by the literature, seems indeed to be a highly relevant today.

The three figures 7, 8 and 9 illustrate the constructed variables for 1979, 1994 and 2011. Each figure shows the original distribution of household incomes, the constructed indicators of poverty and precarity or "economic vulnerability", respectively. They show in an impressive manner how poverty among people aged 65 and older in Switzerland is on the decline between 1979 and 2011. Economic vulnerability on the other hand remains an important category even in 2011 where it still represent the dominant economic status for senior citizens. These figures show how this approach of modeling two different indicators does indeed captures the distribution of incomes adequately.

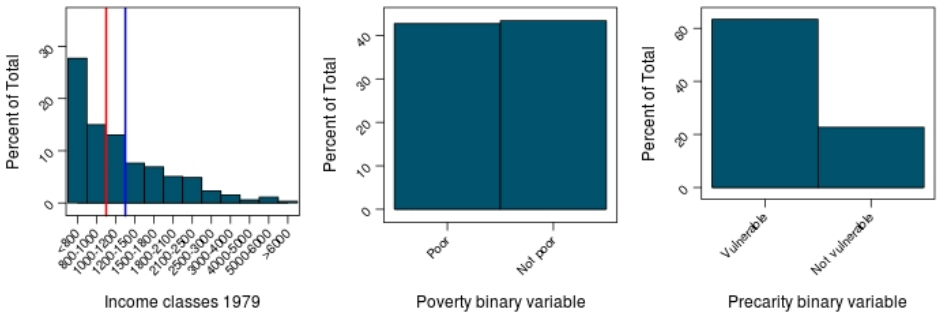


*Figure 7: Recoded monthly household income Geneva & Valais 1979*
*Source: Own calculations, estimates based on COMP using weights to adjust for stratified sampling approach*

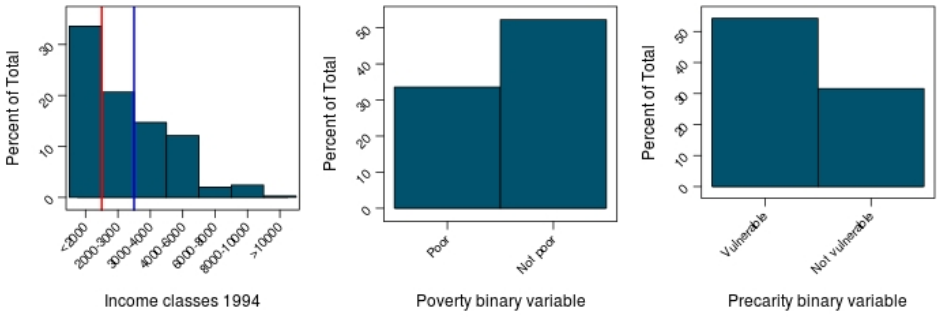


*Figure 8: Recoded monthly household income Geneva & Valais 1994*
*Source: Own calculations, estimates based on COMP using weights to adjust for stratified sampling approach*

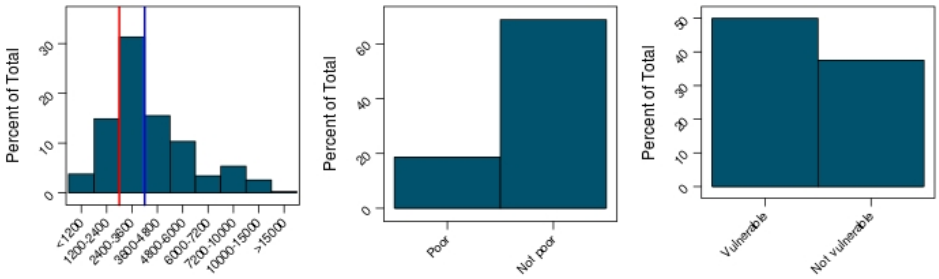


*Figure 9: Recoded monthly household income Geneva & Valais 2011*
*Source: Own calculations, estimates based on COMP using weights to adjust for stratified sampling approach*

While these graphical representations of the transformations provide an already good insight into the adopted logic, the following tables (10, 11, 12) show the precise shares of the distribution and the performed constructions for the new indicators.

| Income categories | <800 | 800-1000 | 1000-1200 | 1200-1500 | 1500-1800 | 1800-2100 | 2100-2500 | 2500-3000 | 3000-4000 | 4000-5000 | 5000-6000 | >6000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rel. Freq. | 32.19 | 17.43 | 15.14 | 8.87 | 8.03 | 5.89 | 5.66 | 2.68 | 1.76 | 0.69 | 1.30 | 0.38 |
| Poor. vs. non-poor | 49.62 (50.99) | | | | | | 50.38 (49.01) | | | | | |

*Table 10:Monthly household income 1979*
*Source: COMP*
*Note: Unweighted data except for values in brackets (estimates for the population based on COMP data)*

| Income categories | <2000 | 2000-3000 | 3000-4000 | 4000-6000 | 6000-8000 | 8000-10000 | >10000 |
|---|---|---|---|---|---|---|---|
| Rel. freq. | 39.13 | 24.09 | 17.14 | 14.15 | 2.34 | 2.83 | 0.32 |
| Poor vs. non-poor | 39.13 (37.16) | | | 60.87 (62.84) | | | |

*Table 11:Monthly household income 1994*
*Source: COMP*
*Note: Unweighted data except for values in brackets (estimates for the population based on COMP data)*

| Income categories | <1200 | 1200-2400 | 2400-3600 | 3600-4800 | 4800-6000 | 6000-7200 | 7200-10000 | 10000-15000 | >15000 |
|---|---|---|---|---|---|---|---|---|---|
| Rel. freq. | 4.33 | 17.00 | 35.80 | 17.74 | 11.83 | 3.91 | 6.12 | 2.96 | 0.32 |
| Poor vs. non-poor | 21.33 (21.43) | | | | 78.67 (78.57) | | | | |

*Table 12:Monthly household income 2011*
*Source: COMP*
*Note: Unweighted data except for values in brackets (estimates for the population based on COMP data)*

Table 10-12 show how poverty in old-age has drastically decreased over the last three decades. The weighted values which show the estimates for the total population suggest that in 1979 poverty concerned about half of all people aged 65 and older. In 1994 this share had already dropped by more than 10% to 37.16 and finally, in 2011/2012 only – but still – 21.43% of the population are in a situation of economic poverty. The following

chapter on the historical evolution of inequalities will explore this temporal dynamic even further. Plus, it will analyze the underlying dynamics which create this (unequal) distribution.

*Missing values monthly household incomes COMP*

Regarding missing values, it has already been shown that there is a significant amount of missing data for this variable in 2011 for the VLV survey. This initial result is, unfortunately, confirmed for the two previous waves. In 1994 the amount of missing data is even close to double of what was found for VLV. Specifically, for 1979 I find 13.9% overall non-responses. For 1994 the percentage of non-responses was situated at 23.9% and finally, in 2011 it dropped again to 14%.

When investigating the nature of these missing cases, it can be found that the patters of non-response are largely identical with the findings for the VLV survey with the main difference being the absence of strong effects for higher education: Women continuously seem to respond less to this question than men and so do people in higher age-groups.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Women | 1.43** | 1.70*** | 1.40* |
| Canton Valais (Ref. Geneva) | 1.28 | 1.55*** | 1.17 |
| Age group 70-74 (Ref. 65-69) | 0.86 | 0.77 | 1.83* |
| 75-79 | 1.01 | 0.97 | 2.07** |
| 80-84 | 0.78 | 0.86 | 1.99** |
| 85-89 | 1.45 | 1.01 | 2.20** |
| 90+ | 0.68 | 2.57** | 6.19*** |
| Low education (Ref.apprenticeship) | 0.78 | 1.33 | 0.78 |
| Higher education | 1.40 | 1.55* | 0.72 |
| Constant | 0.13*** | 0.08*** | 0.08*** |
| Observations | 1,517 | 1,359 | 1,076 |
| Log Likelihood | -603.41 | -539.84 | -432.40 |
| Akaike Inf. Crit. | 1,226.82 | 1,099.67 | 884.80 |

*Note: *p<0.1; **p<0.05; ***p<0.01*

*Table 13: Non-responses for household income variable 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

The implications of these findings are thus the same as for the VLV dataset. It is necessary to adequately address this problem of such a high amount of missing data.

Again, as was the case for VLV, the analyses of economic resources for the COMP dataset will rely on multiple imputation to address this issue.

### 3.4.2 Functional health status

*Functional health: Definition*

In this thesis health is assessed according to two angles: Physical health and mental health. The corresponding variables have been constructed by the research teams that carried out the surveys since 1979 (See Cavalli, Fagot, & Oris, 2013; Cavalli, Fagot, Oris, & Tholomier, 2013 for the precise construction of the indicators): On one hand it is the functional health status, which is based on the Katz ADL Index and on the other hand, the Wang depression score which, as the name indicates, is based on Wang's SADS.

With a minor particularity, the variable for functional health status corresponds to the Katz ADL index. The latter has been developed, given that „normal aging changes and health problems frequently show themselves as declines in the functional status of older adults. Decline may place the older adult on a spiral [...] leading to further health problems. One of the best ways to evaluate the health status of older adults is [thus] through functional assessment which provides objective data that may indicate future decline or improvement in health status, allowing [relevant actors, such as nurses or, as in this case, a researcher]to [assess] plan and intervene appropriately“ (Shelkey & Wallace, 1999, p. 1).

Given this general setting „[t]he Katz Index of Independence in Activities of Daily Living, commonly referred to as the Katz ADL, is the most appropriate instrument to assess functional status as a measurement of [an elderly person's] ability to perform activities of daily living independently [...] The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Clients are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment.“(Shelkey & Wallace, 1999, p. 1). The indicator used at the CIGEV is simply an adapted version of the score with 5 items instead of the 6. The utilization and the classification into the three main categories, however, is exactly the same.

The Katz ADL has been in use for around half a century now. Although it it has not been undisputed since its first conception - for example Kempen, Steverink, Ormel, & Deeg (1996) who found discrepancies between the self-reported Katz Index and performance based measurements -it is generally accepted as being a robust and reliable tool in assessing functional health status among the elderly and is widely used[36].

36 The fundamental principles of the original indicator are described in Katz, 1983; Katz, Downs, Cash, & Grotz, 1970; Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; for more recent discussions of the measure

*Functional health in the VLV dataset*

In the VLV sample (attention, this refers only to the distribution among the sample and not for the whole population) the vast majority of individuals (77.5%) are independent, meaning they have practically no difficulties carrying out their daily activities. Individuals that are completely dependent represent an almost marginal share of the sample at 6.9%. This distribution thus indicates that in a further stage, when I will use methods of statistical modeling, the lack of people that are dependent could create problems and the results concerning this category have to be treated with caution. Finally, there are 15.6% people who are in a situation of minor difficulties.

When readjusting with the weight-variable in order to account for the sampling design, the effective numbers do not change. Based on the VLV dataset the proportions that are estimated are the following: roughly 78% of people are independent, about 17% of people are suffering from minor health difficulties and finally, 7% are physically dependent.

A circumstance which further explains this particular distribution is the fact, that the VLV survey offered the possibility for people with physical or mental impairments to respond to a simplified version of the standard questionnaire, the so-called proxy questionnaire. As was explained before, the data of these individuals are excluded from the dataset that is used in this thesis, the main reason for the exclusion being the absence of almost all key-covariates this thesis relies on. From this point of view it could be argued that due to this limitation, the analyses of health could be prone to a certain degree of bias and could encounter problems of under-reporting of people in situations of dependence, an important particularity with regards to generalizations on the general population.

*Missing values for functional health status in the VLV dataset*

As far as missing values are concerned, these are very low with only 60 people for which information on this variable was missing. Thus only representing only marginal 2% and not requiring any further methods of data-treatment as was the case with household incomes. For this reason, the analysis of missing values is not further investigated with the corresponding regression analysis as was it has been done for household income.

*Functional health status in the COMP dataset*

The distribution for the variable for functional health status in the COMP dataset corresponds very closely to the one in the VLV dataset. People who are fully dependent remain marginal at 4.1% in 1979 (3.8% when adjusted for case-weights), 4.5% (4.6%

see Hartigan, 2007; Shelkey & Wallace, 1999.

weighted) in 1994 and 2.4% (2.2% weighted) in 2011. People with minor difficulties are situated at 10.8% in 1979 (10.6% weighted), 8.4% in 1994 (same value when weighted) and 6.5%in 2011 (6.3% when weighted). Finally, the corresponding share of people who are fully independent and in good health lies at 85% in 1979 (86% when weighted), 87.1% (87% weighted) in 1994 and finally, at 91.1% (91.3% weighted) in 2011. Regarding the evolution, the distribution of functional health status across the three waves remains relatively similar with shifts, notably a reduction in people being dependent or in difficulties between 1979 and 2011.

*Missing data functional health COMP*

Regarding missing values, there are a mere 61 missing cases for the complete COMP dataset. This represents less than 1% of the whole dataset and thus the chances for any sort of bias resulting can be expected to be negligible. Again, since this number is as low as it is, it is not necessary to perform any further analyses on missing values.

### 3.4.3 Mental health: Wang's Self-assessing Depression Scale

*Wang depression score: Definition*

VLV includes a variable measuring mental health based on the number of present depressive symptoms. This variable will from here on be referred to as the Wang depression score. In fact, this variable is based on the items of the Wang Self-Assessing Depression Scale (Wang, Treul, & Alverno, 1975).It is composed of a battery of questions measuring symptoms related to either mood disturbances – sadness, hopelessness, regression – or to physical problems such as lack of appetite, sleep and fatigue. Each symptom is rated on a scale between „never“ and „always“.

The indicator used in this thesis transgresses from the original version as established by Wang in two ways. First in the answering modalities and second, in the way it is scored: Whereas in the original design Wang indicated a five-level scale (never, rarely, occasionally, frequently, always), the researchers at the CIGEV transformed this scale into a four level scale, deleting the level of „occasional“. Furthermore, the items have been scored in a binary manner: The responses for „always“ and „frequently“ have been collapsed into either 1, meaning that the person manifests a depressive symptom for the item in question, or into 0, whereas the person does not show any depressive tendencies in that area. Hence, the score as used in VLV is effectively a count of depressive symptoms. Thus it can be treated as count-data, a property which will be important for the following analyses, notably for the choice of the statistical model.

There exists a significant number of other indicators and scales to measure depression. Some dating back to the 1960s and the 1970s, as does the Wang depression score. These are for instance the Hamilton scale (Hamilton, 1960) or the Zung scale (Zung,

1965).Other indicators are more recent such as the Beck Depression Inventory (Wang & Gorenstein, 2013) or indicators that have been designed to be used in a specific setting or in particular circumstances such as the geriatric depression scale (Parmelee & Katz, 1990; Yesavage, Brink, Rose, & others, 2000) or the hospital anxiety and depression scale (Bjelland, Dahl, Haug, & Neckelmann, 2002). The use of the Wang score can be justified with studies that generally show highly similar results between the older indicators (e.g. Carroll, Fielding & Blashki, 1973) and by the pragmatic constraint, that the Wang score was first used in the wave in 1979 and thus, in order to assure comparability of the data, has been used in the following waves as well.

Finally, it should be noted that VLV would have offered a second indicator which is "fragility".This indicator is in fact used by a number of researchers at the CIGEV, most importantly it featured as one of the main variables of interest in the Swiss Longitudinal Study on the Oldest-Old. It includes dimensions from both mental and physical health. This 13-item indicator was designed to capture and show the dynamics related with the process of fragilization (Lalive d'Epinay et al., 2008). However, in this thesis I have opted against this indicator and to remain with the functional health scores on one hand, and the original Wang scores on the other hand. This choice has two main reasons: Firstly, fragility is a composite indicator mixing mental health aspects with functional health. While it seems to be an ideal indicator for the study of the process of fragilization, it is less adapted for this thesis which aims to shed light on social stratification and life course mechanisms in various dimensions. For that reason I prioritize to disentangle the two dimensions of functional and mental health and to study each separately. Secondly, with respect to both functional health as well as mental health indicators, I opted to remain close to the original concept as it had been constructed and validated by Wang and Katz, and as it is also found in the COMP and VLV database.

*Distribution for mental health in the VLV dataset*

| Symptoms | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rel. Frequ. (%) | 43 (34.8) | 26 (25.2) | 15 (15.2) | 8.0 (9.9) | 5.0 (6.1) | 2.0 (3.6) | 1.3 (2.3) | 1.0 (1) | 0.00 | 0.00 | 0.00 |

*Table 14: Distribution Wang depression score 2011*
*Source: VLV*

Table 14 shows the distribution of depressive symptoms among the elderly population. Suffering from 0-1 indicates no signs of depression and signifies good mental health. 2-3 symptoms can, according to some authors, be regarded as being "upset". Finally, anything over 3 symptoms is considered as clinically depressive (Cavalli, Fagot, & Oris, 2013).

Based on this typology, there are 84% of all participants are in good mental health. 23% can be considered as being “upset” and finally, 8% can be classified as being depressive.

Concerning missing values, almost identical with the results for results for functional health, there is a very low number of missing values for the Wang depression score in VLV: Only 41 cases are missing, representing a rounded 1%. Again, this signifies that as far as dependent variables are concerned, the analysis of health does not require specific methods to deal with missing data.

*Wang depression score in the COMP dataset*

For the COMP dataset, the very same variable for the Wang depression score is used to measure mental health. As can already been seen on table 15 which shows the overall distribution of this variable over each wave between 1979 and 2011, there are only marginal changes in the distribution of depressive symptoms over that time period. Accordingly,the repartition of individuals according the previously described categories does not see any major shifts either.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Symptoms | Relative frequency % (unweighted sample data) | | |
| 0 | 30 | 35 | 39 |
| 1 | 22 | 26 | 25 |
| 2 | 16 | 17 | 17 |
| 3 | 12 | 9 | 8 |
| 4 | 6 | 5 | 5 |
| 5 | 5 | 3 | 3 |
| 6 | 4 | 2 | 1 |
| 7 | 3 | 1 | 1 |
| 8 | 1 | 1 | 0 |
| 9 | 1 | 0 | 0 |
| 10 | 0 | 0 | 0 |

*Table 15: Distribution Wang depression scores 1979-2011*
*Source: COMP dataset*
*Note: Unweighted data referring only to the sample*

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Symptoms | Relative frequency % (weighted data) | | |
| 0 | 30.4 | 34.8 | 39.3 |
| 1 | 22.3 | 25.2 | 24.9 |
| 2 | 16.1 | 17.2 | 17.0 |
| 3 | 11.8 | 9.2 | 8.1 |
| 4 | 6.2 | 5.5 | 4.9 |
| 5 | 4.8 | 3.7 | 3.2 |
| 6 | 3.8 | 2.4 | 1.3 |
| 7 | 2.6 | 1.1 | 1.0 |
| 8 | 1.4 | 0.8 | 0.1 |
| 9 | 0.6 | 0.1 | 0.2 |
| 10 | 0.1 | 0.0 | 0.0 |

*Table 16: Distribution Wang depression scores 1979-2011*
*Source: COMP dataset*
*Note: Weighted data providing an estimate on the whole population*

*Wang depressions score missing data in the COMP dataset*

As far as missing data are concerned, there are 76 missing values for the Wang depression score in the COMP dataset. As this represents less than 2% of all cases and given that they are almost uniformly distributed over all three waves that make up the COMP dataset, this suggests that the risk for non-response bias is very low. As is the case for functional health and for Wang scores in VLV, there is no need for any advanced missing-data handling methods.

## 3.5 Covariates and complete profile analysis historical evolution

*Sex, age-group and canton*

For the COMP dataset the variable age-group contains five groups (65-69, 70-74, 75-79, 80-84, 85-94) and the variable canton only featured Geneva and Valais. The sample composition according to these variables can be found in part 3.2 where the COMP dataset is described.

*Education*

The variable education in each of the three waves captures the highest degree that a person has acquired at the moment when they were interviewed. Originally constructed as a six-level variable, I recoded this variable into three main levels: Low education, regrouping people with either no formal education plus those who only did the mandatory schooling, i.e. primary and secondary school; high, reuniting all those with any type of higher educational degree and finally an „average“ category which simply is made up by all people who did apprenticeships. The average category will serve as a baseline category in the binomial logit regression models (this type of statistical model is described in part 3.8). Table 17 gives an overview of the distribution of educational status for each of the waves that will be analyzed.

| | Low (%) | Average(%) | High (%) |
|---|---|---|---|
| 1979 | 65 (67) | 12 (11.5) | 23 (11.5) |
| 1994 | 47 (46.5) | 16 (15) | 37 (38.5) |
| 2011 | 20 (18.8) | 31 (31.7) | 49 (49.5) |

*Table 17: Distribution of recoded educational levels 1979-2011*
*Source: COMP*
*Note: Weighted values in brackets (adjusted for stratified sampling design), otherwise unweighted values*

What is striking from this table (17)is how strongly it suggests a fundamental shift in the structural composition in terms of education between 1979 and 2011. In the observed period there has been a change that can be regarded almost as a complete reversal of the composition. On the lower end, the situation of departure was that 67% of all the people captured in the survey had a low level of education only. In 2011, there were only remained 18.8% of people with similar educational achievements. On the other end of the distribution, there were only 11.5% of people with a form of higher education in 1979 whereas this number increased to 49.5%. Finally, there are 109 missing values for this variable representing less than 3% of the total sample and thus a negligible amount.

| | VLV | | | Comparison census[37] | | |
|---|---|---|---|---|---|---|
| | Low (%) | Average(%) | High (%) | Low (%) | Average(%) | High (%) |
| 1979 | 65 (67) | 12 (11.5) | 23 (11.5) | 52 | 23 | 8.2 |
| 1994 | 47 (46.5) | 16 (15) | 37 (38.5) | ~22 | ~49 | ~23 |
| 2011 | 20 (18.8) | 31 (31.7) | 49 (49.5) | 30.3 | 45.1 | 12.47 |

*Table 18: Distribution of recoded educational levels 1979-2011: Comparison census*
*Source: COMP, Bundesamt für Statistik, 1985, 1993, 2012a.*
*Note: Weighted values in brackets (adjusted for stratified sampling design), otherwise unweighted values*

These somewhat surprising findings based on the COMP dataset have been compared with census data concerning all of Switzerland. This comparison is depicted in table 18. It shows a certain amount of discordance between the COMP estimates and federal census data. One of the main reason for this contrast lies in the fact that the COMP dataset is *not representative* of Switzerland but it only covers the cantons Valais and Geneva – a mountainous rural canton on one hand, and a highly urbanized canton on the other. As a quick reminder, the reason for this is that for the COMP and VLV datasets and their respective surveys the key idea was to focus on selected key cantons rather than aim for a maximum of representativity for Switzerland. The rationale behind this approach is to be able to control for a socio-economic and cultural setting of a canton and being able to determine the effects thereof on people of different age groups. This survey design thus allows a sufficient number of cases in each age group per canton. Yet, it comes at the cost of compromising representativity for the rest of Switzerland.

| | Valais | | | Geneva | | |
|---|---|---|---|---|---|---|
| | Low (%) | Average(%) | High (%) | Low (%) | Average(%) | High (%) |
| 1979 | 79 | 7.8 | 13.1 | 55 | 15 | 30 |
| 1994 | 58 | 14 | 29 | 36 | 16 | 48 |
| 2011 | 23 | 34 | 43 | 15 | 30 | 56 |

*Table 19: Distribution of recoded educational levels 1979-2011 in Geneva an Valais*
*Source: COMP*
*Note: Weighted values in brackets (adjusted for stratified sampling design), otherwise unweighted values*

In order to give an insight into the mentioned cantonal differences, table 19 shows the distribution of educational levels in Geneva and Valais. It can be seen that those two cantons are, as pointed out above, quite contrasting. In 1979, for example, Geneva already features 30% of people with a high educational level compared to 13.1 % in Valais. In 2011 the two cantons have moved closer together, yet important differences remain. For instance, Geneva still features considerably higher levels of people with a higher education at 56% compared to Valais with 43. On the other end of the spectrum,

37 Sources: (Bundesamt für Statistik, 1980, p. 266; 1990, p. 36; 2014)

there are only 15% of people with little or no formal education in Geneva, compared to 23% in Valais.

Finally, these differences between COMP data (or VLV data, respectively) might raise the issue of data quality and possible biases in the surveys. Here it can be said that post-survey analyses that have since been performed do not support this conclusion. VLV in particular has been shown to capture all segments of the elderly population adequately, especially the most vulnerable who traditionally are susceptible to exclusion (Guichard, Nicolet, Monnot, Joye, & Oris, 2015).

*Civil status*

This variable is constructed with four levels: Married, single, widow, divorced/separated. For the analysis using binomial logit models, being married will be the baseline category to which all other levels are compared to. Table 20 shows the distribution of this variable in the COMP dataset.

| | Married(%) | Single (%) | Separated / divorced (%) | Widow (%) |
|---|---|---|---|---|
| 1979 | 56 (52.2) | 9 (9.7) | 5 (4.9) | 30 (33.2) |
| 1994 | 59 (59.5) | 7 (7.8) | 6 (6.6) | 28 (26.1) |
| 2011 | 58 (59.5) | 6 (6.1) | 11 (13.0) | 24 (21.4) |

*Table 20: Distribution of civil status per year 1979-2011*
*Source: COMP dataset*
*Note: Unweighted data showing distribution in sample*

The relative distribution of civil status among the samples in 1979, 1994 and 2011 shows that being married is by far the most frequent category throughout all of the three waves. Being single is a rather atypical civil status representing not even 10% of the sample throughout the observed period. Divorce has roughly doubled in frequency as it increases from 5% in 1979 to 11% in 2011. Finally, widowhood has decreased from 30% to 24%. For this variable there are no missing values in the COMP dataset.

*Complete cases for the historical comparison*

When it comes to complete profiles – meaning individuals for which all the aforementioned variables are available in their entirety – the analysis reveals a potentially problematic situation. Overall, there are only 3292 individuals with such complete profiles in the COMP dataset, representing 81% of the original sample.

A closer look reveals that the main problem results from the variable monthly household

income. This problem has already been described in section 3.4 where it has been shown that there are generally high levels of non-response for this variable over all three waves. Overall, there are 584 item non-responses for this variable, signifying a share of roughly 14%.The following sections and parts of the analysis that focus on functional and mental health inequalities are less problematic. Together these health-based analyses can be carried out on 3834 individuals with complete profiles representing 94.4% of the total sample. With just over 5% of the whole sample which will be deleted in the statistical analysis, this part of the analysis should not create any significant problems in terms of selection bias.

Given this situation, there are three main approaches that could be taken to resolve the presented problem of missing data (as described in King, Honaker, Joseph, & Scheve, 2001). The first consists of performing the analysis only on those individuals who have complete profiles. This would guarantee that all analyses are performed on the same sample of individuals, enabling a coherent interpretation and comparison of results. The downside of this first approach would be that giving up, so to speak, almost a fifth of the sample would also mean increasing the risk for serious selection biases and generally biased results. The second approach consists of including the missing categories into the analysis. More specifically, this would mean to create an additional answering category of “no reply” which would then be included in the statistical models. The advantage of this approach is that the missing values are not dropped and thus information supposedly is not lost. However, the added value that this approach offers is questionable at best. It is often difficult to interpret and really gain significant insights into the results for modeled missing data. The third solution is given by a statistical technique that is called multiple imputation. This technique is described in detail in section 3.8. Briefly summarized, it is a technique of dealing with missing values that is based on estimating multiple datasets based on the structure of the original dataset – this means taking into account the statistical uncertainty on missing values -, then running statistical models on all of these imputed datasets individually and ultimately, pooling the results together and taking a mean value along with confidence intervals from all of them. Basically, this technique treats the coefficients resulting for each of the imputed datasets as being statistically distributed themselves. This approach is generally considered to produce statistically sound results.
In light of these approaches, the adopted solutions were as follows:

- First, the analysis of incomes and poverty (Gini-coefficients, exploratory statistical models), will employ multiple imputation in order to deal with the high number of missing values. This will enable having statistical estimates that are the best approximation to having a complete dataset without any missing values.
- Second, the analysis on functional and mental health is carried out on those individuals that have complete profiles, hence 94.4% of the sample. With only a little more than 5% of the sample missing, I consider the results of these analyses being close to representing the totality of the sample -the bias introduced by missing values can be considered marginal.

Obviously, the question that has to be asked here is why I did not opt for multiple imputation for the totality of the sample in this chapter and the corresponding analyses. The reason for this is based on the epistemological background of multiple imputation. While I consider it to be absolutely valid to estimate missing responses for poverty, for example, based on a person's socio-demographic profile, I believe it is much more problematic for areas such as mental health, where the relationship with socio-demographic variables is less evident. For this reason, I renounce to use this technique for the second part of the analysis regarding health. As has already been pointed out, given the small number of missing values (roughly 5%), the risk for sample selection biases should be negligible. I therefore consider this approach, multiple imputation for incomes and poverty and working with complete profiles for health inequalities, as being a solution that enables solid statistical analysis and at the same time guarantees high comparability of the results.

## 3.6 Covariates and complete profile analysis economic resources and the life course

*Sex, age-group and canton*

Again, the most basic covariates that will always be included in each statistical model, that is estimated on VLV data, are the criteria of sample-stratification: Age-group, sex and canton. In this first model, these variables serve as both explanatory as well as *control variables*. The age group variable refers to the five-year age-classes according to which the sample was stratified[38]. While the previous COMP dataset was composed only by data collected in the cantons Geneva and Valais central, the variable canton for the VLV dataset has five modalities representing the three additional cantons that were included in this iteration of the survey: Ticino, Basel and Bern. The distribution of individuals according to these sub-groups and variables can be seen in table 2 which describes the VLV dataset. Since these were stratification criteria and their availability was a basic condition to select a participant in the first place, there are no missing values for these variables at all.

*Education*

Concerning the variable education, as was the case for the COMP dataset, it has been recoded as a three-level variable capturing low education (no formal education or only obligatory education), apprenticeship (having an apprenticeship) or high education (any form of higher education including technical schools, universities of applied sciences or

38 In contrast to the previously described COMP dataset where the classes were given by 65-69, 70-74, 75-79, 80-84, 85-94, the VLV sample was stratified by age groups ranging from 65-69, 70-74, 75-79, 80-84, 85-89 up to 90+.

universities). In 2011 the majority of people in the sample (45.7% in the sample, 45.4% when weighted) are situated in the highest class, having a form of higher education. Apprenticeship represents 35.2% (36.3% when correcting for the sample design) of people and only about 18.2% (18.3 when using case weights) of people who have a low education. There are only 42 missing cases for this variable, representing a negligible 1.3% of the total sample.

Education is a contextual variable, meaning that it does play a role whether one has a university degree in a rural valley of Valais or whether one disposes the same amount of human capital when living and working in a city such as Geneva or Basel. For this reason, it is necessary to set out a broad picture of how this variable is distributed in the cantons that constitute the sample. This is done in the following table.

| | Low | Apprenticeship | High |
|---|---|---|---|
| Geneva | 14.9 | 29.8 | 55.3 |
| Valais | 23.2 | 33.6 | 43.2 |
| Ticino | 27.9 | 36.3 | 35.8 |
| Bern | 13.9 | 43.2 | 42.9 |
| Basel | 12.4 | 37.6 | 49.9 |

*Table 21: Education per canton 2011*
*Source: Own calculations based on VLV, 2011*
*Note: Unweighted data referring only to the sample*

Table 21 documents quite fundamental differences in terms of the composition of the population in each of the cantons that are included in the VLV survey. On the lower end of the spectrum, people with very little or no formal education are strongly concentrated in the cantons of Valais (23.2%) and Ticino (27.9%). In fact, these cantons feature about twice as many people with such low educational levels as in Bern, Basel or Geneva. Basel, it must be said, clearly has the lowest concentration of such individuals. For people with apprenticeships there also are quite strong differences, albeit not as pronounced as for the previous category of low education. The highest concentration of people with an apprenticeship is by far found in Bern where 43.2% of all elderly people dispose of such an educational background. Following this are Basel and Ticino with both around 36-38%. Trailing somewhat behind is Geneva with only 29.8%. Finally, for people with higher forms of education there are once again very strong differences. From the lowest concentration in Ticino (35.8%) to the highest (Geneva with 55.3%9 there is about a 50% difference. The other cantons are scattered in between with Valais and Bern having comparable levels (43.2% and 42.9%, respectively) and Basel being in the upper end with 49.9%.

This first overview indicates that there are tremendous cantonal differences with regards to this variable. This aspect will create some basic patterns that will be quite strong in the following models. It is important to remember that a part of these patterns can

potentially be explained through the basic difference in the composition of the population[39].

*Swiss-origin*

This variable is basically the distinction whether a person is foreign-born or native to Switzerland, regardless of their legal status, or their nationality, respectively. In the sample that is analyzed in this part, there are 80.3% of all individuals that are of Swiss origin, opposing 19.7% that are foreign-born. Given the regions in which the VLV survey was carried out, people who are not Swiss-born are often from a neighboring country such as Germany, France or Italy. However, the variable also captures all types of migrants[40]. Therefore, it should be noted that the group of foreign-born individuals is quite heterogeneous. For this variable there are no missing values either, as in the CAPI it served as a filter to which everybody imperatively had to reply to in order to continue the interview.

*First job*

On a technical level, this variable corresponds to the Swiss socio-economic status ("CSP hélvétiques") typology (Bergman & Joye, 2001, 2001) that is also used by the Swiss Federal statistical office and which is featured in most survey databases in Switzerland. However, it also includes a category of "inactive" people which is not included in the original design by Bergman & Joye. The variable for first job thus has six levels: White collar (corresponding to typical office-jobs requiring an apprenticeship), upper and management class (corresponding to people who work in any sort of higher hierarchical or managerial positions), self-employed (for people who are independent, intermediary (for people with a specialized profession, requiring specific schooling, such as nurse or teachers), blue-collar (for typical manual-labor either with or without formal education) and finally inactive, for people who have not been professionally active.

It must be said that the interviewers were instructed to specify that the first job is the first job that they carried out after their education. This leaves room for interpretation: If we suppose that a person does not start working until the age of 40, it is possible that the profession that he or she then carries out at that age ends up being the response for "first job". Furthermore, the category "inactive" regroups a variety of people. In essence, it captures people who have not been professionally active: People who are handicapped or who were inactive at home. However, it is crucial to emphasize that this category does *not* include women who stayed at home to look after children or the household. The latter two are classified as "manual non-qualified".

39 The rather strong patterns related to cantonal differences – which will be discussed in the corresponding analytical chapters - are explored in the annex (section 9.6).

40 This is a rough analysis as unfortunately, the difficult issue of double and triple-nationalities makes it difficult to determine the exact origin of immigrants in the VLV dataset.

These levels have in fact been recoded from the original scale that was used in the survey[41] [42]. The level of item non-responses lies at less than 1% and is thus negligible. Table 22 and figure 10 give an overview of the distribution of these categories in the VLV dataset:

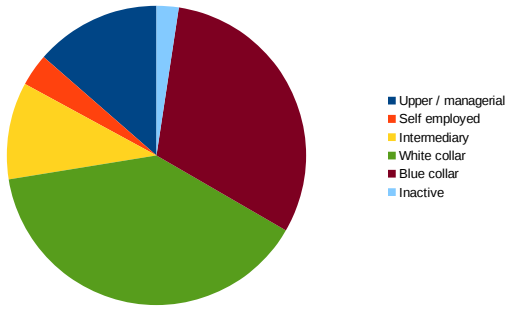


*Figure 10: Distribution first job VLV sample 2011*
*Source: VLV*

| | Upper / managerial | Self employed | Intermediary | White collar | Blue collar | Inactive |
|---|---|---|---|---|---|---|
| % of total | 13.6 | 3.5 | 10.5 | 39.1 | 31.0 | 2.4 |

*Table 22: Distribution for variable first job in the VLV dataset*
*Source: VLV*
*Note: Unweighted data displaying distribution in sample, not representative for the population*

*Last job*

Unlike first job and education, however, this is a measure of class at the *end* of a person's life. For this reason, it measures a somewhat different social position that – while obviously being related to education and first job –can vary slightly with regards to education and first job. Missing data for this variable lies at 2% and again, this should not create any problems for the statistical analysis. Table 23summarizes the distribution of people among these categories for the VLV dataset:

41 The original scale was a 11 item response scale: 1: Director (of more than 20 people); 2: Liberal professions (for example lawyer or physician); 3: Other independent professions (for example director of a small or medium-sized company); 4: agricultural workers; 5: Intellectual professions (employed engineer for example); 6: Intermediary professions (eg. social assistant); 7: Qualified non-manual workers (eg. salesperson); 8: Qualified manual workers (eg. mechanic); 9: Non qualified non-manual worker (eg. waiter/waitress); 10: Non-qualified manual worker (eg. agricultural helper); 11: Non-active.

42 The transformations have been performed as follows: Upper managerial contains original categories 1, 2, 5; self-employed 3 and 4; intermediary 6; white collar 7 and 9; blue collar 8 and 10; and non-employed remains in its original category 11 (unemployed).

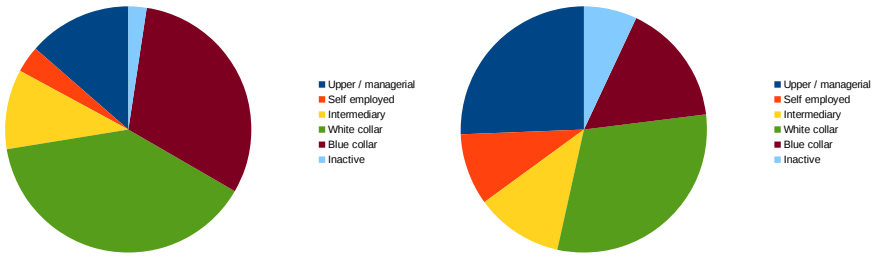


*Figure 11: Distribution first and last job VLV sample 2011*
*Source: VLV*

| | Upper / managerial | Self employed | Intermediary | White collar | Blue collar | Inactive |
|---|---|---|---|---|---|---|
| % of total | 25.6 | 9.4 | 11.5 | 30.4 | 16 | 7 |

*Table 23: Distribution for variable last job in the VLV dataset*
*Source: VLV*
*Note: Unweighted data displaying distribution in sample*

In contrast to the first job, there are slight shifts in favor of upper and managerial professions with levels attaining roughly 25.6%. The same can be observed for self-employment whereas roughly three-times as many individuals reported being self-employed (9.4%) as in the beginning of their professional lives (3.5%). Also, there is an increase in inactive individuals (7%) and a significant decrease in blue-collar workers (16%). It seems that a non-negligible number of individuals seems to experience upward social mobility trajectories.

*Household socioeconomic status*

This variable is created by comparing a person's last job with the one of his or her partner's. The criteria for “partner” was based on respondent's subjective evaluation: They have been asked whether they share their live with somebody at the moment when they were interviewed or not. For people who answered that they did share their live with a person, the survey collected information for that partner's last job. The variable in this section then retains the highest socio-professional position when comparing the last jobs for the person in question and his or her current partner's. For people who reported not to share their lives with anyone – thus having no partnership at the moment of the interview - the socio-professional status of the person itself (last job) was retained. For this variable 2% of individuals did not provide any answer. This is, once again, a negligible share of individuals given the total sample size of 3080 individuals. Table24 summarizes the distribution of individuals given this typology:

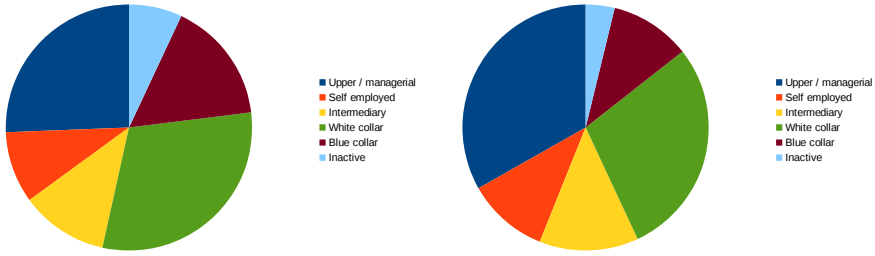


*Figure 12: Distribution last job and household CSP VLV sample 2011*
*Source: VLV*

| | Upper / managerial | Self employed | Intermediary | White collar | Blue collar | Inactive |
|---|---|---|---|---|---|---|
| % of total | 33.2 | 10.7 | 13.0 | 28.6 | 10.6 | 3.8 |

*Table 24: Distribution for household CSP*
*Source: VLV*
*Note: Unweighted data displaying distribution in sample*

It shows that when taking into account the partner's last job and socioeconomic status there is a shift towards the upper categories. Using this measure, 33.2% of individuals are situated in the highest category of upper and managerial professions. 10.7% are self-employed, 13% in intermediary professions while the percentage of white collar workers (which previously has been at roughly 30%) drops to 28.6. The drop for the category blue collar is around 6% and the percentage of people who are categorized as unemployed decreases to 3.8% of all VLV respondents.

### *Civil-status*

The variable for civil status has the same properties as described for the COMP dataset. It is constructed with four levels – married, divorced/separated, widow and single and does not have any missing values. In 2011, the large majority of individuals in the sample were married (57%). 26.9% had lost their partner and were widows. The percentage of people who have had a divorce or are separated was situated at 9.3% and finally, 6.8% of all respondents reported being single.

### *Living situation*

This is a measure of people's housing situation – not in terms of property but actually where and in what configuration people live in their household. In the sample that is used in this thesis the vast majority of individuals are living at home (92.2%). It has to be emphasized that this dataset, the VLV dataset, does only include people who have

participated in the survey via a standard procedure and not those who participated via the proxy procedure. In fact, as has been described previously in 3.3, the VLV survey also included a so-called proxy procedure which was designed to capture basic information for people with severe physical or cognitive impairments. Due to the nature of this procedure, only very basic information were collected and most of the information that are used in this thesis are absent. For this reason, these cases were excluded. Among those who did a proxy-procedure a large number was living in care-institutions. For this reason, the stated percentage of people living at home is relatively high. Furthermore,2.4% of people were living at home but in a sort of assisted living arrangement[43].3.4 % were living in a care-institution and finally, about 2.1% were living with other people. The latter category included living with a child, living with other family members or living with friend's. There were only 38 missing cases. This represents less than 2% and thus is non-problematic for the analyses.

*Homeowner*

55% of people in the VLV sample are homeowners. Given that this variable is a recoded binary dummy variable that also acted as filter in the CAPI, there are no missing values.

This value might seem quite elevated given that Switzerland is traditionally known as a country where homeownership is rather low – compared with other countries where homeownership is almost the standard living situation (Harvey, 2014). More specifically, official data regarding all of Switzerland shows that homeownership lies at only 37.5%. However, for people aged 65 and older the same source, the Swiss Federal Statistical Office, also shows elevated ratios of homeowners: For all of Switzerland the percentage lies at 47.6. Furthermore, it has to be kept in mind that the VLV dataset is composed of five cantons and it thus not representative of Switzerland. And indeed, when looking at cantonal levels of homeownership, it turns out that Valais has the highest ratio in all of Switzerland at close to 60% in 2013 (Bundesamt für Statistik, 2015)– albeit the latter source shows data for the whole population and not for people aged 65 and older. Nevertheless, this is therefore a very likely explanation for the somewhat increased value in the VLV dataset.

*Urban environment*

This variable has been created with the life event history calendars that respondents filled out in the VLV survey. As has been described in section 3.3.3 this calendar included a section, dedicated to the places an individual has lived in. With that information it was possible to determine the last place where this person moved to and

43 This usually entails a nurse coming by once a day, whereas the amount of support they provide can vary greatly. In some cases care workers only provide help with more elaborate tasks such as cleaning but in some cases the support may also include washing and personal hygiene or preparing food. The largest provider and mostly recognized brand therefore is the “Spitex”.

based on that location, create a variable that consists of the degree of urbanization of that area. This typology is provided by the Swiss Federal Statistical office for each commune in Switzerland and follows Eurostat's three-level definition of (1) urban and densely populated areas, (2) semi-urban areas and (3) rural and thinly populated areas. In its final coding, this variable contains 285 missing values, meaning a total of 9.3%. These cases result from people not properly filling out their event history calendar and not providing any information at all for the residential column.

In 2011, 40.9% of all respondents were living in densely populated urban areas while 40.3 lived in intermediary populated peri-urban areas and finally, only 15.7 lived in rural and thinly populated areas[44].

*Work trajectory*

One of the key covariates – the typology of work trajectories of people's individual work-biographies – results from a separate analysis and more intensive process of data preparation. This section features a whole sub-section that is dedicated to the description of this covariate. This will include an overview of the raw data that lead to the construction of the typology of work trajectories. The results themselves are presented in the chapter on economic resources and the life course.

The information for people's profession trajectories were taken from the life event history calendar that has been described in 3.3.3. This calendar includes a column dedicated to people's professional and educational trajectory. The experience with this calendar and the resulting high level of heterogeneity in people's responses to this column in particular has also already been described in section 3.3.4. This large diversity of responses was a difficult task to tackle and finally, the adopted solution was both pragmatic and efficient. It represents the smallest common denominator across all calendars. The employed “alphabet” - to use terms from longitudinal and sequence data analysis – thus contained four simple levels or states: (1) missing information for cases where no information was available. This mainly concerns the beginning of people's professional trajectory; (2) “working” (meaning that people were active in the *formal* labor market either working as employees or being self-employed – this excludes women who declared themselves housewives); (3) inactive (capturing years when people have not been active in the labor market, where they have been unemployed etc.) and finally (4) “retired” which was attributed to people as soon as they indicated the event “retirement” or any other similar term that referred to the latter. Given that the responses regarding education have not been consistent across all of the database, any kind of

44 For 3.1% of the people in the VLV dataset the indicated location was reported to be somewhere outside of Switzerland. Unfortunately, it is not possible to explore further why this is the case. Theoretically, this should not be possible since the criterion of inclusion for individuals interviewed in the VLV survey was to be a permanent resident of Switzerland (more specifically, in one of the target cantons). It is possible that people reported having a secondary residence somewhere outside of Switzerland; however, this can unfortunately not be verified.

information in that area has been excluded from the analysis. Also, given that the main focus of these trajectories is to have a representation of people's professional trajectories, the ages which are considered were limited at 15 and 65 years of age. With this limitation the problem of varying lengths of trajectories could be resolved as well.

The coded data (at this stage the database featured an event-based logic of coding) was then imported in the R statistical software and transformed into a state-sequence object using the TraMineR and the TraMineRExtras packages for R.

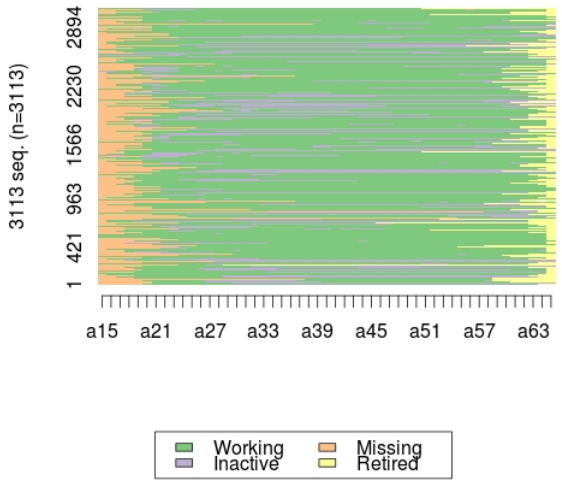


*Figure 13: Raw work trajectories VLV*
*Source: Own calculations based on VLV, 2011*

Figure 13 shows the raw data, meaning all trajectories for all individuals in the VLV dataset according to the aforementioned alphabet. On the y-axis all 3080 trajectories are stacked on top of each other and the x-axis shows the ages from 15 to 65.

Such a graph is not very conclusive but nevertheless serves as a comprehensive first insight into people's trajectories. More information can be obtained from a so-called state distribution plot which for each year or age shows the stacked distribution according to the four states in the alphabet. The state distribution plot for the overall sample is shown in figure 14.

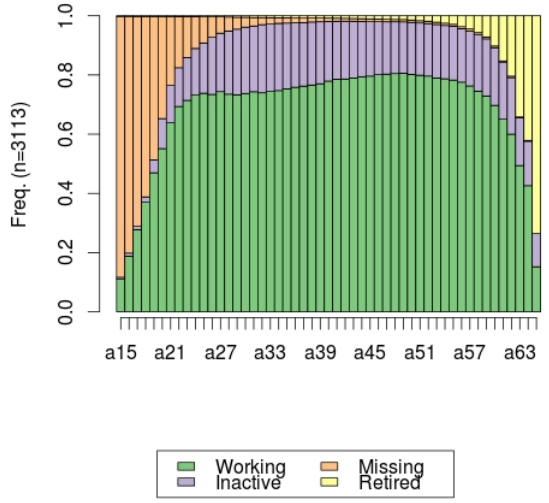


*Figure 14: State distribution plot work-trajectories VLV*
*Source: Own calculations based on VLV, 2011*

What is already highly visible is that on a general level, the studied population shows work-trajectories that are predominantly characterized by the status “working”. Missing information are more frequent in the beginning of people's work lives but practically disappear after the age of 30 when practically all people fall into either the categories of work or inactivity. Depicted in yellow is the state of retirement which, as is to be expected, appears more prominently from the age of 60 onwards. This is also the time when people can start taking premature retirements.

The next step was to create a typology based on the presented raw data. This was done using the TraMineR software and the built-in optimal matching algorithm. The cluster analysis revealed that an optimal number of clusters was given by four. The exact description of the software as well as the employed statistical methods are both found in part 3.8 on methods. Exact results such as cluster quality measures as well as a description of alternative clustering approaches are all found in the annex in part 9.1. The results are, as previously indicated, presented in the chapter on economic resources and the life course.

*Retirement timing*

This variable has three levels: Early retirement (meaning retirement before the legal age

of 65 for men or 63 for women, normal (at the legal age) and late retirement (anything later than the aforementioned ages). Around a third of individuals in VLV sample (33.7%) retired earlier than at the legal age. 55.2% retired at the legal age with a minority of 11.2% opting for a late, postponed retirement. In light of these numbers it will be highly interesting to determine relationship of this decision with poverty and precarity in old-age.

*Physical strain of the work-life*

This is a binary variable that measures to what extent a respondent evaluates his or her past professional activity as physically demanding. It was included in the questionnaire as such (the original wording was „would you say your job has been physically demanding and required intense physical efforts“). 32.4% of all people in the sample have replied this question with “yes” as opposed to 67.6% who denied having had such a physically straining job.

*Social mobility*

Social mobility is included in the analyses using an indicator that compares a respondents first job and last job. Thus, it has three levels: Ascending (referring to upwards-social mobility where the last job was in a hierarchically higher class than the first), descending (referring to careers of downward social-mobility where the last job was lower than the first) and finally, stagnation which means having a job at the same level of socio-professional hierarchy at the end of one's life as in the beginning.

*Age at birth of first child compared to cohort*

Technically, this variable calculated a mean age for the birth of the first child for each cohort and compared it with the values for the rest of the birth-cohort. Having an age at the birth of one's first child between the mean of one's birth-cohort minus or plus the standard deviation was categorized as „average“. Anything falling outside of this „standard-interval“ created the two categories of outliers: Anything earlier and outside of this interval is considered „early“, and anything later as „late“. Naturally, to account for people who never had any children there is a category „no-children“. Classifying this life event in terms of its normality or conformity actually serves the purpose of determining whether it has the potential to be a non-normative and disruptive critical life event and is a procedure that is often applied by demographers (Levy et al., 2005). The distribution of this variable on the timing of the birth of the first child shows that 60.3% of people in the sample who have children had them in at an age which is absolutely conform to their cohort-norm. 14.2% of all respondents reported not having any children which is modeled in this factor as such. In fact, not having children at all can also be regarded as non-normative behavior since the generations which are studied here are the parents of

the so-called baby-boomers (Duvoisin & Oris, 2013). Finally, around 12.5 % of respondents indicated having had a child earlier than usual in their respective cohort. Opposed to this, 13.0% of respondents had their first child at an age that falls outside the set interval for cohort-average.

*Relationship dissolution*

The second event in the area of family trajectories is the experience of a relationship dissolution. This binary variable measures whether the respondent has indicated as living in a "significant" relationship (in fact, the exact question at the origin of this variable is whether a person has at any point in their life „shared his or her life with anybody") at any point in their life and whether this cited relationship has been terminated. Only around 15.7% of people in the sample did experience this event. Yet, it still represents a large enough share to be tested for in a statistical model.

The third binary variable refers to the experience of a loss of a partner through death. Obviously, this variable contains anybody whose civil status is widow. About a fourth of all respondents in VLV did experience such an event.

*Typology of income sources in old-age*

The typology regarding income source clusters is, just as the typology of work-trajectories, a result of a more elaborate process of data-preparation and data-synthesis. This section will describe the original data in the VLV questionnaire. This is followed by a description of how this data has been synthesized into a typology of income-source clusters. The results for the final typology are found in the chapter on economic resources as well.

This variable relies on a part in the VLV questionnaire that collected information regarding people's sources of income. Technically, it consisted of a section in which people were asked to respond on binary basis (yes/no) whether they rely on a list of sources of income. The list consisted of twelve items. These items were:

- Regular work
- Occasional work
- AVS / AHV ("1st pillar")
- Professional pension ("2nd pillar")
- Financial revenues (corresponding to incomes from a "3rd pillar")
- Revenue from rent (this also corresponds to "3rd pillar" incomes)
- Incomes from unemployment insurances
- Incomes from disability insurances
- Supplementary welfare ("prestations complémentaires")

- Cantonal welfare
- Welfare from an different type of organization
- Financial help from the family

In a firs step, items that were highly similar and where no finer details were required for the analysis were merged into one. This was performed for the two types of work (occasional and regular). Moreover, it was applied to any sort of revenue that can be classified as "3rd pillar" incomes, namely financial revenues from any type of investment (for example life insurances, etc.) and revenue that resulted from rent of real estate objects. Finally, the types of welfare were reduced into the following generic categories: Social welfare (regrouping unemployment and disability insurance contributions); *other* welfare (cantonal welfare and other institutional welfare). The rest of the variables were kept as they were.

In the next step the already reduced number of income source items was reduced even further. The second time this was done using clustering techniques. On a technical level, the distance matrix was established based on all of the listed reduced items for income sources and using the Gower-distance metric. In a further step, the clusters were created. The actual statistical method is specified in section 3.8 dedicated to the used methods. The detailed results are presented in chapter 5. and the cluster-diagnostics (quality measures for clustering results) can be found in the annex in section 9.2. The resulting typology is presented in the chapter on economics and the life course.

*Analysis of complete profiles for poverty and the life course*

An analysis of complete cases determines the size of the sample for which all of the aforementioned variables are available without a single missing value. This „complete sample" is then usually used to perform the necessary statistical analyses. Omitting this stage could result in varying sample sizes between the models (given that most current statistical softwares simply remove incomplete cases from the analysis – in the R software this process is called „list-wise deletion") which can affect coefficient estimates due to varying non-explained variance (Mood, 2010).

Regarding the chapter and corresponding analyses on economic resources, the analysis of complete cases shows that there are only 1613 individuals (out of 3080) who dispose of complete profiles and could thus be used to estimate statistical models. This represents only 52% of the whole sample and thus it must be expected that selecting only these cases would result in major problems concerning selection bias and possibly problems of insufficient numbers of cases for certain more complex models. As has been explained in the previous section on dependent variables, a large part of these missing values are due to the roughly 15% of missing data for monthly household incomes alone. For all of these planned analyses it is therefore necessary to address this problem. For

this reason multiple imputation is employed. I is considered as the most sophisticated, robust and convenient approach to deal with that number of missing values. The procedure is described in section 3.8 on the employed methods. Given that this issue is addressed using multiple imputation it is not necessary to perform an in-depth analysis of missing values and the possible selection biases that result from it.

## 3.7 Covariates and complete profile analysis health inequalities and the life course

*Personal traits model*

Personal traits are integrated in the analyses using the big five inventory (Rammstedt & John, 2007). It contains five items: Agreeability, conscientiousness, openness, neuroticism and extraversion. Each contains numerical scores ranging from 2 to 10. The results for personality scores are shown in figure 15.

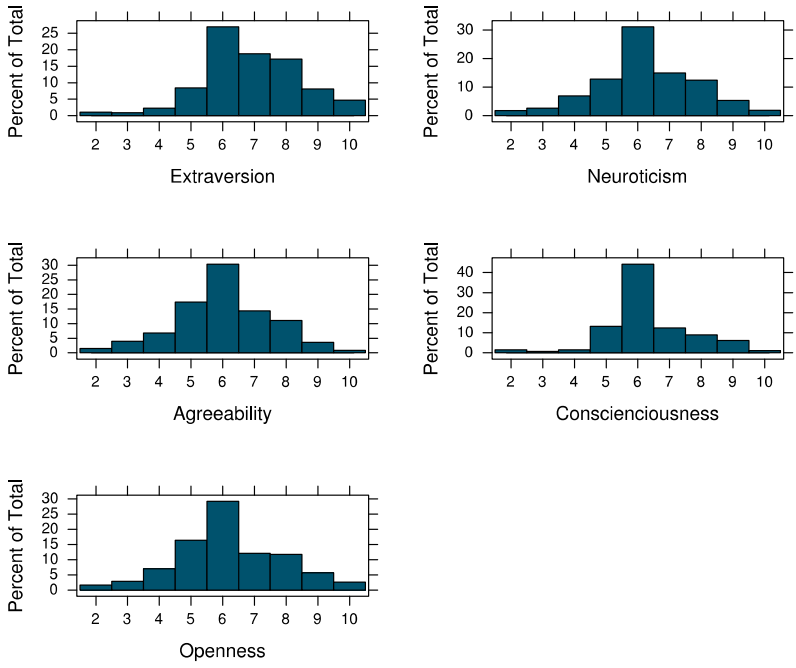


*Figure 15: Scores "big 5" personality traits VLV*
*Source: VLV, 2011*

The distribution shows that besides extraversion which seems to be more frequent among the respondents for the VLV survey all other personality traits follow an almost perfect normal distribution. This finding does in fact correspond to the current literature (Rammstedt & John, 2007).

*Analysis of complete profiles for health inequalities and the life course*

As has been discussed in the section on old-age poverty, the described models employ a wide variety of variables. Each of these variables contains missing values. In the course of analysis using statistical software each missing case signifies that the entire individual is dropped from the sample (list-wise detection). For this reason it is of crucial importance to perform an analysis of complete profiles. This analysis determines the *actual* sample of individuals which possess all the required information across all the variables that are used in this part. Such an analysis gives insight into possible sample selection biases.

Among all the 3080 individuals that have been interviewed in the VLV survey only 2033 people have answered all of the required questions that are employed in the chapter on health inequalities and the life course. This represents a share of 66% of the original sample.

A closer analysis shows that this drastic reduction of the sample is due to the cumulative effects of a small number of missing values (generally less than 5%) for each of the covariates that are widely distributed across the whole sample, meaning there are always different people not replying to particular questions. The result of this is a drop of approximately 20% in the sample size. An additional 13% are lost with the missing values found in the personality traits variable. The reason for this high number of missing values is found in the fact that it is a composite score based on 10 items. As soon as an individual did not respond to any of these items the score cannot be calculated and results in a missing value.

The problem with missing values and more particularly with incomplete cases has already been discussed in section 3.5.3 and where I have outlined the three main approaches to dealing with missing values: Exclusion, modeling missing values as additional factor levels, and multiple imputation. Whereas for the analysis of poverty I have opted for multiple imputation as a means of addressing this issue, I have previously argued already why this is not a suitable solution for the variables that are employed in this chapter. Basically, I disagree with the approach of simulating such delicate data as personality traits based on socio-demographic and socio-economic data. This leaves the two other options as possible approaches.

Finally, I have opted for the first solution which is to exclude all people with incomplete profiles from the analysis. Obviously, this creates potential issues regarding sample selection biases. However, I argue that this option is the cleaner and more adequate solution compared with modeling missing values as additional factors. As King and

colleagues (2001) point out, modeling missing values creates models which have missing values „scattered across the model“ and yet, the added value is highly questionable given that the interpretation of such modeled missing values is relatively complicated. In order to be able to estimate the impact of the sample selection bias,an analysis regarding the excluded population has been performed. The results of this analysis are shown in table 25.

| | Basic | Edu. |
|---|---|---|
| Women | 1.08 | 1.00 |
| Canton Valais (Ref. Geneva) | 1.32** | 1.27* |
| Bern | 0.88 | 0.91 |
| Basel | 0.72** | 0.74** |
| Ticino | 2.05*** | 2.00*** |
| Age group 70-74 (Ref. 65-69) | 0.93 | 0.91 |
| 75-79 | 1.33** | 1.26* |
| 80-84 | 2.05*** | 1.93*** |
| 85-89 | 2.24*** | 2.12*** |
| 90+ | 3.89*** | 3.78*** |
| Low education (Ref. apprenticeship) | | 1.53*** |
| Higher education | | 0.99 |
| Constant | 0.28*** | 0.26*** |
| Observations | 3,080 | 3,038 |
| Log Likelihood | -1,857.02 | -1,802.68 |
| Akaike Inf. Crit. | 3,736.05 | 3,631.35 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 25: Complete cases for analysis of health inequalities VLV*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Results shows that there is a clear tendency of structural exclusion of a part of the sample. The most pronounced effect is found in age-groups whereas the likelihood of having an incomplete profile increased with age. More specifically, people aged 75-79 had between 26% - 33% higher chances of being excluded depending on whether one controls for education. This share then continuously increases and reaches almost 400% (indicated by the odds-ratio of 3.89 and 3.78) for the highest age-group 90 and older. Highly relevant as well is the higher odds-ratio for the absence of people with a lower education (1.53)from the sample that will be analyzed in this part of the thesis. In conclusion, the population which is excluded from the analysis has relatively clearly defined characteristics and there is thus clear evidence for a structural sample selection bias. However, I believe that based on this careful analysis of this bias the analyses can still be highly insightful and enable to answer the evoked hypotheses adequately. It has

to be kept in mind that the identified key-groups are under-represented in the analyses.

## 3.8 Methods

This part provides an overview of the employed methods of data analysis that are used in this thesis. Generally speaking, the key research questions that have been described in this logic consists of assessing the described target variables (monthly household income, functional health indicator and the Wang depression score) in function of various covariates using regression models (binomial or multinomial logit; Poisson regression). Hence, the Given that I have run all analyses in the R statistical software (Everitt, 2005; Team, 2005), I will also specify the packages that correspond to each employed method.

### 3.8.1 Poverty and income inequality measures

The analysis of inequalities of incomes employed Gini-coefficients and Lorenz curves (Atkinson & Bourguignon, 2001; Dorfman, 1979; Gini, 1912). The Lorenz curve is a graphical representation of distributional inequality for a specific resources within a given population at a given moment of time. It displays the cumulative relative distribution of the resource for the whole population. The more skewed the resulting curve is, the more inequality is present. Differently put, in a population where there is perfect equality, the Lorenz curve is a perfect linear curve. In such a scenario of perfect equality, each individual in the population owns the same share of this resource.

The Gini-coefficient is the numerical counterpart, or the numerical basis, to the Lorenz curve. It is the ratio of the surface between the line of perfect equality and the traced Lorenz curve and the surface between the line of perfect equality and the line of perfect inequality. Hence, it obviously is also a measure of dispersion of a variable or a resources among a given population. The values range from 1 (perfect inequality whereas only one individual possesses all the resources) to 0 (perfect equality, whereas there is a perfectly equal distribution over the whole population).

The analysis of poverty between 1979 and 2011 in the fourth chapter will rely on two key measures: Principally, it will feature the *poverty headcount index* or *poverty headcount ratio* which shows, based on the absolute poverty-line, the share of people living below that line and those above (Haughton & Khandker, 2009, p. 70). Secondly, the *poverty gap ratio* is a measure of the depth of poverty. It shows the “extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line” (Haughton & Khandker, 2009, pp. 71–72).

For all of these calculations there are two technical details that have to be explained. Firstly, since in the original questionnaires the information on household incomes has

been in the form of categorical income classes which cannot be handled by the available statistical packages in R, I had to refer to a first work-around which consisted on using the median incomes for each class as a “virtual” amounts for people's income in these classes. This “translation” has been performed for all of the income classes in this dataset.

Secondly, all of the previously described analyses have been performed on 100 versions of an imputed dataset based on VLV data. The analysis was performed on each of the imputed datasets separately first, then the results have been pooled using the guidelines described by King and colleagues (2001). Briefly summarized, pooling the results consists of considering each of these wave-specific Gini-coefficients and informations for the display of the Lorenz-curves as a distribution of a random variable as well. Hence, one needs to calculate the mean value along with the measures of variance from all of the dataset-specific results to obtain the overall results.

On a technical level, these indicators have been calculated with the „ineq“ package for R. The income gap ratio was calculated using the “pov” function and the “Foster” parameter. The Gini-coefficient and the Lorenz curves were calculated using the “ineq” functions.

### 3.8.2 Binomial logit regression

The majority of the presented analyses in this thesis concern binary independent variables that are estimated on the basis of a set of (in most cases, categorical) covariates: Poverty, precarity, membership to a certain cluster-group, having a missing value in a dataset. The most adequate method for this statistical problem is by the use of binomial logit regression models (Cox & Snell, 1989).

Binomial logit models - or binomial *logistic* regression models, as they are sometimes referred to – suppose a binomial probability distribution and use a link function to transform the binary categorical data in order to model them. The most commonly used *link function* is the logit function which basically relies on modeling the logs of the odds for the dependent variable. Also, in contrast to other link functions such as probit or clog-log functions, logit is easier to interpret. In all of the presented analyses this appears as the most sound modeling choice (Collett, 2002).

Also, it must be pointed out that in order to facilitate the interpretation of the results, the coefficients have always been transformed in odds-ratios (meaning the exponentiated values of the coefficients). Here, it must be emphasized that coefficients in a logit model are not probabilities but odds. The odd is basically a ratio of probabilities: The probability that an event occurs versus its probability of not occurring. Thus, an odds-ratio is basically a ratio of a ratio. With Odds-ratio ranging from 0 to 1 signify a lesser chance to experience the modeled outcome in comparison to the reference group; anything over 1 means increased chances (or *odds*, to be precise) for the same outcome.

For cases such as the analysis of poverty where the analysis has been performed on imputed datasets,the Zelig package has been used to do so (Kosuke, King, & Lau, 2013). More specifically, for the binomial logit models I have used the parameter “model=”logit” ”.

*Use of case-weights for regression models*

All of these logit regressions have been carried out *without* using the respective case-weights that account for the survey's stratified sampling design. There is a somewhat ongoing debate on whether such weights have to be used when estimating regression models. However, I follow the arguments by Winship and Radbill (1994) who posit that in the very vast majority of analyses an unweighted model is to be preferred over the weighted alternative “because they are unbiased, consistent, and have smaller standard errors than weighted [...] estimates” (Winship and Radbill, 1994, p. 230).

*Logit vs. multinomial for poverty and precarity*

The statistical estimates for the analysis of poor vs. non-poor individuals rely on binomial logit models. The introduction of a third group of „precarious“ individuals could suggest an approach using multinomial logit models. However, such an approach would miss the point of not placing too much importance on the actual threshold for poverty and would even increase the rigidity of this definition. Not only people who are poor would then be classified using a very strict threshold but on top of this people in situations of precarity would also be classified according to such fixed – and, as could be argued, arbitrary - thresholds. In conclusion, I believe that merging the group of poor and precarious individuals in order to re-run a binomial logit model is a robust and adequate approach and clearly superior to a multinomial logit approach. In order to confirm the robustness of this approach I have added a demonstration in the annex where the two approaches are compared (see part 9.3).

### 3.8.3 Multinomial logit regression

For the analysis of functional health status multinomial logit regression have been employed (Hilbe, 2009; Hosmer, 2000; Menard, 2010). This method enables modeling three or more distinct variable-modalities (in the case of functional health these were: independent, in difficulties, dependent) and estimating the impact of covariates on the odds of being in one category in comparison with the other ones. For all functional health models the reference category was given by being independent. Also, similar to the binomial logit models the coefficients have always been transformed into odds-ratios.

*Multinomial vs. ordered regression*

Given the particular setting of this type of analysis, there would have been two families of models that could have been exploited to this end. On one hand, there is the method of multinomial logistic regression models, where one category serves as baseline category and each of the other remaining ones is compared to this reference category. As the name suggests, these models suppose a multinomial probability distribution and employ a logit link function. On the other hand, there is a family of models which would have exploited the fact that the three categories for functional health (independent, in difficulties, dependent) are *ordered*, meaning that there is a logic to how they are related to each other. These ordered logistic regression models resemble the multinomial logit models quite closely, however, in these models the *order* of comparison is different: In these models the comparison is performed from one category in relation to the one category above. In this specific case this would have meant that people who are independent are compared to people in difficulties, and people in difficulties would then have been compared to people who are dependent. Most importantly, ordinal models only estimate one set of coefficients and suppose that these coefficients are simply *proportional* between the different borders of categories. In other words: These models suppose that the dependent variable is a latent variable across the categories and that the modeled covariates can have either a protective effect from being in the next higher category (negative coefficients) or being a risk factor (positive coefficient estimates, indicating that a certain factor increases the odds of being in the next higher category (see Menard, 2010).

Ultimately, the choice was made for multinomial logistic regression based on two main reasons: Firstly, the main focus, in terms of sociological interpretation, in the presented analyses for functional health is to compare the profiles of people who are in difficulties from those who are dependent, based on a number of covariates. In other words: I am interested in what kind of factors make it more likely to be in difficulties (in relation to being absolutely independent) or to be dependent (in relation to being independent). The comparison between the groups in difficulties and dependent is not only of less interest in this analysis, but moreover, it is very doubtable that the hypothesis of proportionality can be held for this situation[45]. On the other hand, from a purely pragmatic point of view, there are not too many people in the categories „in difficulties“ and even less for „dependent“. In a model where in difficulties would be compared to dependent, this possibility of lacking effective numbers is quite high.

Finally, it can also be emphasized that in a purely exploratory phase, I did test both models in parallel to each other and generally, the results have been highly similar. The choice of statistical model does therefore appear to be not as central – at least in terms of empirical results. However, based on the aforementioned discussion I do believe that multinomial logit regression models are better suited to this analysis than ordered ones.

45 This hypothesis of proportionality basically supposes the same dynamics between these groups but in a different *intensity*. It is very likely though, that the dynamics are complete different between these three groups.

### 3.8.4 Poisson regression

As has been explained in the section where the dependent variables are described, the Wang depression score as it is implemented in VLV is basically a count of depressive symptoms. This property, being *count-data*, thus enable me to choose a statistical model that is adapted for this situation. One of the most often used and reliable models for count data is the Poisson model. Poisson models are a form of generalized linear models supposing a Poisson distribution (a left centered and long tailed distribution) of probabilities (see Greene, 2003).

Again, as was the case for binomial and multinomial logit models the coefficients are always transformed into odds-ratios.

### 3.8.5 Model comparison historical comparison and interaction effects

In the fourth chapter where historical evolution of dynamics in old-age inequalities are studied, this thesis employs two slightly distinct approaches to modeling. On one hand, I will estimate statistical models for each wave separately. This is a straightforward solution and most importantly, a very intuitive approach that is easy to interpret. However, it is one that is mathematically not perfectly sound. The critique that can be made suggests that it is problematic to estimate such generalized linear models– binomial logit, multinomial logit and Poisson – on different populations that are not exactly of the same size. The problem is that here can be effects or shifts in the values that arise simply due to the mathematical and algorithmic properties of such models. To make a specific example: I estimate a model on the population in 1979 (obviously, this means using sub-set of the COMP dataset that only includes the 1979 wave) and compare it to the same model that is estimated on the data in 1994. I further suppose I observe a change in a specific effect, for example, sex. This change could be due to a change in real-world dynamics that are at work in each population. However, such a change in the values can also simply be due to mathematical reasons and not substantial ones in the population. The exact reason behind this problem is that in such models, coefficients also dependent on the share of unexplained heterogeneity in the model. In cases where the populations are not of the same size, there is necessarily a difference in the explained variance (Breen, Karlson, & Holm, 2013; Kohler, Karlson, & Holm, 2011; Mood, 2010).

Multiple solutions and corresponding methods have been suggested to solve this problem. They include the so-called Y-standardisation (Winship & Mare, 1984) average marginal effects (Mood, 2010) and the KHB method (Karlson, Holm, & Breen, 2012). Among these suggested methods, the KHB has been shown to be the most powerful one. It provides comparable estimates, a decomposition of the change in the value of an estimate as well as a statistical test of the change in the value of the estimate. Yet, it is also the method that is the most complicated and requires quite a lot of computation. On top of this, comprehensive software packages do not yet exist even though they are

currently under development and in an experimental state[46].

An alternative approach that is feasible, given the particular properties of the COMP dataset (being composed by 3 different waves of an otherwise identical survey), is estimating a model on the complete merged dataset and to use interaction terms to reflect the time- and wave-specific differences. Mathematically and statistically, this approach is very sound and accepted. However, it comes with major draw-backs. Above all, interaction effects are more complicated to read and to interpret. The reason for this shortcoming is related to the basic properties of such models. Basically, in the merged model,the dynamics in one year, say 1979, are taken as reference model. The baseline effects in 1979 are then compared with those of following waves (1994 and 2011), covariate after covariate. Here, it must be emphasized that already in the baseline model the values for each covariate are not probabilities but odds-ratios. Furthermore, the concept of odds is in itself already the ratio of probabilities. This makes an odds-ratio already a ratio of a ratio of probabilities. As a consequence, the interaction terms that shows the ratio of variation of an effect compared to its baseline odds-ratio makes it the ratio of variation of the ratio of probability-ratios: A ratio of a ratio of a ratio of probabilities.

Given this complex situation, I opted for the following straightforward solution. In order to maximize the insights into the dataset, maximizing the strengths of the suggested approaches and minimize the shortcomings of each, I employ both approaches for the analysis of historical dynamics.
More specifically, I firstly, estimate statistical models for each of the three waves separately. Since there are no implemented software solutions for multiple models (yet), I refer to what is sometimes called “naive comparison”: The dynamics in each wave are compared with each other while, obviously, keeping in mind that some of the effects that are only marginal can be simply due to mathematical and algorithmic mechanisms. Secondly, I estimate a model on the merged dataset using interaction terms to control for the three waves. For each of the blocks of analyses, the underlying hypotheses for each of those two approaches remain identical and it is only the technical way of calculating the models that changes.

### 3.8.6 Multiple imputation

*Problem*

As described before, there are various analyses that suffer from a relatively high number of missing data, stemming both from dependent variables as well as from the cumulated

46 As of the writing of this thesis, Matthias Studer at the University of Geneva was developing a corresponding R-package with the same name. The {khb} library was even released as a steady but still experimental version. It enables to compare models and provide all of the mentioned metrics and tests. However, it is not able to handle comparisons of more than two models, let alone handle analyses of multiple imputed datasets which I would require for the analysis of economic resources.

effect for missing data across the covariates. Specifically, this concerns the analysis of economic resources in the VLV dataset, which presented a relatively high percentage of missing data for monthly household income (15%). The same situation is found for the analysis of economic resources in the COMP dataset. This creates problems for the regression models in which incomplete cases are dropped (list-wise deletion). The risk of sample biases in our analysis thus increases with the number of covariates in the model. Additionally, varying sample sizes can interfere with the interpretation of coefficients in generalized regression models (Mood, 2010).

*Technique*

Given this situation, we used multiple imputations to address the problem of missing data in both, the dependent and independent variables. Although not undisputed, multiple imputation is generally considered to be a solid method to deal with missing values, yielding robust results and providing much more clarity than the alternatives of either modeling missing values as a complementary factor and having it spread across the model, or running the risk of introducing selection bias when excluding missing observations from the analysis (Sterne et al., 2009). According to King et al. (2001), the principle of multiple imputation is the following: "Multiple imputation involves imputing m values for each missing item and creating m completed data sets. Across these completed data sets, the observed values are the same, but the missing values are filled in with different imputations to reflect uncertainty levels. That is, for missing cells the model predicts well, variation across the imputations is small; for other cases, the variation may be larger or asymmetric, to reflect whatever knowledge and level of certainty is available about the missing information. Analysts can then conveniently apply the statistical method they would have used if there were no missing values to each of the m data sets, and use a simple procedure [...] to combine the m results." (King et al., 2001, p. 51)I imputed 100 datasets and used the rules described by King et al. (2001) to pool the results. I used the Amelia II package for R that is built upon the so-called EM algorithm and assumes that the data are missing at random (MAR), a model assumption which is very robust in a multitude of applications and even surpassing the performance of specialized models for categorical data (Honaker, King, & Blackwell, 2011).

### 3.8.7 Cluster analysis

For the analysis of income sources the 12 original items were regrouped into a smaller number of income-source cluster using a technique called clustering. Clustering is a technique which reorganizes and sorts a population into groups with similar characteristics (Kaufman & Rousseeuw, 2009). There are many different clustering algorithms. This thesis used a form of hierarchical clustering. More specifically, the clusters in that part were established using the ward-distance metric as offered in the weighted cluster library for R (Studer, 2013).

### 3.8.8 Optimal matching sequence clustering

Similar as in the case where multiple income sources had to be reduced into a more manageable number of income-source groups, the same problem presented itself for work-trajectories. Here, the aim was to create a meaningful typology and corresponding sub-groups for people with similar work-trajectories. In order to create a typology of work trajectories based on the longitudinal calendar data I employed optimal matching sequence clustering as described in Abbott & Forrest, 1986.
The optimal matching algorithm is one of a number of clustering algorithms that are offered in the TraMineR package (Gabadinho, Ritschard, Müller, & Studer, 2011; Ritschard, Bürgin, Studer, & Müller, 2013)to create sequence typologies. It creates the typologies based on the time spent in a specific state, which conceptually is most useful for the corresponding research question in this thesis. Hence, it clustered people who have been fully employed together, people who have had prolonged episodes of unemployment or people who retired early.

### 3.8.9 Other R-software packages

In addition to the aforementioned R packages I also used the stargazer package to display regression outputs (Hlavac, 2014) , memisc package to recode variables, lattice and latticeExtra packages for plots and the weights package for weighted statistics.

# 4. Historical evolution of inequalities

This thesis investigates inequalities among the elderly population in Switzerland. Its main theoretical framing is that of social stratification and class-theory. In this chapter, the relevance and adequacy of this theoretical background is assessed from a historical and comparative angle. It aims at providing a dynamic historical context to social stratification and class-dynamics in old-age over the last three decades from 1979 until 2011.The key questions that are addressed in this particular chapter revolve around how inequalities in old-age on an overall level have evolved over the last three decades on one hand, and whether the underlying dynamics of inequality, the main forces that create them, have changed or remained the same over the same period, on the other hand.

The structure of this chapter is given by the main measures that are assessed in this chapter: The first part (4.1) outlines the working hypotheses for each of the following analyses. The second part (4.2) then focuses on economic resources and poverty in old-age. The third (4.3) looks at health. This part includes the analyses for both, functional health as well as mental health. In a fourth and final part (4.4), the results are discussed.

## 4.1 Analyses and hypotheses

### 4.1.1 Historical evolution of poverty and income inequality between 1979-2011

*Poverty ratio, poverty-gap and income inequality*

In a first step the analysis will focus on the evolution in terms of poverty and the inequality of the distribution of monthly household incomes over all three waves. To this end the yearly headcount indexes, poverty gap indexes and Gini-coefficients have been calculated and the corresponding Lorenz-curve graphs plotted. This gives a first insight into the general dynamics that are at work and which will be further explored in the following statistical models. This part of the analysis exclusively relies on the key target variable of monthly household income for each of the three waves and the constructed poverty variable. Both have been described in the previous chapter.

The hypothesis that are tested in this part concern the stagnation or an increase in

inequalities for incomes among the elderly population in Geneva and Valais over the last three decades. Here, I follow the postulates ofAlderson & Nielsen (2002) who claim that there is a reversal of the so-called Kuznetsian U-Turn in Western industrial societies with an *increase* in inequalities. This hypothesis also follows the main theoretical framing of this thesis which is a Marxist class-framing. According to such a stance, inequalities persist or even increase since they are an inherent characteristic of modern capitalist societies and a result of elite domination and exploitation (see for example Harvey, 2010, 2014; Keister & Southgate, 2012).

*Control model / stratification-variable model for poverty*

Following this first description of the data for monthly household income, the exploratory models prioritize the analysis of poverty instead of the whole distribution and its inequality. The rationale for this approach has been extensively discussed in the theory chapter. A first model is built with the variables of stratification. It models the effect of canton, age-group and sex on the odds of being poor in old-age and can also be regarded as a control model, since these variables have been used for the original sample-stratification.

Conceptually, I will look at the dynamics in poverty for each of the three waves and compare them. Accordingly, it is to be expected that in the observed period from 1979 to 2011 there should be a diminution of poverty in the higher age-groups. The reason for this hypothesis is that poverty among the old-old and the oldest-old should naturally decrease as a result of improved pension systems. The latter provide pensioners with adequate economic resources (principally through the so-called AVS and in cases where the latter is insufficient through complementary welfare programs, see Bertozzi, Bonoli, & Gay-des-Combes, 2005) to be situated above the absolute poverty line (Paugam, 1991a; Wanner & Gabadinho, 2008).

Moreover, the same reduction in poverty should be observed for women. Again, in that period pension systems and social welfare systems in general have been adjusted to eliminate – or at least decrease - the gender inequality that they previously created. Among others, these adjustments principally concern the treatment of widowers who previously did not have any right to their husbands AVS savings after his death as well as adjustments in cases of divorce (Wanner & Fall, 2012). Beyond that, there has been an increase of the share of women who are professionally active instead of focusing on family-work and domestic activities. This should further contribute to a significant decrease in gender differences in old-age poverty (Tillmann, 2010; Tillmann et al., 2014). Nevertheless, as a number of studies indicate, a valid counter-hypothesis is that despite all these efforts and improvements female poverty in old-age persists (Pilgram & Seifert, 2009).

Finally, I also expect a decrease in regional differences. In 1979 the canton of Valais was still strongly lagging behind the canton of Geneva in terms of poverty. In fact, Valais still was a highly rural canton with a much higher share of poor elderly. Already in 1994

there were signs that these differences were decreasing (Lalive d'Épinay et al., 2000) and I expect this effect to have fully decreased in 2011. I hypothesize that there is a tendency of harmonization among the cantons in terms of social welfare, economic development and thus poverty-rates.

*Social stratification model for poverty*

In the social stratification model, the key hypothesis of this thesis is tested: According to the Marxist class-framework, inequalities are primarily a result of class-dynamics. Again, it has to be emphasized that these class-dynamics are operationalized with the indicator of education which in turn permits to assess both, inter- and intra-class dynamics. Whether this holds true for economic inequality among the elderly population and across the last three decades will be the main focus of this model. As has been explained in the theory part, given that this thesis employs a three-level class-measure which distinguishes between two levels of working-class, the results will provide an insight into both, inter- and intra-class dynamics.

It has to be repeated that between 1979 and 2011, the elderly population has changed fundamentally. Table 26 shows the estimates for each of these years in the elderly population regarding educational status.

| | Low (%) | Average(%) | High (%) |
|---|---|---|---|
| 1979 | 67 | 11.5 | 21.5 |
| 1994 | 46.5 | 15 | 38.5 |
| 2011 | 18.8 | 31.7 | 49.5 |

*Table 26: Educational attainment people 1979-2011*
*Source: COMP*
*Note: Estimates for the population aged 65 and older based on COMP data (adjusted with sampling-weights)*

Clearly, the table 26 shows how there has been a complete reversal in elderly people's educational background. In 1979 there were 67% of people who only possessed the obligatory or even no formal education, the share of this population has decreased to 18.8% - more than three times less. Parallel to this, people with a form of higher education rose from 21.5% in 1979 to more than double this amount at 49.5. The same applies for people with an average educational background, meaning people who have an apprenticeship. That share increased from roughly 12% to almost a third of the population in 2011.

The baseline dynamics are given by the previous control or sampling-criteria model. To this model I will then add the variable education, creating a nested model. Here, we test the main hypothesis that in each wave the main poverty dynamics are strongly captured with the variable education (as a proxy for class-membership). I also suppose that a large part of cohort-related poverty can be explained with education and class. In fact, the reason behind this relation is found in shifts in the composition of the population: The different cohorts that are captured in the three waves of the survey feature different

structures in terms of education and class. Since the 1950s and especially over the last three decades there has been a strong tendency of improved education. In generations that have been educated since then, less people have no or only little formal education. At the same time more and more people have secondary, professional and even higher educational levels. To a certain extent, this also reflects the thesis of a *moyennisation* (Tillmann, 2010) of the population. Hence, there might be less people in such lower classes. This can also be due to the fact that some cohorts managed to undergo trajectories of a certain upward social mobility.

Simply put, I suppose that the poverty in all three waves is primarily related to education and thus to class membership. Above all, there should be strong effects for the factor of high education, capturing inter-class effects. However, based on the outlined theory I also posit that there must be strong effects for the factor "low education" which assesses the strength of *inter*-class dynamics among the working class, between unskilled and skilled workers. Furthermore, while there might be a decreases the share of unskilled workers over time as cohorts are renewed – the reason being the improved educational system which leaves less and less people with little or no education - this does *not* imply any changes in the general negative dynamic that affects such unskilled workers. On the contrary, the negative effects of low education are supposed to persist until today; the „scarring" effect that low education creates should remain valid over time and across cohorts. A preliminary analysis using direct standardization (which can be found in the annex in part 9.4) fully confirms this hypothesis. It will be of cardinal interest to reassess and confirm these findings in the modeling part of this chapter.

*Civil status model for poverty*

In the second block of nested models, the aim is to test the interrelation of the social stratification model with civil status. In fact, civil status has been a factor that for a long time had considerable impact on poverty in old-age (Chauvel, 2001a). Above all it was widowers, who were particularly susceptible to poverty since the AVS system did in the beginning not allow them to access their husband's savings. This has been discussed in the previous chapter. Furthermore, divorce is another civil status which has more recently been shown to be associated with poverty in old-age (Lalive d'Épinay et al., 2000; Pilgram & Seifert, 2009; Vlachantoni, 2012).

Similar to the previously presented evolution in terms of educational levels among the elderly population, civil status has seen important transformations over the last three decades. Table 28 shows the distribution of this variable in the COMP dataset.

| | Married(%) | Single (%) | Separated / divorced (%) | Widow (%) |
|---|---|---|---|---|
| 1979 | 52.2 | 9.7 | 4.9 | 33.2 |
| 1994 | 59.5 | 7.8 | 6.6 | 26.1 |
| 2011 | 59.5 | 6.1 | 13 | 21.4 |

*Table 27: Distribution of civil status*
*Source: COMP*
*Note: Estimates for the population aged 65 and older based on COMP data (adjusted with sampling-weights)*

While being married remains the predominant civil status, there have been significant changes in the other categories. The share of people who are divorced has almost tripled from 4.9% in 1979, to 6.6% in 1994 and finally to 13% in 2011. Widowers grow slightly more scarce with a relative share of 21.4% compared to 26.1 in 1994 and 33.2% in 1979. Finally, singles grow even more rare at a level of 6.1%, representing roughly a 30% decrease from its original level in 1979 (9.7%).

Technically, the impact of civil status will be tested by using the social stratification model as a basis to which I then add the civil status variable. In this model we test to what extent educational and class differences are mediated by the variable civil status.

The working hypotheses concern that the dynamic that has been observed by Lalive d'Epinay and colleagues (2000) has been sustained up until 2011. They found that already in 1994 civil status had lost its previously very strong determining force. Given the continuing efforts by the government to correct sources of discrimination in the Swiss pension system – this particularly with regards to women who obviously were implicitly more affected in situations of widowhood or divorce – civil status should not be an important factor in predicting old-age poverty anymore (Wanner & Fall, 2012).

### 4.1.2 Historical evolution of functional and mental health among the elderly 1979-2011

*Evolution on an aggregate level*

Parallel to the previous section on the evolution of poverty in old-age the part on the historical evolution of functional and mental health starts with an overall analysis of the evolution between 1979 and 2011 on an aggregate level. Since Lorenz curves and gini-indices are not meaningful for the data in this part, it will principally rely graphical representations highlighting the temporal trends.

Keeping in line with the narrative of *inequalities within progress*, the hypotheses in this part are centered around the idea that there might be significant improvements on an overall level but that inequality over the same period has increased (Mackenbach et al., 2008).Hence, there might be progress for functional health with less people suffering from minor and major health impairments and improvements for mental health with less

people suffering from depressive symptoms. Yet, there remains a non-negligible population that continues to be in poor health.

*Control model for functional and mental health*

The first step in the model-based data analysis consisted again in establishing a baseline model which captures the effects for age-, gender- and canton-related health inequalities. The same variables as for poverty are used to do so for both functional as well as mental health. Also, as in the previous poverty model this is performed using both an approach that estimates models for each wave in each year as well as a merged approach that estimates overall effects as well as interaction effects with the yearly waves. The hypotheses for both of these approaches, once again, remain absolutely identical.

The main hypotheses are that health problems – being „in difficulty“, being „dependent“ or suffering from depression symptoms– increase with age as a result of a “natural” progress of aging. However, comparing the three waves I expect a *decrease* of such age-effects on the grounds that socio-sanitary progress creates a situation where people remain independent and in good mental health for much longer and being in difficulty, dependent and suffering from depression increasingly only applies to the oldest-old or people of the „fourth“ age (see Bundesamt für Statistik, 2012; Lalive d’Epinay et al., 2000; Leu, Burri, & Priester, 1997).

Secondly, regarding sex-related health inequalities, I will test the hypothesis that both functional and mental health problems are more frequent among women (Dahl, 1993; Stronks, Mheen, Bos, & Mackenbach, 1995). The key reason for important gender differences are related to the fact that women live longer than men. This over-mortality among men has various reasons. One factor is related to socio-professional differences whereas men more often engage in physically demanding manual work. Also,the literature suggests that in addition to such work-related differences certain health problems are more frequent among men due to differences in lifestyle and behavior in general. This refers to activities such as smoking, for example(Marmot, Ryff, Bumpass, Shipley, & Marks, 1997; Smith, Bartley, & Blane, 1990).

Finally, with regards to cantonal and regional differences, Lalive d'Epinay and colleagues have shown that in 1979 the two studied cantons of Valais and Geneva were significantly different with regards to functional health (Lalive d’Épinay et al., 2000). However, they also showed that in 1994 this gap had diminished greatly. Thus it can be expected that they are even more similar in 2011. I also posit that this holds true for the mental health indicator.

*Social stratification model for functional and mental health*

The social stratification model for functional health then tests the key hypotheses of class-dynamics (inter- and intra-class) for the dimension of health inequalities. This is

done following the exact same procedure as for poverty.

The key hypothesis to test is that class has a cardinal impact on health inequalities (Bambra, 2011) according to a social stratification and class-theory framework. Furthermore, I test whether these stratification dynamics are the same for both functional as well as mental health. As has been pointed out in the theory chapter, social stratification and class-theory are among the key explanatory frameworks for persisting health inequalities in Western European countries (Mackenbach, 2012).

### 4.1.3 Modeling approach

A final clarification that has to be made before focusing on the actual models regards the methods of analysis. A cardinal aspect of the COMP dataset is that it consists of three merged waves of a survey that have been carried out at different times. The chapter on the historical evolution of inequalities will use two distinct approaches to address this specific characteristic of the COMP dataset. The first approach consisted of *isolated* models for each wave of the survey. The second approach consisted estimating models on the complete merged COMP dataset and controlling for the temporal differences of the waves by adding the corresponding interaction effects. For all of analyses concerning the COMP dataset both approaches will be employed in parallel. The rationale behind this double-approach can be found in section 3.8 of the previous chapter.

# 4.2 Evolution of poverty in old-age 1979-2011

## 4.2.1Poverty and income inequality in old-age 1979-2011

The first analysis focuses on the evolution of household incomes among elderly people in the cantons Valais and Geneva between 1979 and 2011. This is done with a focus on income inequality as well as poverty. It provides a first broad insight into the evolution of the economic situation of retired people over the observed period.

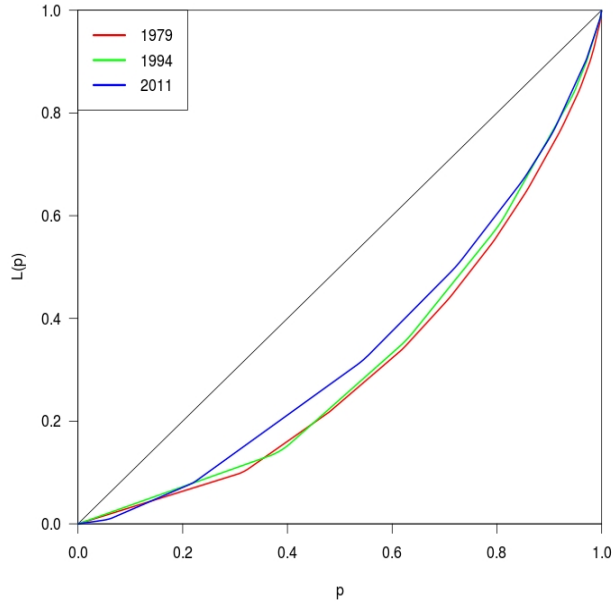


*Figure 16: Lorenz curve* economic resources Geneva & Valais 1979-2011
*Source: Own calculations, COMP dataset*

The graph for the Lorenz curves between 1979 and 2011 (shown in figure 16) clearly suggests that inequalities have decreased in this period. In 1979 (depicted with the curve in red), inequality was clearly the highest. In 1994 (green curve) there was a marginal but still somewhat visible decrease and shift of the curve towards the left, indicating a decrease of inequalities. Finally, in 2011 (blue curve) the Lorenz curve seems set apart and clearly towards the left. This is an indication for a decrease in economic inequalities until 2011. However, the first two curves are that close together, that additional information is needed to draw any meaningful conclusion. To this end, we can look at different indicators of inequality as well as prevalence and depth of poverty.

The Gini-coefficient gives insights into the inequality in incomes. Here, the values confirm the previous observations. In 1979 the Gini-coefficient was situated at 0.38. Between 1979 and 1994 it then decreased roughly 5% to reach 0.36. Finally, in 2011 for the VLV dataset it was as low as 0.32 suggesting a further drop of around 11% compared

to its precedent level in 1994. Between 1979 and 2011 the overall drop in income inequalities among elderly people in Geneva and Valais was of approximately 16%. Again, this indicator suggests an improvement in terms of economic resources. Inequality, it seems, has decreased between 1979 and 2011.

The Lorenz curves and Gini-coefficients thus suggest that incomes have become distributed more equally over the last three decades. But how has the situation changed for those at the bottom of the income distribution, people living in poverty? Here, a first insight can be gained by looking at the share of people living below the line of absolute poverty. This indicator, the poverty headcount index, lies at 0.48 in 1979. In other words, about half of the population over 65 in 1979 was living in poverty. 15 years later, in 1994, the situation seems to have improved somewhat as roughly four people in ten was living under the same economically difficult circumstances. In 2011, only about one fifth of the population is still living in poverty. Based on these indicators it can be said that poverty among the elderly has been more than halved over the last three decades. While this certainly signifies a vast improvement compared since 1979, poverty has by no means been eradicated. The value of 0.22 in 2011 indicates that a substantial number of people live in a situation that is marked by severe financial hardship. These conditions and the social consequences thereof should not be underestimated. Yet, the significant progress that is illustrated by these numbers should not be neglected either.

Finally, while the poverty headcount ratio is easy to interpret, it does have considerable shortcomings. Notably, it does not give any information on the population that is living in poverty. If the income of those living below the poverty line would be halved, this would not be reflected in this first measure (Vecchi, 2007, pp. 71–72). Hence, it is necessary to investigate this aspect as well. This can be done using the poverty gap ratio. As has been described in the section on methods, it is a measure of the depth or the intensity of poverty. To be precise, it is the “extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line” (Haughton & Khandker, 2009, pp. 71–72). Based on the COMP data, the poverty gap ratio in 1979 was at 0.21. Since the absolute poverty line in 1979 was situated at 1000 Fr., this means that poor people in that year on average experienced a 20% shortfall in terms of incomes compared with the line of absolute poverty. In 1994 this index was, based on the poverty-line of 2000 Fr., practically identical at 0.19. In 2011, however, a significant shift can be observed as the value drops almost three-fold to 0.083. This additional evidence on the intensity of poverty supports the previous findings on inequality and the absolute share of people living in poverty.

The evidence from this first block of analyses strongly points towards a narrative of progress and improvements in terms of economic resources for the elderly in Switzerland. Incomes are distributed more equally, less people are poor and among those who are the gap towards the poverty-line seems to decrease. The previous results are summarized in table 28.

| Measure | Gini-coefficent | Poverty headcount | Poverty gap |
|---|---|---|---|
| 1979 | 0.38 | 0.48 | 0.21 |
| 1994 | 0.36 | 0.39 | 0.19 |
| 2011 | 0.32 | 0.22 | 0.083 |

*Table 28: Control model poverty in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

These findings are contrary to the outlined working hypotheses which posited an increase or at the very least a stability in inequalities. Firstly, based on Alderson and Nielsen (2002), I expected a so-called „reversal of the Kuznetisan U-turn“ and thus an increase in inequalities. The second support for the working hypotheses was given by the Marxist framework according to which inequalities should equally grow as a result of continuing class-discrimination with the elite-classes continuously amassing wealth and the working-classes being discriminated. However, both of these hypotheses have to be rejected. Instead, there seems to be considerable evidence for progress and decrease of income inequalities in old-age.

Can this result be considered a testament of the success of modern capitalism? After all, estimates based on the COMP data show that poverty rates in the elderly population between 1979 and 2011have indeed decreased from 51% in 1979, to 38.1 % in 1994 and finally, to 21.2% in 2011. A sort of trickle-down phenomenon of economic growth? Or is it the result of improving old-age security systems that ensure a basic income for all elderly citizens in Switzerland? The following sections will shed light on these questions, starting with a clearer view of the composition of poverty in old-age in Valais and Geneva between 1979 and 2011.

### 4.2.2 The evolution of age-, sex- and cantonal patterns in old-age poverty 1979-2011

This first three analytical models were built around the binary variable poverty and included the explanatory variables sex, age-group and canton. These were also the variables of stratification for each of these three waves. As such, they will be included in all of the following models as control variables.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| AIC | 1864.7 | 1815.6 | 1136.9 |
| BIC | 1902 | 1852.5 | 1171.9 |
| Intercept | 0.24*** | 0.29*** | 0.1*** |
| Women | 1.62*** | 1.12 | 1.79*** |
| Canton Valais (Ref. Geneva) | 4.99*** | 3.45*** | 2.1*** |
| Age group 70-74 (Ref. 65-69) | 1.41* | 0.81 | 1.48 |
| 75-79 | 1.65** | 1.31 | 1.52 |
| 80-84 | 2.29*** | 1.61** | 1.59 |
| 85-94 | 3.59*** | 1.22 | 1.55 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | |

*Table 29: Control model poverty in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

The results of this first model for each of the three waves are shown in table 29. Three main observations can be made: Age-effects which are strong in 1979 disappear over the observed period. Cantonal differences decrease but persists between 1979 and 2011 and finally, gender-differences in 2011 are more or less at the same level as in 1979 or are even marginally increased. Poverty in old-age transitioned from a phenomenon that affected all age-groups, and particularly the oldest generations, towards a phenomenon that is less age-dependent and rather follows gender- and regional-specific logics instead.

More in detail, the most tremendous shifts can be seen in the age-variable. In 1979, there are very strong age- or cohort related effects. People aged 85-94 were over 3.5 times as likely to be in a situation of poverty as their peers aged 65-69. This effect became weaker with each lower age-group: For people aged 80-84 the odds-ratio was roughly one-third lower than among those aged 85-94. Individuals that were aged between 75-79 when they were interviewed in 1979 then showed only a weakly increased odds-ratio of 1.41 compared with 65-69 olds. In 1994 this age-related pattern was absent for almost all age-groups except for people aged 80-84. In 2011, these age-effects have completely disappeared and none of the odds-ratios in the third model in 2011 remains statistically significant.

This disappearance of age-related effects confirms the working hypotheses that were set in the previous chapter. The underlying reasons are manifold but above all, they are related to the installment of old-age pension systems that ensure – at least theoretically – every elderly citizen in Switzerland enough financial resources to be above the poverty line. The results found in this section confirm that these measures have been highly successful in preventing poverty. With this finding, the positive trends that have been observed between the first two waves of the survey between 1979 and 1994 (Lalive d'Épinay et al., 2000) are not only confirmed, but their continuing impact until 2011 can be proven. Continuously, poverty among the oldest generations decreased. The observed

dynamics with regards to age are also a result of people living and working in a time that was largely characterized by economic growth and material prosperity which has provided them with ideal employment opportunities and ideal career paths (Wanner & Gabadinho, 2008).
The second important change can be observed for cantonal differences whereas the gap between Geneva and Valais clearly decreases between 1979 and 2011 but still persists. In 1979 the odds-ratio for Valais was of 4.99, signifying that elderly individuals in Valais had roughly five times the risk of being poor compared to those in Geneva. A mere 15 years later in 1994 this gap had decreased to 3.45. It further lowered to reach the level of 2.1 in 2011. In other words, there has been a substantial shift in terms of cantonal differences from an initial situation where people in Valais were roughly five times as susceptible to be living in poverty compared to Geneva to being around twice as likely. The gap has become smaller but still remains significant. This confirms the observations that had been made in 1994 by Lalive d'Epinay and colleagues (2000) who found a decrease in poverty in both cantons and thus a homogenization between the two.

Concerning gender effects, the results based on the COMP dataset do not reflect these previous findings of progress. The situation in 2011 (an odds-ratio of 1.79) resembles that of the situation of departure in 1979 (with an odds-ratio of 1.62). In fact, the results might even indicate that gender-inequalities have increased. Also, there is a somewhat strange anomaly in these results due to the fact that in 1994 the non-significant odds-ratio of 1.12 suggests that gender-specific poverty-patterns were absent in that particular wave of the survey. The interpretation of the stagnation between 1979 and 2011 can be related to findings in the literature that show persisting gender-inequalities in numerous other areas of health such as life-expectancy. Health, as it appears, is a dimension that has been and continues to be strongly gendered. So far, this confirms the working hypotheses that have been set in the previous chapter.

The insights from this first approach using separate statistical models for each of the three waves is compared to the second approach for modeling these effects which consisted of estimating a single model for the whole merged COMP dataset. In this merged approach, the temporal component of this dataset is reflected with the use of interaction terms.

| | |
|---|---|
| AIC | 4839.3 |
| BIC | 4971.8 |
| Intercept 1979 | 0.26*** |
| Intercept 1994 | 0.28*** |
| Intercept 2011 | 0.1*** |
| Interact. Women/1979 | 1.61*** |
| Interact. Women/1994 | 1.16 |
| Interact. Women/2011 | 1.74*** |
| Interact. Valais (Ref. Geneva)/1979 | 4.75*** |
| Interact. Valais (Ref. Geneva)/1994 | 3.47*** |
| Interact. Valais (Ref. Geneva)/2011 | 2.23*** |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.37* |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 0.84 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 1.45 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 1.6** |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 1.32 |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 1.5 |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 2.19*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 1.64** |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 1.63 |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 3.3*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 1.29 |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 1.62 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | |

*Table 30: Control model with interactions for poverty in old-age*
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

As has been discussed in the first section of this chapter, the approach using the merged dataset and interaction effects in one single model is above all a measure in order to confirm the previous results based on the three separate models. The results for the basic model featuring the variables of sample-stratification are shown in table 30. They confirm all of the previous findings for the isolated models: Gender-effects which are strong in 1979 (rows 6-8 showing the effects for gender in 1979, 1994 and 2011), disappear in 1994 and reappear at about the same level as in 1979. Strong age-effects can be observed in 1979. They then become relatively marginal in 1994 and are completely absent in 2011. This can be seen in the 12 rows from the bottom, whereas each age-group-effect is shown for each of the three waves. Finally, cantonal effects between Geneva and Valais that become weaker after 1979 but still persist up until 2011, which is visible in rows 9-11.

Differences can only be seen in the strength of the described effects. They are continuously weaker in the merged model compared to the isolated models. However,

the variation generally remains in the area of 10% at most. Therefore, it appears that the unified model captures the same effects as the separated ones with only marginal differences of up to 10%. Hence, the biases and potential errors which are due to „unobserved heterogeneity“ in the varying populations (see section 3.8.5) can be considered minimal.

### 4.2.3 The evolution of social stratification in old-age poverty 1979-2011

This second block of models assesses the relevance of the social stratification framework for the explanation of old-age poverty over the last three decades between 1979 and 2011. Technically, each of the the previous control models have been extended with the variable education. Education, as has been argued at length in the theoretical chapter, is used in this thesis as a proxy for class-membership.

| | 1979 | | 1994 | | 2011 | |
|---|---|---|---|---|---|---|
| | Basic | Educ. | Basic | Educ. | Basic | Educ. |
| AIC | 1864.7 | 1783.4 | 1815.6 | 1796.7 | 1136.9 | 1134.9 |
| BIC | 1902 | 1831.3 | 1852.5 | 1844.2 | 1171.9 | 1179.9 |
| Intercept | 0.24*** | 0.26*** | 0.29*** | 0.34*** | 0.1*** | 0.09*** |
| Women | 1.62*** | 1.4** | 1.12 | 1.03 | 1.79*** | 1.7** |
| Canton Valais (Ref. Geneva) | 4.99*** | 4.17*** | 3.45*** | 3.08*** | 2.1*** | 2.06*** |
| Age group 70-74 (Ref. 65-69) | 1.41* | 1.45* | 0.81 | 0.78 | 1.48 | 1.42 |
| 75-79 | 1.65** | 1.6** | 1.31 | 1.24 | 1.52 | 1.4 |
| 80-84 | 2.29*** | 2.54*** | 1.61** | 1.48* | 1.59 | 1.52 |
| 85-94 | 3.59*** | 3.37*** | 1.22 | 1.09 | 1.55 | 1.42 |
| Low education (Ref. apprenticeship) | | 1.55* | | 1.27 | | 1.64* |
| Higher education | | 0.4*** | | 0.68* | | 1.28 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

Table 31: Educational model poverty in old-age
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

For each year, the table 31 shows first the control model (which is nested in the following model) in the first column, followed by the social stratification model based on education in the second.

Generally speaking, with the exception of 1994 which shows somewhat different dynamics, it is above all lower education that continues to have an important effect between 1979 and 2011. Accordingly, people with little or no formal education have more or less the same odds-ratio to be poor in 1979 as in 2011. Given that I use education as an indicator for class, this result confirms the social stratification framework: Belonging to the lower classes largely determines a person's financial situation in old-age. This dynamic has remained the same over the last three decades.

More in detail, the results for education itself differ for each wave. In 1979 both levels have an impact documenting inter- as well as intra-class dynamics: Low education does – the odds-ratio of 1.55 suggests that people with little or no education have a roughly 55% increase in the likelihood to be poor – as well as having a high education for which case the odds-ratio of 0.4 signifies that these upper classes are 60% less likely to be poor compared to those with an apprenticeship. In 1994 the impact of education changes slightly and only the protective effect of higher education can be made out. The odds-ratio of 0.68 for the latter suggests a 42% decreased odds for poverty. The effect of education in 2011 is different once again. There, only the negative effect of lower education is visible as a statistically significant factor. The order of this factor is only marginally different from its level in 1979 with an odds-ratio of 1.64 compared to 1.55 in 1979. As was already observed for gender-effects in the control model, the results for the educational model in 1994 seem to be running against the patterns that are found in 1979 and 2011. Again, the reasons for this effect are difficult to determine without further in-depth analyses. On the other hand, between 1979 and 2011 there is one similarity which is that people with „low“ education are significantly more likely to be poor. This is a highly interesting result, especially when put into the context of the findings from the previous section. While inequality may have decreased on an overall level, between 1979 and 2011, in over thirty years of development the dynamics for uneducated people have remained the same.

Furthermore, what is also common to the dynamics in all three waves is that the addition of education does not discard the previously observed effects for sex, age or canton. In 1979 gender-effects are marginally captured as the odds-ratio passes from 1.62 to 1.4. Cantonal differences are more substantially affected but remains important, as is documented in the decrease of the odds-ratio for Valais (compared to Geneva) from 4.99 to 4.17. Age-effects only change marginally with the most substantial shift taking place for people aged 85-94 with a decrease of the odds-ratio from 3.59 to 3.37. Obviously, in 1979 all of the aforementioned effects are particularly strong, especially those related to age and canton. This might explain why these effects remain existent despite the addition of education. In 1994 the situation of departure (the control model) is quite different to that in 1979, as has been described in the previous section. Still, the effect that the additional variable education has is comparable to the results for the model in 1979. None of the existing effects in the baseline model are captured but they are slightly less pronounced. Cantonal differences between Valais and Geneva (which serves as reference category) drops from 3.45 to 3.08 while remaining statistically significant. The only existing age-effect for people aged 80-84 passes from 1.61 to 1.48. Finally, in 2011, The same logic can be observed once again. Education decreases the baseline effects but fails to capture them entirely rendering any of them statistically insignificant. This applies to gender (odds-ratio only marginally decreases from 1.79 to 1.7) as well as canton (odds-ratio for Valais remaining practically identical at 2.06 in the educational model compared to 2.1 in the previous one). Age-effects is statistically insignificant in both models.

How can varying effect of education in these three waves be explained? I claim that the main key to understanding these results lies in the fact that each of these waves features

a population of elderly people that are fundamentally different from each other. They differ in age-composition but most importantly educational achievements have completely shifted. This has already been described previously. Basically, the trend showed significant progresses in this area. Obviously, the effect that education therefore has differs quite dramatically from wave to wave. The absence of any positive effect for higher education in 2011 could therefore be explained with this structural shift that lead to a situation where half of the population is situated in this category. It can almost be said that having a form of higher education has become the „standard“ profile. Similarly, the structural shifts that characterized the population in 1994 might be responsible for the absence of effects in the second wave in 1994.

In terms of interpretation of these results, the most important finding is that despite these profound changes in the elderly population over the span of 30 years, the class dynamics for the „lower end“ of the population, people with little or no formal education, has remained practically identical. This confirms both the working hypothesis of social stratification and is in line with the Marxist class-framework.

| | Basic | Educ. |
|---|---|---|
| AIC | 4839.3 | 4744.5 |
| BIC | 4971.8 | 4914.8 |
| Intercept 1979 | 0.26*** | 0.26*** |
| Intercept 1994 | 0.28*** | 0.33*** |
| Intercept 2011 | 0.1*** | 0.09*** |
| Interact. Women/1979 | 1.61*** | 1.39** |
| Interact. Women/1994 | 1.16 | 1.07 |
| Interact. Women/2011 | 1.74*** | 1.65** |
| Interact. Valais (Ref. Geneva)/1979 | 4.75*** | 3.98*** |
| Interact. Valais (Ref. Geneva)/1994 | 3.47*** | 3.08*** |
| Interact. Valais (Ref. Geneva)/2011 | 2.23*** | 2.18*** |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.37* | 1.4* |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 0.84 | 0.81 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 1.45 | 1.38 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 1.6** | 1.55* |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 1.32 | 1.24 |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 1.5 | 1.39 |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 2.19*** | 2.41*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 1.64** | 1.5* |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 1.63 | 1.55 |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 3.3*** | 3.08*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 1.29 | 1.15 |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 1.62 | 1.47 |
| Interact. Low education (Ref. apprenticeship)/1979 | | 1.58* |
| Interact. Low education (Ref. apprenticeship)/1994 | | 1.32 |
| Interact. Low education (Ref. apprenticeship)/2011 | | 1.64* |
| Interact. High education (Ref. apprenticeship)/1979 | | 0.44*** |
| Interact. High education (Ref. apprenticeship)/1994 | | 0.69* |
| Interact. High education (Ref. apprenticeship)/2011 | | 1.21 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | |

Table 32: Educational model with interactions poverty in old-age
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

The comparison between the isolated models and the merged interaction-term model in the previous section has shown that the results from the former largely correspond to those of the latter with the minor difference of slightly lower effect strengths. The results for the interaction-term model for social stratification confirm this initial observation. The exact same patterns reveal themselves as significant predictors of old-age poverty as previously found albeit at a slightly weaker level. With this, the same interpretations and comments as for the previously presented isolated models apply. Most importantly, the fourth and sixth row from the bottom show the significant effect of lower education in 2011 and 1979, respectively, confirming the social stratification and class-theory

framework. Once again the indication for this second confirmatory model is that the findings based on the three isolated waves of the survey are robust and do not seem affected by mathematically inducted effects when estimating a similar model on different populations of different sizes.

### 4.2.4 Civil status and old-age poverty 1979-2011

Civil status has been shown to be a strong predictor for poverty and financial hardship in old-age (Lalive d'Épinay et al., 2000). As a result, major adaptations and adjustments of the Swiss pension system have focused on correcting and eliminating this dynamic. Whether these measures have proven to be successful and whether this variable has an effect on the previously described class-dynamic – the relationship between old-age poverty and education –is the main focus of this section.

| | 1979 | | 1994 | | 2011 | |
|---|---|---|---|---|---|---|
| | Educ. | Civ.Stat. | Educ. | Civ.Stat. | Educ. | Civ.Stat. |
| AIC | 1783.4 | 1747.5 | 1796.7 | 1800.7 | 1134.9 | 1136.1 |
| BIC | 1831.3 | 1811.4 | 1844.2 | 1864 | 1179.9 | 1196.1 |
| Intercept | 0.26*** | 0.2*** | 0.34*** | 0.34*** | 0.09*** | 0.08*** |
| Women | 1.4** | 1.18 | 1.03 | 0.98 | 1.7** | 1.56* |
| Canton Valais (Ref. Geneva) | 4.17*** | 4.58*** | 3.08*** | 3.1*** | 2.06*** | 2.09*** |
| Age group 70-74 (Ref. 65-69) | 1.45* | 1.38* | 0.78 | 0.76 | 1.42 | 1.39 |
| 75-79 | 1.6** | 1.52* | 1.24 | 1.2 | 1.4 | 1.37 |
| 80-84 | 2.54*** | 2.33*** | 1.48* | 1.43 | 1.52 | 1.44 |
| 85-94 | 3.37*** | 2.95** | 1.09 | 1.02 | 1.42 | 1.33 |
| Lower Education (vs. Apprenticeship) | 1.55* | 1.63* | 1.27 | 1.26 | 1.64* | 1.63* |
| Higher Education | 0.4*** | 0.39*** | 0.68* | 0.67* | 1.28 | 1.3 |
| Single (Ref. Married) | | 3.26*** | | 1.18 | | 0.87 |
| Separated / divorced | | 2.77*** | | 1.16 | | 1.42 |
| Widow | | 1.59** | | 1.17 | | 1.34 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

Table 33: Civil status model for poverty in old-age
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

The results show quite impressively how civil status as a whole has transitioned from being a characteristic that was heavily associated with poverty in old-age in 1979 to having no effect whatsoever in the following waves. This can be seen in the effect the variable in itself has, as well with regards to how much it is able to capture other effects in the model.

In 1979 being separated or divorced yielded in an almost three-fold increase in the odds-ratio compared to people who were married. Closely following this dynamic, widows manifested an odds-ratio of 1.59 suggesting they had a roughly 60% increased risk of being poor. Studies have shown, that both of these dynamics affected women in particular. In 1994 this effect for civil status then disappeared and remained absent up until 2011. As such, these findings confirm the working hypothesis that was set in the previous chapter. Lalive d'Epinay (2000),based on data from 1979 and 1994, found an absence of effects for these covariates in 1994. This stood in stark contrast with the situation in 1979 where civil status had a strong impact. Following these observations, the working hypothesis for this block posited that the positive since 1979 developments must have been sustained up until 2011. This hypothesis is finally fully confirmed. As was discussed in the second chapter, this finding is most likely a result of continuing adaptations and adjustments in the Swiss pension system (see Wanner & Fall, 2012).

A finding that is somewhat counter-intuitive and also difficult to interpret is the strongly elevated odds-ratio for singles in 1979. A simple cross-tabulation revealed the following elements that help to shed light on this result: Firstly, there are no meaningful gender-differences in among singles – there are only marginally more women in this category than men. Secondly, nor were there any significant differences between cantons. Thirdly, and perhaps most pertinent for this question: Among singles in 1979 there was a relatively high number of people who had little or no education. Around 61% were classified as such compared to 27% with higher forms of education and 12% of people with apprenticeships. It is therefore possible that singles tend to be some kind of marginalized group of people with very little resources in general who , as a consequence, do not end up forming lasting relationships.

Moreover, there are two instances where the inclusion of civil status into the educational reference model provokes more substantial and interesting changes in the other covariates in the model. The most pronounced shifts take place for the wave in 1979. Comparing the two models it can be seen that civil status completely captures gender-differences. As it appears, gender-inequality at that point in time was largely a result of discrimination based on civil status. Moreover, cantonal differences between Valais and Geneva are even more accentuated given the increase of the odds-ratio from 4.17 to 4.58. Also, civil status has an impact on all age-related effects and decreases them. The most significant decrease in age-related patterns happens for the oldest-old, people aged 85-94. For them, the odds-ratio passes from 3.37 to 2.95. The second instance happens in wave 2 in 1994. For this model the addition of civil status discards the only age-effect there was in the educational reference model. Accordingly, elderly people of the ages 80-84 who were previously significantly more susceptible to be poor do no longer appear as such.

The fact that the inclusion of civil status produces quite substantial results in 1979, only marginal shifts in 1994 and no changes at all in 2011 confirms once again, that the discrimination that was associated with civil status has disappeared over the observed period. This is also confirmed with the scores for the AIC and BIC, both being measures of goodness of fit for the models. For 1979 both the BIC and AIC clearly decrease from

the basic model to the civil status model: The AIC passes from 1783.4 to 1747.5, the BIC from 1831.3 to 1811.4. In 1994 and 2011 there is no observable drop in these scores indicating that the addition of civil status does not capture any meaningful dynamics anymore and thus does not improve the overall predictive power of the model. Also, it has to be said that a certain role is once again played by the structural changes in the population over the last three decades. Between 1979 and 2011 the share of people who are divorced doubled and there are roughly 30% less people who are single, too. The result of these structural changes might most likely contribute that civil status has a different impact in 2011 as it did back in 1979.

| | Edu. | Civ. Stat. |
|---|---|---|
| AIC | 4744.5 | 4716.8 |
| BIC | 4914.8 | 4943.9 |
| Intercept 1979 | 0.26*** | 0.21*** |
| Intercept 1994 | 0.33*** | 0.32*** |
| Intercept 2011 | 0.09*** | 0.09*** |
| Interact. Women/1979 | 1.39** | 1.18 |
| Interact. Women/1994 | 1.07 | 1.01 |
| Interact. Women/2011 | 1.65** | 1.52* |
| Interact. Valais (Ref. Geneva)/1979 | 3.98*** | 4.34*** |
| Interact. Valais (Ref. Geneva)/1994 | 3.08*** | 3.11*** |
| Interact. Valais (Ref. Geneva)/2011 | 2.18*** | 2.22*** |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.4* | 1.34 |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 0.81 | 0.79 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 1.38 | 1.35 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 1.55* | 1.47* |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 1.24 | 1.2 |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 1.39 | 1.36 |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 2.41*** | 2.2*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 1.5* | 1.44 |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 1.55 | 1.47 |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 3.08*** | 2.69** |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 1.15 | 1.07 |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 1.47 | 1.39 |
| Interact. Low education (Ref. apprenticeship)/1979 | 1.58* | 1.66** |
| Interact. Low education (Ref. apprenticeship)/1994 | 1.32 | 1.31 |
| Interact. Low education (Ref. apprenticeship)/2011 | 1.64* | 1.63* |
| Interact. High education (Ref. apprenticeship)/1979 | 0.44*** | 0.44*** |
| Interact. High education (Ref. apprenticeship)/1994 | 0.69* | 0.68* |
| Interact. High education (Ref. apprenticeship)/2011 | 1.21 | 1.23 |
| Interact.Civil status: Single (Ref. marriage)/1979 | | 3.09*** |
| Interact.Civil status: Single (Ref. marriage)/1994 | | 1.22 |
| Interact.Civil status: Single (Ref. marriage)/2011 | | 0.93 |
| Interact.Civil status: Divorced/separated (Ref. marriage)/1979 | | 2.65*** |
| Interact.Civil status: Divorced/separated (Ref. marriage)/1994 | | 1.19 |
| Interact.Civil status: Divorced/separated (Ref. marriage)/2011 | | 1.42 |
| Interact.Civil status: Widow (Ref. marriage)/1979 | | 1.56** |
| Interact.Civil status: Widow (Ref. marriage)/1994 | | 1.18 |
| Interact.Civil status: Widow (Ref. marriage)/2011 | | 1.31 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

Table 34: Civil status model with interactions for poverty in old-age 1979-2011
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

As was the finding for the two previous blocks of models as already, the results for the interaction-term model (see 9.4) confirm the previous findings of the isolated models. The only difference of this second approach to modeling. the effects of civil status is a slight decrease in effect strength for each of the factors included in the model. The basic patterns, however, are identical with the findings for the isolated waves. Hence, the same interpretation applies as well.

This concludes the analysis for economic inequalities in old-age between 1979 and 2011. This part has demonstrated how inequalities have decreased on an overall level. This has been illustrated with the Lorenz-curve and corresponding Gini-coefficients. The statistical models then have revealed how the patterns with respect to age and canton have shifted in this period. Primarily, the changes confirm the general progress that has been made. Old-age poverty remains important but is no longer a phenomenon that concerns particular cohorts and age-groups, or people with a specific civil status. Cantonal differences have weakened but still persist.

Two dynamics that affect poverty in old-age remain unchanged. Firstly, gender differences continue to exert an important negative impact until today. The second dynamic is that of social stratification and class: Measured through education, the results for this dynamic reveal that people in lower classes have a significantly higher chance to be poor in old-age than their peers who have a higher education (and thus belong to the upper- or „elite“ classes) or those who have an apprenticeship.

## 4.3 Evolution of health in old-age 1979-2011

### 4.3.1Evolution of health inequalities in old-age 1979-2011

Identical with the previous part that focused on poverty in old-age, this part will look at the evolution of health in old-age in the same period on an aggregate level.

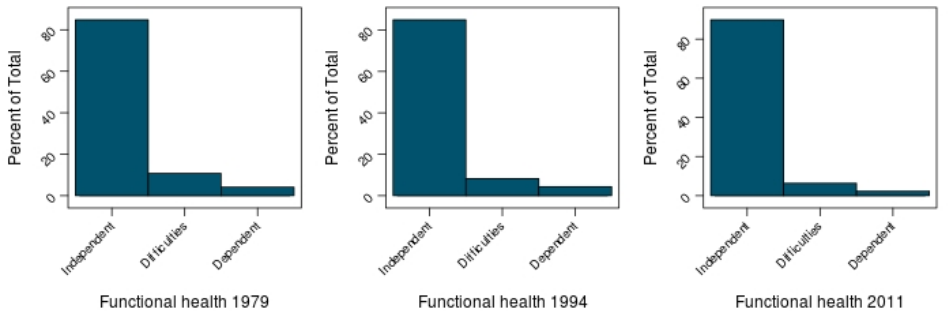


*Figure 17: Functional health Geneva & Valais 1979-2011*
*Source: COMP*

The graph for the evolution of functional health for the period from 1979 to 2011 (figure 17) shows considerable improvements with the decrease of both people in situations of dependency as well as people in difficulty. The exact data reveal that dependency has decrease from 4.3% in 1979 to 3% in 1994 and finally, 1.9% in 2011. The percentage of people in difficulties decreased from 11% in 1979 to 6.7% in 1994 and fell as low as 5.1% in 2011.

Contrary to what has been adopted in terms of working hypotheses, this first view into the development of health inequalities suggest that there has been a clear improvements an even a decrease of inequality. In fact, the working hypotheses were largely inspired by the literature focusing on class-dynamics (Bambra, 2011) and was further supported by studies which have documented the persistence of inequalities across much of Europe (Mackenbach et al., 2008). According to such a stance, health inequalities are supposed to increase or at least stagnate as a result of overall class-dynamics that reinforce negative discriminations and that inhibit progress. Clearly, as far inequalities on an overall level are concerned, these theories have to be rejected. At the same time, these findings are not completely unexpected either. In their comparison between 1979 and 1994 that was based on the first two waves of the survey that is used in this thesis, Lalive d'Epinay and colleagues (2000) found a clear diminution of health inequalities and generally quite substantial progress across all dimensions of health.

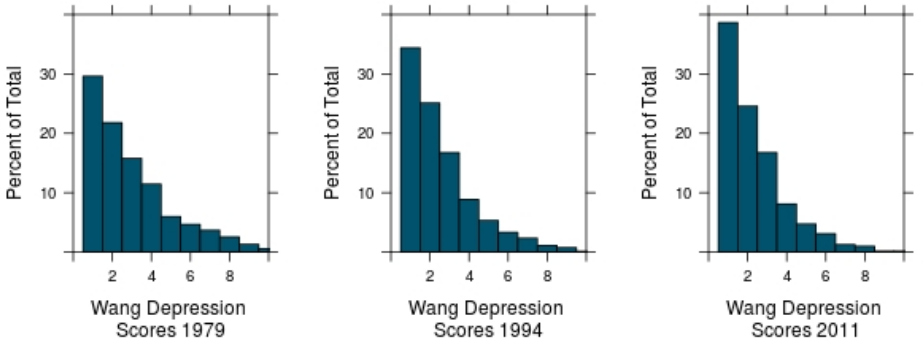


*Figure 18: Wang depression scores Geneva & Valais 1979-2011*
*Source: COMP dataset*

Regarding the second health indicator, the Wang depression score, the exact same argumentation as for the first applies. It shows important improvements on an average level. The percentage of people not suffering from a single depressive symptom increases from 28.7% in 1979 to 35.7% in 1994 and reaches 41.3% in 2011. Depression, it seems, are on the decline among the elderly population. However, there still remains a significant population who does manifest an accumulation of symptoms. Depression might be on the decline, but it has not disappeared. The following analyses will focus on the question whether the profile of people who do suffer from it have remained the same, as was posited in the main idea of inequality within progress.

### 4.3.2 The evolution of age-, sex- and cantonal patterns of health in old-age 1979-2011

The previous analysis for poverty has shown how age- or cohort-related effects have fully disappeared, cantonal differences have weakened but still persist and finally, how gender-differences persist on a stable level. To what extent these findings apply to the dimension of health will be shown in this section.

| | 1979 | | 1994 | | 2011 | |
|---|---|---|---|---|---|---|
| Ref. Independent | In diff. | Dep. | In diff. | Dep. | In diff. | Dep. |
| Women | 1.19 | 0.98 | 1.37 | 1.23 | 1.83** | 1.54 |
| Canton Valais (Ref. Geneva) | 1.44** | 1.15 | 1.38 | 2.40*** | 1.29 | 1.40 |
| Age group 70-74 (Ref. 65-69) | 1.32 | 2.13* | 1.61 | 1.45 | 0.90 | 2.68 |
| 75-79 | 1.80** | 1.58 | 4.25*** | 3.56* | 3.02** | 1.80 |
| 80-84 | 3.23*** | 7.03*** | 5.35*** | 10.29*** | 4.15*** | 1.45 |
| 85-94 | 3.91*** | 9.28*** | 10.93*** | 20.68*** | 5.37*** | 7.05** |
| Constant | 0.06*** | 0.02*** | 0.02*** | 0.01*** | 0.02*** | 0.01*** |
| Akaike Inf. Crit. | 1,432.75 | 1,432.75 | 1,135.91 | 1,135.91 | 704.44 | 704.44 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table 35: Control model for functional health in old-age 1979-2011
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

Table 35 presents the result for functional health. In contrast to the models for poverty in the previous part, the model that is presented here is a *multi*nomial logit model meaning that there are three modalities in the target variable that are modeled. In these models, the reference category for the target variable is „being independent“. This means having no or only marginal health problems that do not have any effect on the capacity to perform all the activities of a person's daily life. The second category is „being in difficulty“. People who fall into this category have minor physical impairments that do interfere with their daily lives in that they need assistance in accomplishing certain tasks but they are still more or less autonomous. The results for this category are expressed as „odds-ratios“ compared to the reference category of being autonomous. Basically, this is the chance of being in difficulty compared to that of being autonomous. The third category is being „dependent“ which means being completely dependent on external assistance and not being able to live independently anymore.

Generally speaking, there are three main observations that can be made regarding the three constituting covariates that are featured in this block of models: Firstly, a shift from gender-neutral dynamics towards significant gender-effects; secondly, disappearing cantonal differences at large and thirdly, important age-effects that decrease for major physical impairments (being dependent) and an increase for being „in difficulty“.

More specifically, according to the working hypotheses which have formulated

previously, the strength of age-effects should decrease as a result of far-reaching medical progress that not only increased life-expectancy but also signified a compression of comorbidity, meaning that people not only live longer today than they did in 1979 and 1994 but they do so in better health. This is indeed what is reflected in the data. In 1979 age had a very strong effect on both modalities of functional health: Being in difficulty as well as being dependent. For the first, the age-effects, obviously, start at the age of 70-74 with an odds-ratio of 1.80, meaning a 80% increase in the odds. It then increases to 3.23 for the age-group 80-84 and peaks at 3.91 for the oldest-old, people aged 85-94. Regarding being dependent, the age-effects start at a slightly higher age. The first age-group that is concerned is that of 80-84 year olds which have an odds-ratio of 7.03, meaning roughly 7 times the chance of being completely physically dependent compared to being autonomous. For respondents aged 85-94 years the increase in chances is over 9 times that of being dependent. In 1994 the resulting odds-ratios reflect a important increase in the odds for each of the aforementioned age-groups. Almost all cited odds-ratios increase roughly 30% compared to 1979. In 2011 a final pattern appears which is a general shift of health problems away from being dependent and towards being „in difficulty“. In this final wave in 2011, being dependent only affects the oldest participants in the age-group of 85-94 with a high odds-ratio of 7.05. Opposed to this, the odds-ratios for being in difficulty increase. Compared with 1979, they increased between roughly 30-50%. Accordingly, the age-group of 70-75 year olds transitions from an odds-ratio of 1.8 towards one of 3.02. 80-84 see their odds-ratios increase to reach 4.15 and 85-94 year-olds are roughly 5.37 times more likely to be experiencing minor health impairments compared to being completely independent. This value was situated at 3.91 in 1979 and, as has been suggested, increased roughly one-third.

The results therefore reflect exactly the findings that have been identified in the literature. Old-age today signifies less major health problems than in 1979. In fact, the condition of being dependent only ever appears at the highest ages between 85 and 94 years of age. Furthermore, health impairments that elderly people suffer from today are of a minor nature and they do not render them dependent on external assistance.

The only anomaly in the data concerns, once again, the findings in 1994. A possible explanation for the observed bias of highly increased values for dependency and being in difficulty is the nature of the employed questionnaires in this wave. In 1994 a number of specialized and adapted questionnaires were used. Among others, there were simplified questionnaires for people living institutions or people of higher age-groups. These simplified versions did not include all the variables that are used in this chapter and thus were excluded from the analysis. For VLV, on the other hand, there were only two versions of the questionnaire and wherever possible, interviewers were instructed to help respondents – even those living in institutions or with physical handicaps – to fill-in the standard questionnaire. In summary, it is likely that the sample in 1994 contains less „vulnerable“ people with such health problems and thus the findings based on a selective and slightly biased sample overestimate age-effects. VLV on the other hand, should adequately reflect the real-world population.

Gender-effects are absent for the first two waves but in 2011 sex is a significant

predictor for being in difficulty with an odds-ratio of 1.83 suggesting a little more than 80% increase in the chance of having this type of health-condition for women. This finding can be interpreted based on the literature that has been described in the second chapter which suggests that there are substantial differences between men and women with respect to health – the gender-paradox is therefore confirmed. However, the gender-effect only concerns minor health-problems.

Finally, cantonal differences disappear between 1979 and 2011. The initial situation in 1979 reflects a situation where Valais, the mountainous and rural canton, was less developed and people were living in less favorable conditions than in the urban area of Geneva. In 2011, these cantonal differences had disappeared and none of the resulting odds-ratios was significant. This finding confirms the defined working hypotheses for this particular aspect which stated that the continuing improvements in terms of health in both regions might lead to a general homogenization.

The results for the merged interaction-term model (annex, 9.4) fully confirm all of the previously described findings. The differences in odds-ratios that are estimated in the interaction-term model compared to those of the isolated models are even smaller and more marginal than they have been previously.

In summary, it can therefore be concluded that this first broad view on functional health reflects significant socio-sanitary progress. This created a shift towards more frequent minor health problems and a drastic reduction of major health problems. Interestingly, gender-effects are only visible in 2011. This raises the question whether, despite increased longevity and the overall improved health condition of elderly people – or maybe even because of these developments, there might be a rise of new inequalities within this progress.

The next section now looks at the results for the second indicator of health which is the Wang depression score, a measure for individuals mental health condition.

| Wang Score 10 | 1979 | 1994 | 2011 |
|---|---|---|---|
| Women | 1.31*** | 1.31*** | 1.28*** |
| Canton Valais (Ref. Geneva) | 1.03 | 0.98 | 0.93* |
| Age group 70-74 (Ref. 65-69) | 1.02 | 1.04 | 1.01 |
| 75-79 | 1.03 | 1.15*** | 1.21*** |
| 80-84 | 1.13*** | 1.27*** | 1.31*** |
| 85-94 | 1.11*** | 1.30*** | 1.28*** |
| Constant | 2.19*** | 1.99*** | 1.87*** |
| Observations | 3,834 | 1,307 | 1,048 |
| Log Likelihood | -7,269.60 | -2,389.24 | -1,819.21 |
| Akaike Inf. Crit. | 14,553.19 | 4,792.48 | 3,652.43 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | |

Table 36: Control model for mental health in old-age 1979-2011
*Source: Own calculations based on COMP dataset*
*Note: Poisson model displaying odds-ratios*

As a complete contrast to the previous results for functional health and poverty in old-age, mental health seems to have undergone practically no changes – at least with regards to the standard variables of sex, age and canton as is shown in table 36. Gender-effects remain at a significant constant level of 1.3 between 1979 and 2011, showing that women suffer more frequently from health problems than men. Parallel to this, there is no meaningful change taking place in the age-related dynamics and the patterns observed in 1979 remain in place up until 2011. This age-related pattern shows that starting from 80-84 years of age the odds-ratio and with this the chance of showing depressive symptoms increases slightly. It then remains at a similar level (1.11) for the oldest-old, people aged 85-94. Another marginal variation can be seen in the area of regional differences. Whereas there are no significant differences between Valais and Geneva between 1979 and 1994, a minor difference of about 2% (odds-ratio of 0.98) for Valais appears in 2011. This indicates that elderly people residing in Valais have, with the smallest off margins, a slightly lesser chance to be suffering from depressive symptoms – or to report them in a survey.

Comparing the results from the merged dataset and the corresponding interaction-term model (annex 9.4) there are once again no differences to report on. All of the previously described dynamics are once again visible.

This part has provided a first broad overview of functional and mental health conditions among elderly people according to sex, age and canton. The next block of models will assess to what extent the previously described key patterns are related – or can even be fully explained and captured through – social stratification and class-theories.

| | 1979 | | | | 1994 | | | | 2011 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Basic | | Education | | Basic | | Education | | Basic | | Education | |
| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent |
| Women | 1.19 | 0.98 | 1.12 | 0.84 | 1.37 | 1.23 | 1.28 | 1.12 | 1.83** | 1.54 | 1.69** | 1.55 |
| Canton Valais (Ref. Geneva) | 1.44** | 1.15 | 1.32 | 0.93 | 1.38 | 2.40*** | 1.25 | 1.95** | 1.29 | 1.40 | 1.19 | 1.47 |
| Age group 70-74 (Ref. 65-69) | 1.32 | 2.13* | 1.33 | 2.16* | 1.61 | 1.45 | 1.57 | 1.38 | 0.90 | 2.68 | 0.84 | 2.70 |
| 75-79 | 1.80** | 1.58 | 1.76** | 1.52 | 4.25*** | 3.56* | 4.06*** | 3.30* | 3.02** | 1.80 | 2.79** | 1.78 |
| 80-84 | 3.23*** | 7.03*** | 3.26*** | 7.46*** | 5.35*** | 10.29*** | 5.05*** | 8.93*** | 4.15*** | 1.45 | 3.85*** | 1.48 |
| 85-94 | 3.91*** | 9.28*** | 3.73*** | 8.54*** | 10.93*** | 20.68*** | 10.24*** | 18.27*** | 5.37*** | 7.05** | 4.83*** | 7.04** |
| Low education (Ref. apprenticeship) | | | 1.55 | 1.52 | | | 1.28 | 0.96 | | | 1.49 | 1.18 |
| Higher education | | | 1.10 | 0.32* | | | 0.85 | 0.27*** | | | 0.81 | 1.55 |
| Constant | 0.06*** | 0.02*** | 0.05*** | 0.02*** | 0.02*** | 0.01*** | 0.02*** | 0.01*** | 0.02*** | 0.01*** | 0.02*** | 0.004*** |
| Akaike Inf. Crit. | 1,432.75 | 1,432.75 | 1,425.90 | 1,425.90 | 1,135.91 | 1,135.91 | 1,130.16 | 1,130.16 | 704.44 | 704.44 | 707.86 | 707.86 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 37: Educational model for functional health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Multinomial logit model displaying odds-ratios*

### 4.3.3 The evolution of social stratification in health among the elderly 1979-2011

The block of models shown in table 37 shows for each yearly wave the control model with the basic variables sex, age and canton to which the key variable education is then added. The latter is employed as a measure of social position and class. The main conclusions for these models concerning functional health are two-fold: Firstly, the importance of class seems to decrease between 1979 and 1994 and it even disappears in 2011. Higher education plays a protective role against being physically dependent in old-age in 1979 and 1994 (odds-ratios of 0.32 in 1979 and 0.27 suggests strongly decreased odds of being in such a physical condition in old-age). In 2011 this effect then disappears with both odds-ratios for low and high education no longer being statistically significant. As has been discussed in the theory chapter, the measure of education shed light on both inter- and intra-class relationships. Hence, in 1979 and 1994 inter-class differences are apparent. In 2011 this dynamic disappears. Hence, all sorts of class-related dynamics are absent in 2011. Secondly, the addition of education does not produce any major shifts in the other baseline-variables. Neither gender-differences, nor patterns related to age or canton change. For each yearly wave they remain at their respective level from the control model and there are none or only marginal shifts, signifying no mediator effects can be observed.

These findings oppose the working hypotheses as well as the findings of the previous part that assessed old-age poverty. Based on the indicator of functional health, one is included to ask whether health old-age today, might be less the product of social position and class but seems to be determined by other factors. Above all, age remains the strongest predictor of health in old-age. Although the working hypotheses have emphasized the social dimension and the impact that social position is regarded to have on health, there is a considerable body of literature that does confirm this primordial effect of age on health (Ferraro, 2011; Ferraro & Shippee, 2009).

As was done throughout this chapter, the results for the isolated models are compared to those using a second approach that estimates the statistical model on the merged dataset and using interaction terms to represent the time-differences from the different waves of the survey. The results for this unified model are shown in annex, part 9.4.

Again, the results for the unified model confirm both of the previous conclusions. The interaction term model does also show a decreasing importance of education between 1979 and 2011 and notably an absence of significant effects in 2011. Also, the baseline effects for age, sex and canton remain at the same level as in the control model and do not shift in the model where education is added.

| | 10-Item Wang Score | | | | | |
|---|---|---|---|---|---|---|
| | 1979 | | 1994 | | 2011 | |
| | Basic | Educ. | Basic | Educ. | Basic | Educ. |
| Women | 1.31*** | 1.30*** | 1.31*** | 1.27*** | 1.28*** | 1.26*** |
| Canton Valais (Ref. Geneva) | 1.03 | 1.10*** | 0.98 | 0.95 | 0.93* | 0.92** |
| Age group 70-74 (Ref. 65-69) | 1.02 | 1.03 | 1.04 | 1.03 | 1.01 | 1.00 |
| 75-79 | 1.03 | 0.95 | 1.15*** | 1.13** | 1.21*** | 1.19*** |
| 80-84 | 1.13*** | 1.08 | 1.27*** | 1.25*** | 1.31*** | 1.29*** |
| 85-94 | 1.11*** | 1.07 | 1.30*** | 1.26*** | 1.28*** | 1.26*** |
| Low education (Ref. apprenticeship) | | 1.17*** | | 1.17*** | | 1.10* |
| Higher education | | 1.06 | | 1.03 | | 0.98 |
| Constant | 2.19*** | 2.16*** | 1.99*** | 1.90*** | 1.87*** | 1.90*** |
| Observations | 3,834 | 1,479 | 1,307 | 1,307 | 1,048 | 1,048 |
| Log Likelihood | -7,269.60 | -2,975.72 | -2,389.24 | -2,382.00 | -1,819.21 | -1,816.79 |
| Akaike Inf. Crit. | 14,553.2 | 5,969.44 | 4,792.48 | 4,782.00 | 3,652.43 | 3,651.58 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 38: Educational model for mental health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Poisson model displaying odds-ratios*

Previously, the control model has described mental health, as measured with the Wang depression score, as being an indicator that has remained largely immobile over the last three decades. Over that period, it principally was gender and age that represented the strongest factors of influence. The inclusion of education, as a measure of socioeconomic position and class, does practically not change this baseline pattern as can be seen in table 38 (the table shows the results for the nested models for each year, meaning the control model which is then extended with the variable education). Thus, there are once again two main conclusions that can be made from these results. Yet, they diverge slightly from the findings for functional health.

Firstly, unlike was the case for functional health, education in itself does seem to have a constant impact on mental health in old-age. According to the results, education has an effect for people with little or no education – people from the lowest class of unskilled workers compared to their skilled counterparts who have an apprenticeship. Albeit not being very strong, the effect is constant over all three waves and shows that unskilled workers are more susceptible to suffer from depressive symptoms: In 1979 the odds-ratio is of 1.17, in 1994 it remains at the same level at 1.17 and finally, in 2011 it slightly decreases towards a level of 1.1. The presented data therefore confirms the working hypothesis of intra-class differences. This is highly interesting given that inter-class differences, significant effects between the capitalist class and skilled workers, are absent. The results for depression suggest, interestingly, that there seems to be no difference between skilled workers and the upper class but a significant difference

between the two working classes with unskilled workers clearly being discriminated against.

Secondly, the addition of the variable education does generally not capture other effects in the model, the only exception being that in 1979 all age effects are entirely captured and cantonal differences are even more contrasted. The data suggests that in 1979 the observed age-effects were primarily due to differences in educational attainment in the elderly population. Once the model controls for this key factor, cantonal differences become evident which was not the case in the control model. Other than this major counter-trend, the basic effects related to sex and age remain the same. Gender-effects in particular are highly stable, age-effects persist and in 1994 as well as in 2011 cantonal differences also remain at their respective levels compared to the control model. Similar as for the functional health model, these findings lead to an interpretation that health is, above all, highly dependent on age and sex. Beyond those fundamental factors, social stratification and class differences do have a significant impact but these forces represent *additional* forces that affect health and not root-causes.

These results also suggest that unlike it has been argued in the theoretical part, mental health among people aged 65 years and older does not change over time. This would contradict the position of a number of authors who argue that transformations in modern economies, especially from the 1980s onwards– transformations such as flexibilization of the work-place etc. - create more stress and render the (employed) individual much more vulnerable, something which should have become visible in younger cohorts who did experience this transformation of their work-place in the final leg of their professional careers.

Finally, the comparison with the interaction-term model (annex, part 9.4) shows that these findings are robust. The estimations from this second model correspond almost exactly to those found for the isolated models. Hence, previous findings where the interaction-term model produced weaker estimates or the criticism that the isolated models might encounter some problems of coefficient-distortion do not apply.

In conclusion, this block of models focusing on social stratification have shown that health is more complex than poverty seems to be and the results are not as conclusive and straightforward either. The two different indicators for health do not manifest the same patterns. Whereas both are clearly dependent on age, functional health in particular, mental health is also heavily gendered. Most importantly, education does not have the same impact for both variables. Mental health, being a relatively stable indicator in general, does seem affected by class-differences. For functional health, the findings are more nuanced and more difficult to interpret. For 1979 and 1994 there were effects concerning the „upper end“ of the class-spectrum with highly educated people having significantly less physical health problems that people with an apprenticeship or people with low education. In 2011, however, this effect has disappeared. For mental health, it was the opposite part of the class-system that are affected: People with little or no education showed significantly increased odds for depressive symptoms. It can therefore be said, that social stratification in old-age health generally is confirmed by

these results. However, since in practically all models the inclusion of education as a measure of class was neither captured nor did it create any major shifts in the other baseline-effects (gender, age, canton), that social stratification seems not to be associated with these effects but that it is an independent source of influence on its own.

## 4.4 Discussion: Inequalities within progress 1979-2011

Within this thesis focusing on inequalities in old-age in Switzerland, this chapter took a historical angle and explored the developments over the last three decades between 1979 and 2011. It focused on the three indicators: Poverty, functional health and mental health. Just as the rest of this thesis, the main theoretical framing in this chapter is given by social stratification and class-theory. Both emphasize the crucial importance of a person's socioeconomic position or class-membership for the creation of inequalities in old-age.

Before discussing the results, it must once again be emphasized that between 1979, 1994 and 2011, the elderly population in Switzerland has undergone the most fundamental transformations across almost all areas of life. These transformations are the combined result from a wide range of forces. Firstly, there have been changing institutional settings. Here, one might think of the installment of a comprehensive old-age pension system in Switzerland, the so-called „three-pillar“ system but also the extension of educational systems which completely recomposed the population. Whereas in 1979 having a form of higher education was quite rare, in 2011 almost half of the population was situated in this category. Furthermore, there has been a rise of different lifestyles and living arrangements. Divorce rates, for example, have roughly doubled between 1979 and 2011. Also, women have been much more invested in the formal labor market – obviously also a result of their improved educational levels – and focus less exclusively on family and domestically oriented lives. When discussing the following results, these far-reaching changes have to be kept in mind at all times.

The insights in this chapter firstly document tremendous advances and significant progress in multiple dimensions of living- and health conditions of the elderly population in Switzerland during the observed period. The situation with regards to poverty and health-conditions improved significantly between 1979 and 2011. For poverty the poverty headcount ratio, the poverty-gap ratio, the Gini-coefficent and the corresponding Lorenz-curves document a clear decline in inequality. Poverty rates have decreased from close to 50% in 1979 to almost 20% three decades later. The two health indicators confirm the significant improvements in living conditions for the elderly population. Less people suffer from major and minor functional health impairments and depression on an overall level.

In the basic analytical models using only the covariates of sex, age and canton showed more detailed insights into each of these indicators. Regarding economic resources, there has been a shift from a situation in 1979 where old-age poverty was a wide-spread phenomenon– undoubtedly due to the young age of social security institutions such as

the AVS or the lack of professional pension systems in those generations – towards completely contrasting circumstances in 2011 where there were no longer are any age-related patterns, while cantonal differences have been heavily lowered. Without any doubt, this fundamental change is in a large part due to the installment of comprehensive old-age social security and pension systems – the so-called „three-pillar“ system.

The same story of progress can be echoed for functional health. For this indicator, there has been a considerable decrease in the chance of being in such bad state of physical health (as measure through the functional health indicator) that one needs external assistance to accomplish even the most basic of tasks in the daily life. At the same time, the chance of being in difficulty – having minor difficulties when accomplishing one's daily tasks – has increased. In short, these findings can be interpreted as being in line with the literature that documents how today people in Switzerland live longer and they do so in better health. They remain autonomous much longer and the physical health status of being dependent only concerns the oldest-old, people aged 85-94 years. This is clearly the result of important socio-sanitary and medical progress for people aged 65 and older. Interestingly, mental health does not seem to have undergone any changes in terms of age- and sex-related patterns.

This conclusion is significant given that based on the literature, I posited a so-called „reversal of the Kuznetisan U-turn“ and thus an increase in inequalities (Alderson and Nielsen, 2002). The same hypotheses had been formulated based on the literature on social stratification, class and the development of (late) capitalism in Switzerland: According to scholars representing this school of thought, inequalities should increase or at least stagnate as a result of modern capitalist societies that are based on exploitation and class-dominance. Hence, this thesis does largely confirm the findings of other studies that show wide-spread progress and improvements among the Swiss elderly up until 2011.

However, the overall *patterns*, the underlying forces for these three indicators of inequality related to age, sex and canton, reveal highly similar results. Simply put, many of the characteristics of those who suffered from poverty, poor functional or mental health remained largely the same. Gender was one of the factors that revealed itself as having a considerable impact up until 2011, notably for poverty and for mental health. For health, both mental and functional, age seems to be the most consistent and strongest predictor. In fact, the analysis has shown that unlike poverty where all age-related patterns disappeared over the observed period, health is very much a function of age throughout all waves of the survey. Cantonal differences manifested themselves principally for poverty and much less for the health measures.

At the core of this research lies the investigation on the importance of class-relation on inequality in old-age. As a reminder, the class-measure that is used in this regards is education. Besides identifying the “capitalist class” by those with a high education, it distinguishes between *two* levels of working-class and thus the results will provide an insight into both, intra- (patterns of exploitation among the working class) and inter-class dynamics (patterns of exploitation between the capitalist and working class). For this

chapter, the results are somewhat contrasting, yet interesting.

The impact of social stratification and class for functional health disappears entirely in 2011. Health in old-age, it seems, is a phenomenon which is not affected by social position in 2011 but principally determined by age. However, the results suggest that class-membership and socioeconomic position continuously play a key role in poverty and mental health. Such continuous and stable effects are limited to the lower end of the system. This suggests that there are significant intra-class dynamics, meaning the difference between skilled and unskilled workers, but no "traditional" inter-class differences between the capitalist or upper class and the working class. More specifically, in 1979 as well as in 2011 having no or only a very basic form of education is associated with a roughly 60% increase for the odds off being poor at the age of retirement compared with having an apprenticeship. Similarly, people from this lowest socioeconomic position also have increased odds for depressive symptoms in old-age. Hence, the results raise the interesting issue regarding the social forces that seem to increase the differences among two groups within the working class while at the same diminish the distance and discrimination between the two traditionally opposed entities, the capitalist and working class.

Again, it must be emphasized that while the intra-class dynamics for poverty and mental health appear stable, they remain so despite profound underlying structural changes. Whereas in 1979 67 % of the population could be classified as having a low education (little or no formal schooling), only 19 % of people have a comparable profile in 2011. The negative impact that this characteristic implies, the „scarring effect" it creates, remains the same even 30 years later.

Beyond this key finding, inequalities despite progress, the chapter also showed how civil status is no longer a covariate that is strongly associated with old-age poverty and how adjustments and reforms in the institutional settings, principally through the adjustments made in the AVS revision of the Swiss pension system, seem to create a positive impact. Hence, it can be concluded that the various adaptations in the Swiss pension system which have been regarded as being one of the key sources of gender-differences have been successful.

Following this first dynamic view on inequalities in old-age spanning over the last thirty years of development, the following chapters will focus in exploring each of these indicators more in-depth. Notably, the aim is to determine whether social stratification applies and beyond that, whether the causes for this process are associated to certain specific life-course events such as a divorce, the death of a partner or having a non-normative work-trajectory.

# 5. Economic resources and the life course

In the previous chapter I have demonstrated how living and health conditions for elderly people in Switzerland have significantly improved on an overall level over the last three decades. As I have argued, this observation can largely be explained with considerable improvements in the areas of education and socio-sanitary conditions over the last half of the century. The sum of all these positive changes has created almost universal, far-reaching and large-scale progress over the course of the last half century from which a great majority of the elderly population benefited. As a result, older people today are generally better off in terms of material wealth than thirty years ago, they are in better health and they less frequently show depressive symptoms. These findings are in line with a large share of the gerontological literature on the topic. Nevertheless, the last chapter has also revealed that some of the *patterns* of inequality, the underlying forces that are associated with the unequal distribution of these resources, have remained identical over the same period. Poverty and depression, above all, are strongly determined by people's social position – to which social “class” they belong to. This dynamic has largely remained stable over the last three decades. Functional health, on the other hand, seems to be determined more substantially by other factors such as age.

To put it simply: Today there are less older people overall who are living in poverty, who are in such poor health that they have to depend on others to face the challenges of their everyday life or who are depressed. Yet, there is a significant part of the elderly population who still does suffer from such difficult living conditions. For two out of the three chosen indicators for inequality, a key driving force as to who these people are has remained the same over the last thirty years: People with no or little education, people from the lower layers of society, unskilled workers. The persistence of this pattern is even more unsettling given that governments have put countless social policies into practice with the main aim of reducing inequalities, not just in old-age but in general. It can be concluded, as numerous authors do, that governments have failed at this goal over the last decades and continue to do so today.

Against this backdrop, this chapter presents the results for the analysis of poverty in old-age – the indicator for which the strongest association with social stratification was observed in the previous chapter. Accordingly, its first main aim is to analyze and further explore the link between poverty and social stratification and class-dynamics based on a larger sample. The second main aim is to shed light on whether life course events or life

course trajectories can explain social stratification and class-dynamics.

The structure of this chapter is as follows. It starts (5.1) with a brief discussion and a description of poverty in Switzerland. Following this, the analytical models and the corresponding hypotheses are described (5.2). The third part (5.3) offers a first broad overview of old-age poverty in Switzerland using basic socio-demographical variables. Following this, part 5.4 represents the core of this chapter: The analysis of social stratification in old-age poverty. Part five (5.5) then looks at other associated factors that might mediate social stratification and class dynamics in old-age poverty. Part 5.6 will then extend the social stratification approach with a dynamic life course approach firstly focusing on people's work-lives. This part also features the presentation and discussion of a typology for people's work trajectories. In 5.7 respondents' family lives will be included into the analysis. In part 5.8 the analysis will focus on how the Swiss pension system is related to old-age poverty and part 5.9 will extend this last approach by performing a life course analysis of income-source configurations in old-age. Part 5.10 discusses the results and concludes this chapter.

There is a final preliminary remark that has to be pointed out before starting the analyses in this chapter: The key results that are described in this chapter have been used as the basis for an article publication which is going to be published around mid-2015 in the Swiss Journal of Sociology (Gabriel, Oris, Studer, & Baeriswyl, 2015).

## 5.1 Poverty in Switzerland

Naturally, an analysis of poverty in old-age has to start with the larger picture. It has to answer the following fundamental questions: How many retired people in Switzerland are poor? How many people are living at the fringes of poverty, how many people are living in precarity? How is poverty distributed among the cantons represented in the VLV dataset? And how about gender-differences and age-groups? This first part provides such a first descriptive insight into old-age poverty and precarity in Switzerland.

*VLV poverty rates*

Based on VLV data, on an average level, 21.4% fall into this category. More specifically, poverty rates are 17.9 % for elderly men and 23.3 % for women[47].

These estimates are generally higher than what most other studies report. They are above the 13.3 % rate cited by Nolan and Marx (2009) based on data from 2000 from the LIS (*Luxemburg Income Study*). To a lower extent, the same applies to Guggisberg et al.'s (2012) findings of a 16.2 %(based on SILC, *Statistics on Income and Living Conditions*). Wanner and Gabadinho (2008), who analyzed fiscal data from Switzerland using a 60% median income level as a poverty threshold, find poverty rates between 9.9 and 15.4% which is equally lower than what we find based on VLV data. However, my findings are

47 Since the VLV sample was stratified by five-year age groups from 65-69 until 90+, as well as by sex and cantons, we systematically use weights to create estimates concerning all of the population of 65+

fully consistent with OECD data from 2009, estimating poverty rates of around 18% to 21.6 %[48]that are also cited in Pilgram and Seifert (2009 p. 8).

These variations and incongruities can generally be explained with the use of different data sources, temporal differences and poverty thresholds. It can be pointed out that there does not seem to be any evidence that the "great recession" affected the Swiss elderly economic well-being as it did in many other European countries (Brugiavini and Weber 2014). It can thus be noted that poor people are most likely not underrepresented in VLV, which is generally a positive finding given that often surveys fail to include the most vulnerable (Nicolet and Oris In Press.) and is crucial with regards to any interpretations on social policies drawn from these results.

Despite showing minor variations, all of these estimates point to the fact that poverty in old-age is by no means an anomaly. It is still a phenomenon that concerns a considerable share of retired people. It has to be repeated that the reality behind this statistic is that roughly one person out of five elderly people lives in a situation where he or she has to get by with less than 2400 Fr. A month.

*VLV precarity rates*

The second indicator, precarity, shows an even more unsettling reality. Based on this treshhold, roughly 56% of all people over 65 are economically vulnerable. As a reminder, this measure *combines* people who are living below the threshold of economic precarity which is set at 150% of the line of absolute poverty. From a conceptual point of view this means there are 56% of elderly people who are suffering from either severe financial hardship (poverty) *or* they are living just at the fringes of poverty and could, should they experience negative circumstances, easily slip into poverty as well. Differently put, it can be said that more than half of the elderly population does *not* live in financial security.

*VLV poverty and precarity (vulnerability) rates according to sex and age-group*

| | Men | Women |
|---|---|---|
| Poor | 17.90 | 23.30 |
| Vulnerable | 54.09 | 58.21 |

*Table 39: Poverty and precarity rates according to sex*
*Source: Own calculations based on VLV, 2011*
*Note: Weighted data representing population estimates*

48 See http://stats.oecd.org/Index.aspx?DataSetCode=IDD for OECD's dataverse

As has already been mentioned in the previous paragraph, poverty in old-age seems concern women more than it does men, this is reflected by 17.9% of all elderly men living in poverty compared to 23.3% of elderly women. For the second indicator, for vulnerability which combines poverty and precarity, the differences are less pronounced with men being situated at 54.09% and women at 58.21. Nevertheless, there still is a gender gap that seems to be relatively robust regardless on the used threshold.

| | 65-69 | 70-74 | 75-79 | 80-84 | 85-89 | 90+ |
|---|---|---|---|---|---|---|
| Poor | 18.06 | 22.66 | 21.63 | 23.54 | 25.25 | 23.05 |
| Vulnerable | 53.44 | 58.32 | 56.30 | 56.68 | 59.85 | 59.08 |

*Table 40: Poverty and precarity (vulnerability) rates according to sex*
*Source: Own calculations based on VLV, 2011*
*Note: Weighted data representing population estimates*

Table 40 then shows the age-structure of old-age poverty and vulnerability in Switzerland. Here, a clear age-gradient can be observed that continually rises: It starts from 18.06% of poverty for people aged 65-69, then increases steadily to 22.66 for 70-74 year olds and so on to reach the highest value at 25.25% for 85-89 year olds. For the oldest-old, those aged 90 and older, the percentage drops slightly to 23.05%. For vulnerability a similar pattern can be observed with a minimum value at 53.44% for 65-69 year old citizens and a peak for those aged between 85 and 89at 59.85.

| | GE | VS | BE | BS | TI |
|---|---|---|---|---|---|
| Poor | 15.54 | 28.82 | 18.94 | 14.26 | 30.85 |
| Vulnerable | 52.91 | 63.73 | 54.56 | 46.57 | 65.58 |

*Table 41: Poverty rates according to sex*
*Source: Own calculations based on VLV, 2011*
*Note: Weighted data representing population estimates*

Finally, the cantonal comparison shows quite clearly that in the cantons of Valais (28.82%) and Ticino (30.85% - almost one-third of all elderly people in the canton) old-age poverty is much more frequent than in the other cantons. Basel and Bern seem to be the cantons where poverty among people at the age of retirement is less frequent. The indicator for economic vulnerability largely mirrors the results for poverty, albeit at an obviously higher level.

This first descriptive insight can be considered a starting point of this investigation into old-age poverty and precarity. The following analyses will focus on determining the underlying dynamics and patterns related to other variables, notably those related to social stratification and life course dynamics.

## 5.2 Analyses and hypotheses

This first is constituted of six sections whereas each focuses on one specific hypothesis or sub-question of the key research questions. This section will describe, for each of these sections, the underlying working hypotheses. The first section is given by the basic control model. The second is the social stratification model. One of the models in this block of nested models focusing on social stratification is the educational model. It will serve as a baseline model for each of the following nested models and will enable to test the effect of additional variables on class-differences (education is used as a proxy for class). The third block of nested models focuses on associated factors which mediate and have an effect on social stratification and class differences. The fourth model will then focus on the effects of a person's work trajectory on poverty. This section will, among others variables, rely on a more complex variable which is given by people's clustered work trajectories. Accordingly, this section will include a short excursus people's work trajectories in the VLV sample. The fifth section will focus on the effect of people's family trajectories on poverty in old-age and whether they can explain social stratification dynamics. In the fifth and final section, I will test a model that focuses on institutional capital, meaning the embedding of a person in the Swiss pension system. Since this fifth model also relies on a more complex variable that describes a person's situation with regards to various sources of income, this section will also include a brief description thereof.

### 5.2.1 Basic control-model: Sampling criteria

The first analytical model in this chapter is one that is built around the variables of sample stratification. As such, these variables need to be included in all of the following models. Thus, they can also be considered as *control variables* and this model as the *control model*. However, this model will provide a first broad look at poverty and precarity in Switzerland.

The first hypothesis which will be tested for concerns age-related poverty: Accordingly, among older cohorts poverty should be more prevalent on the grounds that in these generations pensions might be insufficient as a result of not having contributed enough (or not having been able to contribute as these institutions did not exist previously) over their professional life (Guillemard, 1996; Paugam, 1991b). Parallel to this, younger generations (65-75) are supposedly less prone to poverty as a result of having spent the majority of their professional life in a period that was characterized by an economic upswing which in turn has enabled them to contribute heavily to the Swiss pension system. In other words, younger generations are very likely to be able to harvest the benefits of the 3-pillar pension system in Switzerland (Wanner & Gabadinho, 2008). As for gender inequality, it has already been pointed out in the previous chapter on the historical comparison that there are two opposing main hypotheses that have to be tested. On one hand, there have been persistent efforts to improve the situation of elderly women by adjusting regulations in cases of divorce and widowhood (Wanner & Fall, 2012). At the same time, women in the studied population have focused less exclusively

on family-work and domestic activities (Chauvel, 2001a) which in turn should provide them with more adequate rents and financial resources to escape poverty. These observations create the basis for the first hypothesis of an absence of female poverty in old-age. Yet, there are studies that document persisting poverty especially among women (Pilgram & Seifert, 2009) which provides the counterpoint of the previously mentioned hypothesis. The alternative hypothesis thus states that gender-related poverty in old-age is indeed persisting.

Finally, cantonal differences will be tested. The main hypothesis of continuing reductions among all the cantons is based on the observations in Geneva and Valais that has been made by Lalive d'Epinay and colleagues based on survey data from 1994 (Lalive d'Épinay et al., 2000)An alternative hypothesis to this trend could be established using the literature on urban poverty according to which in the 21st century and in late capitalism at large urban centers are both the key areas of tremendous economic development as well as of persisting *urban*-poverty (see for example Chamhuri, Karim, & Hamdan, 2012).

### 5.2.2 Social stratification models

The first block of *nested* models tests the effects and interrelation of different dimensions associated with social stratification: Principally, these are ethnicity and social class measured through education. Additionally, this model will include three other indicators for socioeconomic position (or *class-indicators)*: Participant's first job, last job and their partner's last job or the *household CSP, respectively.*

This block starts with the control model as a point of reference. Following this,a second model is established. It is given by the control model to which the variable of educational status is added – hence, it will be referred to as the "educational model". Given that this thesis aims to explore whether there are life-course variables that explain this phenomenon, this „educational" model is the baseline model and continuously serves as model of reference. It is included in all following blocks of nested models and it is always in comparison to this model that the more elaborated models are compared with.

The hypothesis for this first educational or *class* model is straightforward: Based on a Marxist class-framework we suppose that class is the most important explanatory factor for poverty in old-age in 2011. Furthermore, following the discussion on the operationalization of the class concept through education, we distinguish between two key hypotheses: The inter-class hypothesis- which posits there must be great differences in the dynamics when comparing people with a high-education to those with an apprenticeship-and the intra-class hypothesis - which claims the same but for the difference between people with an apprenticeship and people with a low education (see Keister & Southgate, 2012; Nolan & Marx, 2009). Also, the results obtained will shed light on terms of *temporality* of social stratification. As has been outlined in the previous chapter, education is usually obtained in the early stages of people's lives. For this

reason, strong results for this variable could confirm two broad life course theories that stress exactly those early life-stages: firstly, the critical life period and secondly, cumulative (dis-)advantage theories.

Furthermore, a third model for this block is created (after the control model and the educational model) with the variable Swiss origin on its own in addition to the control variables. This model should test for the effects of ethnicity, a dimension which also is often attributed to social stratification in the literature. More precisely, research has shown that immigrants are susceptible to various forms of discrimination in their professional lives as well as in their everyday lives (Keister & Southgate, 2012). Recent research contributions have suggested that these dynamics of discrimination continue well into old-age (Bolzman, 2003; Bolzman & Kaeser, 2011).

The fourth model then assesses the effects of education and Swiss origin at the same time. The rationale here is to test these variables are linked and most specifically, whether educational differences can be partially or wholly captured by Swiss origin. Hence, the hypothesis that is to be tested in this step regards whether a part of the differentials associated with education is in fact associated – and therefore captured - with ethnicity (being Swiss or not). Differently put, I test whether people who are foreign-born tend to have lower education than native Swiss people. In fact, the literature often mentions both variables as being significant categories of social stratification (Keister & Southgate, 2012). This model will provide empirical evidence on this issue.

Model five can be considered a confirmatory model with regards to education as a proxy for class-membership. In this model the focus lies on testing the effect of people's first job on poverty. This refers to the job they had when they entered the formal labor market. Similar to education, the variable first job is a measure for class-membership in the early life-stages. This model will shed light on the validity of education as a proxy for class. Beyond that, these additional indicators might provide further interesting insights. On a statistical and technical level, this fourth model consists of the control variable plus the variable for fist job. It does not include education, as might be coherent with the previous models, because it is too closely correlated with first job and would create issues of collinearity.

In terms of hypotheses, the underlying framework is the same as for the educational model. People in lower classes (manual workers in particular) should show increased odds of poverty, whereas people in higher classes (managerial professions, liberal professions) should show protective effects with regards to poverty. These hypotheses fully correspond to a social stratification and a Marxist class-approach (Carver, 2001; Keister & Southgate, 2012; Nolan & Marx, 2009).

The sixth model mirrors the same model as before, but this time incorporates a person's last job instead. The hypotheses for this variable remain exactly the same as specified in the previous paragraph with poverty supposedly affecting lower socioeconomic classes and the upper classes being less prone to financial hardship.

One problem that is related to these measures of first or last job is related to the situation of women. In cases where women indicated that they were housewives for either of these indicators, they were classified under “inactive”, regardless of their education or actual job-qualifications. This might introduce a certain bias to these measures. This issue is addressed in the seventh model of this block. Here, we will test the effect of *household* socioeconomic status. This concept takes into consideration a current partner's last job and the effect that it has on poverty or precarity. Again, this variable is added to the control model, meaning it is nested within the control variable model. This is yet another measure of class membership and socioeconomic position in society. This time, however, it specifically takes into consideration whether a person lives in a relationship and whether the partner's class-indicator is higher than the one of the person in question. The variable household economic status basically tests the hypothesis of accumulation of socio- economic capital in a relationship. In fact, being in a relationship - or in a household, in general -with somebody of a higher socioeconomic status can have significant protective effects on a person (see for example Haveman, 2001).

Table 42 summarizes this first block of nested models regarding social stratification.

| | Model | | | | | | |
|---|---|---|---|---|---|---|---|
| Variable | Control | Education | Ethnicity | Edu + ethnicity | First job | Last job | Partner's last job |
| Sex | x | x | x | x | x | x | x |
| Age group | x | x | x | x | x | x | x |
| Canton | x | x | x | x | x | x | x |
| Education | - | x | - | x | - | - | - |
| Ethnicity | - | - | x | x | - | - | - |
| First job | - | - | - | - | x | - | - |
| Last job | - | - | - | - | - | x | - |
| Partner's last job | - | - | - | - | - | - | x |

*Table 42: Summary nested models for social stratification*

### 5.2.3 Associated factors model

For the second block of nested models, the starting point is the educational base-line model that represents the baseline situation for social stratification and class dynamics in old-age poverty. In this block the aim is to determine how the phenomenon of social differences in poverty and precarity is related to other factors which have been identified in the current academic literature as important influences for economic difficulties. It has to be emphasized, that in this block of models the causal logic is not always clear and it provides above all the identification of *associated factors* rather than causal links. In contrast to this, the following life-course models will give more insight into such causal links.

Following the educational baseline model I introduce a second to which I add the variable civil status. Regarding hypotheses, civil status is in fact a variable that has been identified by the corresponding literature as having a important effects with regards to poverty and a person's financial situation (Lalive d'Épinay et al., 2000).Marriage in particular is often cited as a protective factor against poverty and divorce and widowhood are factors that increase the risk for poverty. Divorce and widowhood are factors that increase the risk for poverty, especially for women, since they signify the exact opposite of this protective effect: The loss of the partner's resources (Pilgram & Seifert, 2009; Vlachantoni, 2012). Since this model is nested within the educational model, it will shed light on whether marriage can offset a part of educational differences, i.e. the effects of social stratification and class-differentials. Moreover, the issue of inequality in incomes for particular civil statuses (in the context of pensions systems) has formally been addressed in the last revisions of the AVS system (Wanner & Fall, 2012). Therefore, widowhood in particular should no longer prove to be a factor for increased poverty. The analysis in this model will show whether these adjustments in social policies have been successful or not.

The third model will test the variable "living situation". This variable sheds light on people's living arrangements in general with regards to poverty. As with all models in this block, the educational model serves as starting point and this variable is added to it. As far as working hypotheses are concerned, they are quite straightforward: Living at home with assistance is most likely a more cost-intensive living form and thus I expect it to be associated with a higher risk for poverty. Living with other people (friends, children, family) should indicate a situation of financial hardship. This model tests the relevance of this hypothesis and whether it does have any effect on educational differences in poverty and precarity.

The fourth model assesses the impact of being a homeowner in old-age. It consists of a binary variable that classifies people as being either homeowners or not. As far as theory is concerned, the main point of departure is the institutional framing of homeownership in Switzerland. More precisely, it refers to the possibility that professional pension savings, the so-called second pillar, can be accessed in two particular scenarios: The first scenario is in the event of real-estate acquisition. If a person would wish to buy a real-estate object, it is possible to access the second-pillar capital which otherwise is beyond a person's reach. The second scenario is when a person decides to become self-employed, for instance by starting a small business. Again, in this case it is actually possible to withdraw their second-pillar capital reserves in order to use them for such business aspirations[49].

Especially the first aspect has recently been in the spotlight of national media and has since become an important issue on the political agenda. More specifically, the Swiss minister of internal affairs Alain Berset has, in the discussions on the fundamental reforms of the first and second pillar systems in Switzerland, suggested that readjustments should be made in order to prohibit such withdrawals of professional

49 See http://www.bsv.admin.ch/themen/vorsorge/00039/index.html?lang=de for an overview of the technical and legal details of these procedures and scenarios.

pension funds (see Forster, 2014). There was considerable debate on the fact whether this possibility that is currently still offered by the Swiss system represents a potential risk for poverty and financial hardship in old-age. In other words: It is speculated that people would use up their professional savings for a highly individualistic project such as homeownership which then could lead to situations of financial hardship in old-age and thus will push such individuals to apply for complementary welfare – thus relying on *governmental* contributions. However, at the time this thesis is written there seems to be little or no empirical evidence supporting this hypothesis, a lack of information that this model should help to clarify.

The fifth model comprises of a variable that captures the geographical area in which a person is living. More specifically, this variable enables to analyze the effect of the degree of urbanization that a person is living in on poverty and class-dynamics in the latter. Here, I test the hypothesis which can be found in the literature that poverty can depend strongly based on the environment: An often found term is actually *urban*-poverty referring to the increased poverty in urban areas due to increased living costs, rent, etc. (Chamhuri et al., 2012; Oh, 2005; Sassen, 2001) Here it will be very interesting to see how the results for the nested educational model change: Will there be any indications for geographic social stratification? Do people with lower education live in particular zones of urbanization? Also, it will be interesting to see the resulting effects for the cantonal differences, should there turn out to be any. It could be possible that differences between the cantons are partially or even entirely capture by differences in geographical and urban areas.

Finally, all the aforementioned variables are combined into a sixth and final model for this block focusing on associated factors. The aim here is to test whether there are any variables which are actually interrelated or mediated by each other and how the combined effect of all these associated factors influences the original educational differences in poverty and precarity. Table 43 summarizes this block of nested models regarding associated factors for old-age poverty.

| | Model | | | | | |
|---|---|---|---|---|---|---|
| Variable | Education | Civil status | Living situation | homeowner | Area / context | Full model |
| Sex | x | x | x | x | x | x |
| Age group | x | x | x | x | x | x |
| Canton | x | x | x | x | x | x |
| Education | x | x | x | x | x | x |
| Civil status | - | x | - | - | - | x |
| Living config. | - | - | x | - | - | x |
| Homeowner | - | - | - | x | - | x |
| Deg. urbanization | - | - | - | | x | x |

*Table 43: Summary nested models for associated factors*

### 5.2.4 Work trajectory models

The third block of nested models is certainly one of the most important for this research. It is also a crucial one from both, a policy point of view as well as from a sociological perspective: Here we test the effect of a person's work-trajectory on poverty and precarity in old-age and whether this trajectory can explain – partly or perhaps even fully – class-differences expressed through education. This part also represents one of the main innovative parts of this thesis: To extend a traditional social stratification and class-analysis with a dynamic life course perspective. Moreover, as has been pointed out in chapter 2 of this thesis, these trajectory models have to be interpreted and analyzed in light of the theories of accumulation of capital or, respectively, the accumulation of disadvantages of a person's life course. Moreover, this is also a way to confront social stratification against biographization theories. Finally, in contrast with the previous block of models on associated factors,the analysis in this part entails looking events that happened previously to the moment where these people were interviewed. Hence, the analysis in this section is much more *causal* than in previous sections and especially certain trajectories can, should they be statistically significant, be regarded as *pathways* into poverty.

*Work trajectories*

As has been put forward in the previous chapter, the key variable in this block is the typology of people's work trajectories. It is presented at the beginning of the corresponding section in 5.5

On a technical level, the variable of work trajectory clusters will make up the first model in this block. As in all models before, the baseline educational model is nested within the former.

The hypotheses for this model are very clear. The pension system in Switzerland is based on a „standard“ work trajectory with a specific amount of years over which a person has to contribute to the pension system. Any sort of deviation from such standard trajectory could result in far-reaching consequences and could lead to situations of poverty in old-age. This concerns particularly women who, in the generations that are studied in this thesis, often focused on the family and domestic work (Vlachantoni, 2012). More importantly, this part will test the hypothesis whether the inclusion of work-trajectories and life course information in general can shed light on the persistence of social stratification and class-differentials in old-age poverty: Are there any insights for pathways into poverty, processes of cumulative (dis)advantages, meaning specific trajectories which are associated with poverty in old-age and that capture a part of class-effects on poverty (Vandecasteele, 2011)?

*Retirement timing*

The second nested model in this block addressing the impact of professional trajectories contains the variable retirement timing. Whereas the previous variable for work trajectory captured a person's work-life in its entirety, this indicator focuses on the last transition from professionally active towards retirement. In doing so it represents a logic of *critical life events* rather than one of trajectories and pathways. Such a conceptualization focuses more on testing the impact of this single event on poverty following a biographization paradigm (see Vandecasteele, 2011 and the discussion in chapter 2).

Here, multiple hypotheses are possible and need to be tested: Firstly, it is possible that people who retire early are those with important economic resources and who thus have the financial liberty to retire precociously. Alternatively, it is also possible that people in difficult work-situations find themselves largely excluded from the labor market and thus are forced to retire early due to a lack of other opportunities. The same is imaginable for late retirement: It can either be that people who have very limited financial resources (and thus an increased risk for poverty in old-age) need to work longer than legally indicated, or, it can be that people in higher professional positions have a high incentive to remain professionally active beyond the age of legal retirement. As has been evoked before, the results in this section might – along with the insights gained from the analysis on work-trajectories – shed light on the role of the professional trajectory and work related critical life events on old-age poverty and class-differences (Vandecasteele, 2010, 2011).

*Physical strain of the work-life*

The third model in this block is a self-rated measure of physical strain or hardness of a person's professional life. In this model the aim is to empirically verify whether there is a link between professions and professional trajectories that are characterized by hard physical work (working in factories, building sites, manual labor, etc.) and poverty in old-age and the educational differences thereof.
For this model, I would like to test the hypothesis according to which people in physically demanding jobs are more prone to poverty and precarity. As in all previous models, this variable is added independently to the education model at first. Also, it must be emphasized that this factor is described in the literature as being strongly related to other variables of stratification such as being a migrant or social class (Keister & Southgate, 2012).

*Social mobility*

The fourth model addresses the issue of social mobility. As was shown in the theoretical part, the majority of individuals that are analyzed in VLV have spent their professional lives in the Glorious Thirty Years, the time of post-war economic growth. A rather large

body of literature shows that these conditions were favorable for professional careers, which is reflected in about 31.6% of all individuals in VLV having experienced socially ascending careers as opposed to only 10.3% of socially descending or 58.1% of stagnating work-trajectories.
The hypothesis which can be tested in this model is to whether social mobility explains persisting educational differences in old-age poverty since it is imaginable that a large part of the population has benefited from upward social mobility movements across the second half of the 20st century. This could have created a so-called elevator effect (Levy & Suter, 2002a) which has benefited large shares of the population. On the downside, it is very likely that such an effect might only have benefited the upper layers of society. In other words, lower classes benefit less from such general upward movements and continue to be segregated and confined to the lower layers of society. A priori, Falcon (2012) who studied social mobility in the same generations that this focuses on does not support this hypothesis. She finds that upward social mobility is relatively weak in these birth-cohorts. The only group that have benefited from such positive upwards movements are women.

The fifth model is the full model for a person's professional life and will determine the combined effect thereof on educational differences in poverty and precarity. The complete model accordingly starts with the educational model and includes all the variables that have been described in this block. Table 44summarizes this model block.

| | Model | | | | | |
|---|---|---|---|---|---|---|
| Variable | Education | Work-trajectory | Retirement timing | Physical strain work life | Social mobility | Full work trajectory model |
| Sex | x | x | | x | x | x |
| Age group | x | x | | x | x | x |
| Canton | x | x | | x | x | x |
| Education | x | x | | x | x | x |
| Work trajectory | - | x | - | - | - | x |
| Retirement timing | | - | x | | | |
| Job hard | - | - | | x | - | x |
| Social mobility indicator | - | - | | - | x | x |

*Table 44: Summary nested models for work-related life course*

### 5.2.5 Family-trajectory models

The fourth block of nested models is dedicated to respondent's family trajectories. Once again the focus in this model lies on finding out whether any of these life-course events seems to have any effect on the observed educational differences in poverty and precarity. Differently put: Are there any events in the area of the family life which have a

causal effect on educational differences, that constitute a pathway into poverty or precarity? Do they constitute life-course risks on their own, supporting an individualization and biographization hypothesis as discussed in the previous chapter (Layte & Whelan, 2003; Leisering & Leibfried, 2001; Vandecasteele, 2010, 2011)?
There are three distinct events with their corresponding variables that are considered and modeled, starting from the education model that serves once again as baseline reference model. The first model contains a variable that measures for each individual whether it has experienced the birth of their first child earlier or later than was usual in their five-year-cohort-group.

The hypothesis for this first variable is clearly that child-births that fall into the interval that is considered "normal" among a cohort are most likely planned and thus represent normative events with only minimal potential of negative consequences on poverty. In contrast to such a planned transition into adulthood, this part tests the hypothesis according to which births that fall outside the given interval indicate that the nature of the event is one of non-normative critical life events which could lead into poverty in later life.

The second event and model is focused on the experience of relationship dissolution. The theory behind this variable refers to the negative effects from the dissolution of a relationship. In many ways, the dynamics and hypotheses for which are tested here are similar to those that are tested – and that have been described – with the variable civil status. The main difference, however, is that civil status is merely an associated factor and it is not possible to determine what kind of trajectory is „hidden" behind a fixed, static civil status: A person who indicates being married could have been divorced before and similarly, a person whose official civil status is „single" could have been living in a relationship before and could have experienced such a break-up event, without it being reported in this variable. For that reason, the information given here should shed more light on the dynamics of this important life course event and on its explanatory potential with regards to class-differences in old-age poverty.

The third binary variable refers to the experience of a loss of a partner through death. Obviously, this variable contains anybody whose civil status is widow. Determining whether it has any significant effects on either poverty or precarity will also be important from a policy perspective as has been discussed in second chapter. In fact, the issue of widowers has been one of the points that have been specifically addressed in the last (10th) revision of the AVS first pillar.

Also, the hypotheses are exactly the same as in the previous variable, namely that the experience of such an event could trigger negative pathways into financial hardship (Valtorta & Hanratty, 2013). The difference with regards to divorce or relationship dissolution is basically that the nature of the event is different. Also, given that as in the previous variable on relationship dissolution, there is no distinction made between formal and informal relationship (marriage or not), this variable also regroups people who have experienced the loss of a partner in cases where they have not been married.

As in all previous blocks, the final model consists of all the variables in this block – a full model to determine the effect of each of these variables as well as the combined effects of the family trajectory as a whole on the educational differences in poverty and precarity.

| | Model | | | | |
|---|---|---|---|---|---|
| Variable | Education | Parenthood | Relationship dissolution | Partner death | Full family trajectory |
| Sex | x | x | x | x | x |
| Age group | x | x | x | x | x |
| Canton | x | x | x | x | x |
| Education | x | x | x | x | x |
| Timing birth first child cohort | - | x | - | - | - |
| Relationship dissolution exp. | | | | | |
| Partner loss experience | - | - | - | x | - |

*Table 45: Summary nested models for family-related life course*

### 5.2.6 Institutional capital model

The sixth block of models principally is constituted by the so-called *institutional capital* model. Institutional capital refers to a person's sources of income in the context of the Swiss pension system at the time when they have been interviewed. The description of the institutional setting in Switzerland with regards to old-age pensions is provided in section 2.3.2 of the theory chapter.

The key covariate for this block is given by the typology of income source clusters. It is presented at the beginning of the corresponding part in 5.6. Technically, it is used in order to determine the impact of the institutional setting (the reliance on specific sources of income) on poverty in old-age and more importantly, on the socioeconomic differentials in old-age poverty. Regarding the specific application, this block will start with the educational model as a baseline model. To this model I will add the described variable on people's income sources and create a nested model.

As has been pointed out, these income sources already represent certain results from a life-long cumulative process of working in the formal labor market, being embedded in a historical time and a geographical place as well as the institutional setting in Switzerland. The main hypotheses according to a Marxist class-framework are that the relationship between these institutional settings is very high and that they should explain a large part of class-differentials found in old-age poverty. As a reminder, the representatives of the Marxist perspective in gerontology – critical gerontologists and class-theorists – consider Western industrialized governments along with their social welfare institutions as part of the discriminatory structure (Estes & Phillipson, 2002;

Minkler & Estes, 1991). In fact, this model, along with its extension in the following block, perfectly inscribes itself in the political economy of aging tradition: It emphasizes people's *position* within socio-economic structures and the effect they have on resources in old-age.

### 5.2.7 Life course analysis of income source clusters

As it turns out, one of the key findings of the chapter on old-age poverty is that the income source clusters are one of the main predictive variables thereof. The cluster of social welfare recipients in particular is strongly associated with financial hardship in this particular life stage. However, as has has been highlighted in various sections already, the causal links are problematic. For instance, one of the criteria in order to receive social welfare is precisely to be in a situation of financial hardship already. Therefore, the insights that the previous analysis offers are to a certain extent limited.

For this reason, in a final part of this analysis the research question is reoriented. The logic was the following: Given that some income-source clusters are heavily associated with poverty, an analysis of the factors and life course event that increase the chance of being situated in a particular cluster could shed more light onto dynamics that lead into situations of financial hardship in old-age. In line with this reformulated research question, the last part of this chapter focuses on an analysis of life course factors and the membership for each of the five described clusters (3-pillars, 3-pillars + work, AVS+savings, social welfare and 2 pillars). This section describes the individual models that are estimated for each of the five clusters.

#### *Reference models: Control variables and educational model*

Given that the preliminary analysis of the clusters that has been carried out previously revealed interesting patterns for the profiles of individuals which are in each cluster, they both figure as reference models for the following nested models. The variables in this model thus remain age-group, sex, canton for the basic control model and age-group, sex, canton, and education for the educational model.

#### *Life course models for income clusters*

The key question that is focused on in this block of nested models is whether there are certain life course trajectories or life events that increase the risk of ending up in a specific income source cluster. The variables that are used in this section are given by the life course variables that have been presented in the previous sections. Above all, this entails the variables regarding work-trajectories: The clusters of work-trajectories, retirement timing, physical strain and finally, social mobility. Secondly, we integrate the described key events for the family trajectory: The timing of the birth of the first child, the experience of relationship dissolution and finally, the experience of the partner's

death.
The underlying hypotheses are similar to the ones that have been described in the previous sections with the main difference that the immediate outcome of these life trajectories and life events is not directly poverty or financial hardship but the reliance on a specific income-source configuration which could, among other things, signify being poor. In fact, it can almost be said that the reliance on a specific configuration of income-sources is itself a multi-dimensional indicator of a person's economic life situation whereas poverty is a rather one-dimensional and reductionist measure of economic quality of life. Thus, this final analysis may give insights into dynamics that would have otherwise gone unnoticed.

*Home-ownership, self-employment and second pillar capital use*

One specific aspect which can be assessed in this context is that of homeownership. As already discussed, the institutional framework in Switzerland allows people to use their otherwise “blocked” second-pillar professional pension savings for the acquisition of real-estate objects. This specific aspect has sparked a considerable debate on the public as well as governmental level. It is an aspect that thus is particularly interesting to test for in this final part of the analyses.

On a technical level, the final model in this analysis will focus on modeling the membership to specific income-source clusters which do not benefit from a second pillar: The social welfare cluster and the AVS+savings cluster, both of which, as will be shown in the following analyses, have a significantly higher risk to experience poverty.

This block of models will once again start with the control model and the educational model as reference models. To this the variable homeownership is added to create an additional nested model in this block.

## 5.3 Control model: A first look at economic hardship in old-age

| | (1) |
|---|---|
| Akaike Inf. Crit. | 3242 |
| Bayesian Inf. Crit. | 3308.3 |
| Intercept | 0.14*** |
| Women | 1.43*** |
| Canton Valais (Ref. Geneva) | 2.01*** |
| Bern | 1.11 |
| Basel | 0.87 |
| Ticino | 2.43*** |
| Age group 70-74 (Ref. 65-69) | 1.28 |
| 75-79 | 1.22 |
| 80-84 | 1.34 |
| 85-89 | 1.52* |
| 90+ | 1.44* |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | |

*Table 46: Control-model for poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

In the basic model for poverty (shown in table 46) three effects can be observed: With Geneva serving as baseline category I find regional differences with the two cantons, Ticino and Valais manifesting much higher odds-ratios for old-age poverty while Geneva, Basel and Bern show similar levels. While in previous studies there has been a tendency of homogenization of cantons in terms of economic situation of the elderly – notably with Geneva and Valais both experiencing positive trends between 1979 and 1994 (see Lalive d'Épinay, Bickel, Maystre, & Vollenwyder, 2000) - this tendency seemingly has not been sustained and significant differences between the cantons remain in 2011. Interestingly, both cantons with particularly increased odds-ratios for poverty are mountainous and predominantly rural cantons. In this sense, the hypotheses of urban poverty (Chamhuri et al., 2012; Sassen, 2001) are nullified and what is observed is in fact the contrary: A striking increased odds-ratio of rural areas for old-age poverty. This raises the issue of differences in terms of economic dynamics and social policies: Are measures of social welfare in Ticino and Valais less efficient than in other cantons? The following models will further explore these cantonal differences.

The age effect appears starting from 85 years of age upwards: The old-old and the oldest-old are more susceptible to poverty than their peers who just entered retirement. This effect has been expected and confirms the hypothesis of differences due to the late introduction of the three components of the Swiss pension system. The older generations are not benefiting from the full three-pillar system because it has not been in place at the time when they were professionally active and when they contributed to it. This shows

the profound effect of the institutional system – notably the second pillar – for the prevention of poverty. This finding is in line with previous research on this topic (see Lalive d'Épinay et al., 2000; Paugam, 1991). Also this confirms the findings in the previous chapter.

Gender differences are also confirmed with a 43% increased odds of poverty for women. These findings are coherent with the literature and research evidence in Switzerland (Pilgram & Seifert, 2009) and in an international context (Vlachantoni, 2012). With these results I can also nullify – for now at least -the hypotheses that adaptations in social policies have been effective in eliminating gender differences.

| | (1) |
|---|---|
| Akaike Inf. Crit. | 4153.7 |
| Bayesian Inf. Crit. | 4220 |
| Intercept | 0.89 |
| Women | 1.23* |
| Canton Valais (Ref. Geneva) | 1.59*** |
| Bern | 1.01 |
| Basel | 0.73* |
| Ticino | 1.78*** |
| Age group 70-74 (Ref. 65-69) | 1.18 |
| 75-79 | 1.14 |
| 80-84 | 1.14 |
| 85-89 | 1.27 |
| 90+ | 1.18 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | |

*Table 47: Control-model for precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The results for the second indicator for economic hardship, precarity, confirm the aforementioned patterns with regards to cantonal differences albeit in a lower magnitude (see table 47). Valais thus shows an increased odds-ratio for precarity in the order of 1.59 (as opposed to 2.01 for poverty) and Ticino is situated at 1.78 (instead of 2.43 for poverty). For precarity, the odds-ratio for the canton of Basel additionally appears slightly significant and shows a slightly lower frequency of financial difficulties among individuals living in this canton.

The major difference in this model is the total absence of age-effects. It appears that while there are age-related effects for poverty, none are visible for precarity. In other words, if the threshold for financial hardship is set at a higher level, the polarization between age-groups disappears. Also, women are slightly less at an advantage based on this indicator (with an odds-ratio of 1.23 compared to 1.43 in the poverty model).

Based on this first model, the key patterns for poverty and precarity generally seem to be similar. The results for gender- and regional-specific financial difficulties appear to be robust with regards to the choice of the specific indicator thereof. This absence of certain effects (age-effects), the appearance of other patterns (canton of Basel) or the less pronounced effects of certain covariates (Valais, Ticino, women) for this model on precarity can be explained with the fact that, when focusing on precarity as an indicator for financial hardship, the resulting sub-groups of the population are much larger and therefore most likely much more heterogeneous. This might mask certain effects, show weaker effects of others or might yield in (weak) new effects The following models will show whether this initial observation can be confirmed or not.

## 5.4 Social stratification and economic hardship in old-age

The second model focuses on the core object of this thesis: The relationship between social stratification – class-membership – and poverty. According to the Marxist framework that is adopted in this thesis, class is considered the most important and significant predictor for old-age poverty.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Akaike Inf. Crit. | 3242 | 3100.4 | 3212.5 | 3070 |
| Bayesian Inf. Crit. | 3308.3 | 3178.8 | 3284.9 | 3154.5 |
| Intercept | 0.14*** | 0.19*** | 0.11*** | 0.16*** |
| Women | 1.43*** | 1.2 | 1.4*** | 1.19 |
| Canton Valais (Ref. Geneva) | 2.01*** | 1.76*** | 2.38*** | 2.12*** |
| Bern | 1.11 | 1.05 | 1.33 | 1.26 |
| Basel | 0.87 | 0.89 | 0.97 | 1 |
| Ticino | 2.43*** | 2*** | 2.58*** | 2.12*** |
| Age group 70-74 (Ref. 65-69) | 1.28 | 1.21 | 1.22 | 1.16 |
| 75-79 | 1.22 | 1.11 | 1.17 | 1.08 |
| 80-84 | 1.34 | 1.2 | 1.36 | 1.22 |
| 85-89 | 1.52* | 1.28 | 1.53* | 1.31 |
| 90+ | 1.44* | 1.26 | 1.46* | 1.29 |
| Low education (Ref. Apprenticeship) | | 2.13*** | | 2.01*** |
| Higher education | | 0.53*** | | 0.49*** |
| Not Swiss Origin | | | 1.84*** | 1.91*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | |

*Table 48: Social stratification model 1 for poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

This block of models shows an impressive impact of a human capital (measured through education as it is added in the second model) which for most people has been acquired in the earliest stages of the life course. Decades after, it seemingly has an important impact

on the risk of poverty in old-age. Having a higher education roughly halves the odds of being poor in old-age (with an odds-ratio of 0.53) whereas having a lower education increases the odds two-fold (odds-ratio of 2.13) compared to having an average educational level. To put those two tendencies into relation: Having little or no education results in approximately four times the risk of poverty compared with those who have a form of higher education when compared to people who have an apprenticeship.

This is considerable support for the general framework of social stratification. This support still increases when comparing the patterns for age and sex-related poverty from the basic model to the second one. In this comparison the observed changes in the odds-ratios further reinforce one of our key hypotheses: The addition of education discards the age- and gender-effects found in the basic control model. Hence, it can be said that the initially observed age-effects are due to the structural differences in the composition of the population as previously discussed. In younger cohorts, people tend to have higher educational levels and people with a lower education grow more and more scarce. The social stratification hypothesis therefore seems to apply completely: While there may be less people in lower social positions, the dynamics thereof for the risk of poverty remain unchanged - the economic outcomes in later life being largely determined at a young age.

Furthermore, the interpretation with regards to class is highly interesting. The strong impact for the variable low education indicates tremendous intra-class dynamics between skilled and unskilled workers. At the same time, there is an inter-class effect as well. This supports both the hypothesis of continuing class-exploitation in the traditional sense – between capitalists and workers - as well as the hypothesis of "within-class-stratification" meaning that there clearly are patterns of exploitation among the two working classes depending on their education.

This finding of education being such a strong predictor for poverty in old-age does also signify support for the critical life theory (Grossmann, Grossmann, & Waters, 2006; Smith, 2003)and the cumulative disadvantage theory (Dannefer, 2003). Both theories stress the crucial importance of resources in the early stages of life. As the results suggest, being situated in a low social position – belonging to the lower class - in the early stages of people's lives sends them onto a life-trajectory that ultimately makes these individuals end up in at the age of retirement being much more prone to economic hardship as people in other classes.

The third model then shows that the elderly with a non-Swiss origin have a higher risk for poverty, which fully corresponds to the findings of other studies that show that elderly migrants might indeed often be at a disadvantage (Bolzman, 2003, 2014;Bolzman & Kaeser, 2011). Important to note is that in the fourth model, in the model that includes both education and the variable „Swiss origin", the addition of the latter does not significantly change the effect of of the former. It can thus be said that being of Swiss origin or not, being „foreign-born" or not, proves to be an *additiona*l and independent dimension of social stratification besides the observed class-differences that are usually cited in the literature (Keister & Southgate, 2012). This conclusion is

supported with the values for the Akaike (AIC) and Bayesian information criteria (BIC) which are found in the first two rows of table 48. These measures give an indication of which model fits best, meaning which model describes the observed data best based on the present covariates in the model while penalizing for additional variables that do not contribute significantly to the explained variance. Thus, when looking for the best model one needs to minimize AIC and BIC scores. For the case of this block of models, the last model featuring education and Swiss origin shows by far the lowest AIC (3070) and BIC (3154.5) scores. It is therefore the best model and captures most of the underlying dynamics.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Akaike Inf. Crit. | 4153.7 | 3924.1 | 4124.9 | 3888.3 |
| Bayesian Inf. Crit. | 4220 | 4002.5 | 4197.3 | 3972.8 |
| Intercept | 0.89 | 1.48** | 0.75* | 1.26 |
| Women | 1.23* | 1.07 | 1.21* | 1.06 |
| Canton Valais (Ref. Geneva) | 1.59*** | 1.39* | 1.83*** | 1.61*** |
| Bern | 1.01 | 0.91 | 1.17 | 1.06 |
| Basel | 0.73* | 0.72* | 0.8 | 0.79 |
| Ticino | 1.78*** | 1.42* | 1.86*** | 1.51** |
| Age group 70-74 (Ref. 65-69) | 1.18 | 1.16 | 1.14 | 1.12 |
| 75-79 | 1.14 | 1.08 | 1.11 | 1.05 |
| 80-84 | 1.14 | 1.07 | 1.15 | 1.09 |
| 85-89 | 1.27 | 1.13 | 1.27 | 1.14 |
| 90+ | 1.18 | 1.11 | 1.2 | 1.14 |
| Low education (Ref. Apprenticeship) | | 1.96*** | | 1.85*** |
| Higher education | | 0.42*** | | 0.39*** |
| Not Swiss Origin | | | 1.72*** | 1.88*** |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 49: Social stratification model 1 for precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The results for the same block of models for the indicator precarity confirms all of the previously outlined tendencies and therefore also all of the previously discussed conclusions. There is a persistence of the cantonal differences with Valais and Ticino remaining significantly strong factors for financial hardship in the elderly population throughout all of the featured models. Class, as measured through education, is a very strong predicator for financial difficulties in old-age. The model estimates for the effect of lower education (1.96 the odds of being in a situation of precarity) and higher education (0.42 the odds of being precarious) are practically identical with those for poverty. Age-differences are also captured with education, as was the case for the model for poverty. Almost identical results are also obtained for the variable Swiss origin. For the latter, the model for poverty shows roughly a 84% increase in the odds for poverty in

old-age compared with a 72% increase in the odds for precarity. While there are marginal shifts for almost all covariates in the full model, they are generally in the order of less than 10% and the key effects all remain.

Generally speaking, the intensity of the observed relationships is continuously weaker for precarity than with the measure of poverty: Whereas the odds-ratio was situated at 2.13 for low education in poverty, it lies at 1.96 for precarity. Parallel to this, higher education signifies an odds-ratio of 0.53 in the poverty models whereas the same factor results in an odds-ratio of 0.42 for precarity. As has been pointed out before, this weakening of the observed effects can be explained with the increase of the studied sub-groups based on poverty, resulting in a less polarized structure.

Yet again, there are minor differences which are highly interesting. In the control model, Basel showed a slightly lower odds-ratio (0.73) for precarity in old-age. This initial model is shown in table 49 in the first column (1). In the third model where the variable Swiss origin is added, this effect disappears. It seems that the slight lower odds-ratio for Basel is captured with this factor. Given Basel is a border-canton and thus includes numerous participants that have been born outside of Switzerland, this explanation is coherent with the data.

Besides this slight difference with regards to cantonal disparities, it can still be said that the overall patterns with respect to class differences are practically identical across both indicators, showing that these observed effects are robust measures for the underlying dynamics for economic hardship in old-age.

The second block of models regarding social stratification –the third block of models in this chapter – can be considered as insights into the quality and appropriateness of education as a proxy for class and socioeconomic position in comparison with other measures thereof. While education is obviously the key variable in this thesis other indicators such as first job, last job and the household dominance approach for participants' last job can offer valuable additional information. The overall hypotheses, however, remain identical: Lower classes, no matter through which indicator they are measured, have a significantly higher risk to be poor or in a situation of precarity while those at the upper end of the social structure, those with higher educational levels, the „elites“, have a significantly lower risk. In the variables that are featured in the following models, this specifically means that blue-collar workers should show the same behavior with regards to old-age poverty as people with little or no education do. On the other end of the scale, people who are classified in the category „upper and management“ professions as well as white-collar workers who serve as reference category in the binomial logit model should manifest less weaker odds-ratios for poverty, especially the former.

It is to note that since education is highly correlated with any of these additional class measures, no model shows both of those variables together in order not to cause any issues related to collinearity.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Akaike Inf. Crit. | 3242 | 3100.4 | 3153.2 | 3114.1 | 3109.9 |
| Bayesian Inf. Crit. | 3308.3 | 3178.8 | 3249.7 | 3210.7 | 3206.4 |
| Intercept | 0.14*** | 0.19*** | 0.13*** | 0.16*** | 0.19*** |
| Women | 1.43*** | 1.2 | 1.48*** | 1.36** | 1.3* |
| Canton Valais (Ref. Geneva) | 2.01*** | 1.76*** | 1.79*** | 1.78*** | 1.75*** |
| Bern | 1.11 | 1.05 | 0.99 | 1.03 | 0.99 |
| Basel | 0.87 | 0.89 | 0.86 | 0.89 | 0.86 |
| Ticino | 2.43*** | 2*** | 2.19*** | 2.21*** | 2.16*** |
| Age group 70-74 (Ref. 65-69) | 1.28 | 1.21 | 1.27 | 1.33 | 1.33 |
| 75-79 | 1.22 | 1.11 | 1.17 | 1.19 | 1.15 |
| 80-84 | 1.34 | 1.2 | 1.28 | 1.3 | 1.19 |
| 85-89 | 1.52* | 1.28 | 1.42* | 1.45* | 1.34 |
| 90+ | 1.44* | 1.26 | 1.37 | 1.43 | 1.3 |
| Low education (Ref. Apprenticeship) | | 2.13*** | | | |
| Higher education | | 0.53*** | | | |
| CSP Upper / manag. (Ref. White coll.) | | | 0.48*** | 0.48*** | 0.48*** |
| Self-employed | | | 3.15*** | 2.11*** | 3.15*** |
| Intermediary | | | 0.71 | 0.49*** | 0.71 |
| Blue collar | | | 1.62*** | 1.72*** | 1.62*** |
| Inactive | | | 1.8 | 0.97 | 1.8 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | | |

*Table 50: Social stratification model 2 for poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

In line with the discussed class hypothesis, the third nested model shows that people who started their professional lives working in upper and managerial positions have significantly lower odds of being poor in old-age with an odds-ratio of 0.48. This finding corresponds directly to that in the educational model where people with any type of higher education have an odds-ratio that is practically identical. As for the category „blue collar“, individuals in this category have an increased odds of being poor (odds-ratio of 1.62). One has to keep in mind that blue collar professions might include people with different degrees of education: There might be people who are unskilled (and thus would therefore be situated in the category of “low” education) but there are also people with an apprenticeship. Hence, it is not possible to directly compare these information with the model results for education even if it might seem intuitive to do so. The second category of people that shows a significantly increased odds for poverty is that of self-employment. This group has roughly three times the odds of being poor compared with people who have an apprenticeship. This is quite interesting as this is generally a population that is not usually classified as belonging to the working class and being particularly susceptible to negative dynamics and negative outcomes. In fact, as has been described in the theory chapter, independent workers can even be considered as

belonging, under some criteria, to the capitalist class as they usually own their means of production despite not necessarily having hierarchical power over other workers. The results in this analysis suggest that they underlie similar dynamics as people with low education and blue-collar-workers –in fact, the odds-ratio of 3.15 means that this negative relation is even more pronounced. Furthermore, another element that might help with the interpretation of this result is the fact that there are certain criteria such as homeownership or owning real-estate (which self-employed people might own and use for their independent professional activity) which exclude people from being able to demand complementary welfare (see the theory part 2.3 where the institutional settings of old-age pensions are explained) and thus might increase the risk for poverty in old-age.

As is the case for the educational model, the variable first job does not capture any cantonal differences and the odds-ratios for Ticino and Valais remain only marginally different. Interestingly though, this indicator does not capture gender differences either. The odds-ratio for women reappears as being highly significant and of approximately the same order as in the control model. This stands in contrast to the educational model which completely discards such gender-effects. To a limited extent this is also the case for age and cohort-differences given that the category of people aged 85-89 also re-emerges as a significant factor. This shows that this indicator is not as powerful in capturing such class-dynamics. A partial explanation can be made with regards to women, or to be precise, with regards to the difficulty of classifying women into these socio-professional categories. As Tillman (2010) argues, women in these generations often worked outside of the formal labor market, focusing on family and domestic work. As a result, they are often classified in the category of „inactive“ which might distort the results with regards to class-dynamics in old-age poverty and precarity. This confirms the choice of having education as a principal indicator of socioeconomic position and class.

Despite showing less pronounced effects when compared with the educational model, the model for people's first job still shows the key importance of a person's socio-economic position in the beginning stages of their lives. In terms of life-course dynamics, this means support for both critical life period theory and cumulative disadvantage theory that both emphasize the importance of early life conditions and the resulting life-trajectories.

In the fourth model a very similar indicator is shown: It captures people's last profession that they carried out. Since this is a measure of socioeconomic position and class at the end of people's professional lives and follows the exact same classification as the previous variable, this second indicator also captures certain mobility movements. This might entail situations where people experienced socially ascending careers ending up in a higher profession than they started at. Alternatively, there might also be situations where the contrary can be observed: Outcomes where people experienced downward mobility movements ending their professional lives in a lower position than they started it.

For this model the effects across the categories becomes even more visible: Whereas in the previous model there had not been any significant effect for those who last worked in intermediary professions – lawyers, engineers, for example – this characteristic shows around half the odds for poverty compared to people who last worked as white collar workers. Otherwise, the general tendencies remain comparable to the ones for people's first job with only minor shifts in the odds-ratios. Most notable is the decrease for the odds of self-employed people which passes from 3.15 to 2.11. This can be due to such movements of social mobility: People who started out as self-employed might in the course of their work-life have either ended up with a larger company and thus being situated in „intermediary“ or even in upper and management professions. Or, on the contrary, they might have gone back to working as employees in either white- or blue-collar professions. Also, the indicator for women slightly drops from 1.48 to 1.36 and shows itself as being slightly less significant. Once again, the general hypotheses for class dynamics hold true with people in lower classes – blue collar workers, above all – showing increased odds for poverty and those in higher classes – managerial professions, intermediary workers – being less likely to be poor in old-age.

The fact that this variable for people's last job shows a higher degree of precision regarding the explanation of old-age poverty gives considerable confirmation to the cumulative (dis)-advantage theory. According to this theory, minor initial differences in a population will accentuate over time. This is exactly what is observed when comparing model 3 (people's first job) and model 4 (people's last job). Model 3 captures the initial differences at the early stages of people's lives. These initial differences will accentuate over time and accordingly, model 4 which measures people's socioeconomic position (their class) at the end of their professional life, confirms exactly that. Blue-collar workers in model 4 have a higher odds-ratio than in the previous model 3 (with a transition from 1.62 to 1.72), intermediary jobs appear as significantly less prone to poverty (with an odds ratio of 0.49 whereas in the previous model this factor was not significant at all) and finally, self-employed individuals are less likely to be poor as well. Also, the AIC and BIC scores are both lower in model 4, suggesting that it captures the underlying dynamics better than model 3.

The fifth and final model for this block is a slightly adjusted version of the previous indicator. In this model I have taken into account all situations where people live in a relationship and for which the partner had a higher socioeconomic status than the person in question. In such scenarios the value for the highest socioeconomic status was adopted for both of these individuals. Thus, this indicator captures the *household's* socioeconomic status or the household-*class* membership.

In this model, the values across almost all factor drop back to the same level as for the variable first job. Since the adjustments that are made in this variable concern women above all (many of whom have actually been classified as „inactive“ in cases where they focused on family and domestic work) the strength and significance for this factor is less pronounced as in the previous models. Yet, the odds-ratio for women remains at a significant level of 1.3 meaning that they still are roughly 30% more likely to be poor in old-age when controlling for their and their partner's last job.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Akaike Inf. Crit. | 4153.7 | 3924.1 | 3907.5 | 3879 | 3911.6 |
| Bayesian Inf. Crit. | 4220 | 4002.5 | 4004.1 | 3975.5 | 4008.1 |
| Intercept | 0.89 | 1.48** | 0.96 | 1.33 | 1.65** |
| Women | 1.23* | 1.07 | 1.26* | 1.01 | 1.06 |
| Canton Valais (Ref. Geneva) | 1.59*** | 1.39* | 1.39* | 1.4* | 1.38* |
| Bern | 1.01 | 0.91 | 0.86 | 0.93 | 0.89 |
| Basel | 0.73* | 0.72* | 0.69** | 0.73* | 0.7** |
| Ticino | 1.78*** | 1.42* | 1.53** | 1.54** | 1.53** |
| Age group 70-74 (Ref. 65-69) | 1.18 | 1.16 | 1.16 | 1.2 | 1.22 |
| 75-79 | 1.14 | 1.08 | 1.06 | 1.08 | 1.06 |
| 80-84 | 1.14 | 1.07 | 1.07 | 1.11 | 1.02 |
| 85-89 | 1.27 | 1.13 | 1.16 | 1.21 | 1.11 |
| 90+ | 1.18 | 1.11 | 1.14 | 1.2 | 1.08 |
| Low education (Ref. Apprenticeship) | | 1.96*** | | | |
| Higher education | | 0.42*** | | | |
| CSP Upper / manag. (Ref. White coll.) | | | 0.37*** | 0.34*** | 0.37*** |
| Self-employed | | | 2.88*** | 1.34 | 2.88*** |
| Intermediary | | | 0.53*** | 0.51*** | 0.53*** |
| Blue collar | | | 2.06*** | 2.44*** | 2.06*** |
| Inactive | | | 1.54 | 0.82 | 1.54 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | | |

*Table 51: Social stratification model 2 for precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

When comparing the previous results for poverty with those of the indicator precarity, the patterns are, once again, quite similar. The initially observed cantonal difference with Basel having a significantly lower odds-ratio compared to Geneva remains over all four nested models along with increased values for Valais and Ticino. The gender-gap is not as pronounced as in the poverty models. In fact, the gender-gap is even completely captured in model four and five with the addition of people's last job or the household socioeconomic position variable, respectively. This stands in stark contrast with the poverty models where gender-differences persisted throughout all of the models for people's first, last or the household's last job.

Moreover, as the comparison between poverty and precarity has revealed in the previous models, the main differences are found in the strength of the factors. Generally speaking, the odds-ratios for the presented models are again weaker than for the poverty models. For the household dominance model, for example, I find an odds-ratio of 0.37 for upper and management professions compared to 0.48 for poverty. For self-employed individuals the value was situated at 3.15 for poverty and at 2.88 for the precarity model. This trend continues over practically all levels and all variables with the single major

exception of the category blue-collar workers: In this group the odds-ratios are higher than in the poverty models: 2.06 for people's first job, 2.44 for people's last job and 2.06 for the household dominance model. Opposed to this the values were located at 1.62, 1.72 and 1.62 for poverty.

Nevertheless, the general interpretation that has already been introduced for the last models still holds true: The key patterns that are exposed with these models are almost identical between the two measures of financial hardship in old-age which are poverty and precarity. The decrease in the strength of the observed effects can most likely be explained with the increase of the studied groups when introducing a much broader precarity logic instead of a poverty logic.

## 5.5 Factors associated with economic hardship in old-age

Having so far demonstrated the validity of the key hypothesis - a very strong relation between old-age poverty, precarity and social stratification -the following models focus on determining whether this basic relationship is mediated by other factors. For these models it must be emphasized that the causal link is no directly evident – unlike what will be tested in the following life course models. Thus, the general logic is to identify factors that are *associated* with poverty and that *mediate* social stratification and class dynamics.

The results for this block of models for poverty are shown in table 52. The first factor is civil status. The results are shown as model 2. What can be seen here is that there is no meaningful relationship with old-age poverty. At the same time, the odds-ratios for all the other factors that are also featured in this model (the educational model that is nested in the former) remain practically identical. Above all, the values for educational differences remain unchanged. This signifies that civil status does not mediate educational and class differences in old-age poverty. This result confirms the findings in chapter and show that earlier findings (Lalive d'Épinay et al., 2000, p. 76)where both divorce and widow were associated with old-age poverty have become obsolete. There is thus strong evidence for the hypothesis that the diverse adjustments in the Swiss pension system that have been undertaken over the last decade with the aim of reducing gender-inequality on an institutional level have been successful (see Bertozzi, Bonoli, & Gay-des-Combes, 2005; Wanner & Fall, 2012).

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3096.8 | 3100.9 | 3093 | 3096.9 | 3096.5 | 3099.1 |
| BIC | 3175.2 | 3197.4 | 3189.5 | 3181.3 | 3193 | 3237.9 |
| Intercept | 0.19*** | 0.19*** | 0.19*** | 0.2*** | 0.18*** | 0.18*** |
| Women | 1.21 | 1.16 | 1.21 | 1.2 | 1.21 | 1.18 |
| Canton Valais (Ref. Geneva) | 1.77*** | 1.79*** | 1.76*** | 1.88*** | 1.58* | 1.63* |
| Bern | 1.05 | 1.06 | 1.04 | 1.08 | 1 | 1.01 |
| Basel | 0.91 | 0.92 | 0.91 | 0.93 | 0.88 | 0.9 |
| Ticino | 2.01*** | 2.03*** | 1.97*** | 2.09*** | 1.81** | 1.83** |
| Age group 70-74 (Ref. 65-69) | 1.2 | 1.18 | 1.2 | 1.19 | 1.2 | 1.19 |
| 75-79 | 1.09 | 1.07 | 1.09 | 1.08 | 1.1 | 1.08 |
| 80-84 | 1.16 | 1.13 | 1.15 | 1.15 | 1.16 | 1.12 |
| 85-89 | 1.23 | 1.19 | 1.21 | 1.21 | 1.24 | 1.17 |
| 90+ | 1.22 | 1.15 | 1.21 | 1.18 | 1.2 | 1.14 |
| Low education (Ref. Apprenticeship) | 2.13*** | 2.13*** | 2.12*** | 2.12*** | 2.13*** | 2.11*** |
| Higher education | 0.53*** | 0.53*** | 0.53*** | 0.54*** | 0.53*** | 0.54*** |
| Single (Ref. Married) | | 1.02 | | | | 0.99 |
| Widow | | 1.13 | | | | 1.09 |
| Separated/Divorced | | 1.12 | | | | 1.05 |
| Living situation: Home ass. (Ref. Home) | | | 1.07 | | | 1.02 |
| Institutionalized | | | 1.03 | | | 0.99 |
| Living with other people | | | 2.21** | | | 2.06* |
| Homeowner | | | | 0.88 | | 0.94 |
| Region: Intermed. populated (Ref. Dense) | | | | | 1.25 | 1.23 |
| Out of Switzerland | | | | | 1.51 | 1.51 |
| Thinly populated | | | | | 1.14 | 1.12 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 52: Factors associated with poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Secondly, the variable for living arrangement reveals that the circumstance of living with „others“, meaning either with their own children, other family members or with friends, is a strong indicator for poverty with more than twice the odds (2.21 odds-ratio) than for people who live at home. A basic cross-tabulation revealed that this principally concern situations where an individual is in physical difficulties, which means he or she needs minor external help to accomplish all activities of their daily life. A highly likely reason for such a situation is when a person requires external help but cannot afford commercial solutions (assisted living or even living in an institution). In this scenario such people then turn to people in their social network to help them. This confirms the sketched-out working hypotheses to a large extent. What cannot be found is a weaker propensity of poor individuals for the category assisted living which was speculated to be a sign of more abundant financial resources. This factor has no detectable effect on

educational(class) differences, neither does it impact on any of the other factors in the model.

The third factor which is shown in the third column (3) of table 52 and that has been identified in the literature as having an important effect on poverty is homeownership (Budowski & Suter, 2002; Dewilde & Stier, 2014). The specific institutional background in the Swiss pension system and with it, the mechanics for the risk of poverty that this factor could signify, have been discussed in the first section and the second chapter. However, unlike the literature suggests, the results for this factor do not support this hypothesis: Neither does the factor have an impact on its own, nor does it have any impact on the main relationship that is studied in this thesis: Social stratification and class differences as measured by education. There are no discernible effects on canton, sex or age-related differences either.

Fourthly, the degree of urbanization is added in the following nested model for this block that focused on associated factors. It measures the impact of a person's geographical environment – the degree of urbanization to be precise - on poverty. The hypotheses indicate that urban areas increase the risk for poverty due to a combination of various economic implications such as higher rents, higher living costs and so on (Chamhuri et al., 2012; Sassen, 2001). Yet, the results for this results for the logistic regression model (shown in column 5) dismiss this hypothesis. It appears that this factor does not affect the elderly population. Neither does it have any major impact on the other variables in the model. Educational and class differences in particular remain constant. The changes for regional differences are minimal: Cantonal differences are thus not the result of urban/rural differences which implies that cantonal differences in social policies could be at work. Alternatively, these persisting cantonal differences can be due to differences in economic structures and dynamics.

The following full model includes all of the aforementioned factors. The most important point of interest of this model for this thesis is whether educational and class differences change with the addition of all these associated factors. As it turns out, the odds-ratios for educational differences remain absolutely unchanged suggesting that none of these covariates mediates the basic relationship between a person's socioeconomic or class-position with regards to old-age poverty. The odds-ratios for the rest of the covariates more or less remain in the same order as they were in their respective models.

Finally, the scores for the AIC and BIC across all models in this block are all very close together. This can be seen in the first two rows of table 52. Concluding from these results, it can be said that all of the variables in this block only marginally contribute additional information for the explanation of poverty. When looking for the most parsimonious model – the model that explains the most of the variation in the distribution of poverty across the target population with the *least* amount of variables – it appears that the best remains the educational model. In other words: All of the additional variables in the associated factors block introduce more „noise“ in the model than they add predictive strength.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3925.6 | 3898.5 | 3927.5 | 3915.1 | 3927 | 3884.4 |
| BIC | 4004 | 3995 | 4024.1 | 3999.6 | 4023.5 | 4023.1 |
| Intercept | 1.49** | 1.49** | 1.49** | 1.69*** | 1.47** | 1.78*** |
| Women | 1.06 | 1.23* | 1.07 | 1.05 | 1.06 | 1.24* |
| Canton Valais (Ref. Geneva) | 1.39* | 1.4* | 1.39* | 1.57** | 1.35* | 1.58** |
| Bern | 0.91 | 0.91 | 0.91 | 0.97 | 0.89 | 0.97 |
| Basel | 0.73* | 0.73* | 0.72* | 0.76* | 0.72* | 0.75* |
| Ticino | 1.42* | 1.44** | 1.41* | 1.54** | 1.37* | 1.52** |
| Age group 70-74 (Ref. 65-69) | 1.15 | 1.19 | 1.15 | 1.14 | 1.15 | 1.17 |
| 75-79 | 1.07 | 1.18 | 1.08 | 1.06 | 1.08 | 1.17 |
| 80-84 | 1.05 | 1.2 | 1.05 | 1.02 | 1.05 | 1.16 |
| 85-89 | 1.1 | 1.32 | 1.11 | 1.05 | 1.09 | 1.27 |
| 90+ | 1.08 | 1.37 | 1.12 | 1.01 | 1.07 | 1.35 |
| Low education (Ref. Apprenticeship) | 1.97*** | 2.02*** | 1.97*** | 1.94*** | 1.98*** | 1.99*** |
| Higher education | 0.42*** | 0.41*** | 0.42*** | 0.43*** | 0.42*** | 0.42*** |
| Single (Ref. Married) | | 0.6** | | | | 0.55*** |
| Widow | | 0.6*** | | | | 0.56*** |
| Separated/Divorced | | 1.06 | | | | 0.93 |
| Living situation: Home ass. (Ref. Home) | | | 1.17 | | | 1.05 |
| Institutionalized | | | 0.75 | | | 0.69 |
| Living with other people | | | 1.32 | | | 1.15 |
| Homeowner | | | | 0.75** | | 0.68*** |
| Region: Intermed. populated (Ref. Dense) | | | | | 1.13 | 1.14 |
| Out of Switzerland | | | | | 0.93 | 0.93 |
| Thinly populated | | | | | 0.93 | 0.92 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 53: Factors associated with precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The analysis which had been carried out for poverty has been repeated for the measure of precarity instead (see table 53). Whereas previous blocks of models have shown that despite minor exceptions and variations in the intensity of the effects, both indicators capture almost the same dynamics, this is not entirely the case for this block of associated factors. Here, the patterns diverge quite substantially. Interestingly, the variable civil status which is shown in the second column (2) of table 53 shows both lower odds-ratios for singles (0.6) and widows (0.6). The results for divorced and separated people show no particular effect, as was the case for poverty as well. What is also interesting in the civil status model (2) is that the factor for women reappears as being significant once again. This means that in this model where we are looking at precarity, civil status has a *suppressor-effect*: Its addition to the model renders the effect

for sex visible. This strong contrast to the results for poverty, where notable effects for widowhood and singles were absent and civil status did not render the absent gender-effect visible either, raises the question of why this pattern is found for precarity.

The first interpretation that can be made is that the population that is created when setting the threshold for financial hardship in old-age higher and thus at a level that does not strictly mean serious financial difficulty but rather financial and economic *vulnerability,* the dynamics with regards to civil status change drastically. Simply put: The population that has been studied which was „poor" is substantially different than that which is „precarious" with respect to civil status.

The next question regards why a less strict threshold reveals protective effects for singles and widows. For those questions, I claim putting this variable into the context of the last 20 years gives a possible explanation. A mere 17 years ago in 1994, Lalive d'Epinay and colleagues (2000) found a strong correlation between divorce, widowhood and poverty and on the other hand, marriage was a protective factor against poverty. Since then, multiple attempts have taken place to address this gender-discrimination. Among other adjustments, divorce and the death of a partner are legislated differently today. Accordingly, gender-discrimination for *poverty* in these sub-populations have completely disappeared, as has been shown in the previous section. Now, what can be seen here is a tendency that goes even beyond eliminating discrimination: An important advantage *for* widowers with *less* likelihood for financial problems in old-age. In line with the findings of no effects for widowers for poverty, the result for poverty in this model that focuses on precarity can also be seen as as success of these systemic adjustments. Widowers are now at least able to benefit from the inheritance of financial resources. Obviously, as research has shown and still shows today, the loss of a partner remains a highly stressful and critical event with various psychological consequences despite the seeming absence of financial consequences (Höpflinger, Spahni, & Perrig-Chiello, 2013). Once the model controls for civil status, sex becomes significant again. This means that there are gender differences which are not captured by education, nor age, nor civil status. This can thus be seen in a more classical gender-perspective such as can be found in the literature on master-status (which is employed, for example, by Widmer & Ritschard, 2009). These findings also confirm those in the previous chapter.

On the other hand, singles are also less prone to precarity in old-age according to this second model. This result is much more difficult to interpret given that the literature usually emphasizes the protective effects that are attributed to living in multi-person households and being in a relationship (Haveman, 2001). In order to understand the observed situation and dynamics better, I compared basic socio-demographic characteristics of singles in the sample with the rest of the other participants. This in-depth view showed the following elements: Firstly, there are about twice as many women that are single (139 versus 71); secondly, there are significantly more people with higher and average education among singles (roughly 55% of all singles have a form of higher education, 30% have an apprenticeship and only 15% have no or only a basic form of education) and thirdly, there is no specific pattern across age-groups. Furthermore, as was to be expected from these generations, 96% of all singles have no children and 92% do not share their live with anyone. Thus, it can be speculated that this group predominately consists of women who have preferably focused on professional

careers, acquiring a higher education and have never went into a formal relationship with anybody. The cumulative result for such a life-trajectory then results in an improved financial situation in old-age with less odds of being economically vulnerable.

In model 3 where people's living situations are assessed and its impact on precarity in old-age, there are no notable effects to report, unlike in the previous block of models focusing on poverty that showed an increased odds for people who lived with others. Neither do I find confirmation for decreased odds regarding people that live in an institution or at home while being assisted. No effects whatsoever can be found on educational differences either.

In contrast to the results for poverty, homeownership has a significant effect. However, unlike the institutional setting and the „mechanics“ of poverty that have been described earlier, the effect goes into the opposing direction: Homeownership is a factor that is associated with less odds of being in a situation of economic vulnerability. The working hypothesis according to which homeownership is a risk for financial hardship in old-age is not supported. The interpretation, however, is relatively straightforward: People who own their home are obviously in a situation of economic comfort and security, thus enabling them to make such an investment.

The second to last model in this block analyzed the impact of the degree of urbanization. As in the analysis on poverty, there were no discernible effects to be found. Neither does the degree of urbanization of a person's living location influence his or her economic situation with regards to precarity, nor does it have an effect on education and class differences and finally, neither can cantonal differences be explained with this variable.

As for the full model containing all of the covariates in this part, there are no major shifts in the effects that have been described so far for these variables individually as well as for the others: Cantonal differences remain, gender differences appear slightly as a result of the variable civil status (as has been discussed above), educational differences are unchanged and no age-related effects can be seen.

Concluding this section, it can be said that while the results between poverty and precarity diverged quite substantially, there are nevertheless a two key dynamics that are coherent and robust towards the choice of indicator for economic hardship. Firstly, none of these associated factors is able to capture in any way class differences as they are measured with education. Secondly, the often-cited improvements for women with regards to divorce and widowhood seem to have been successful as none of these factors affects financial hardship in old-age positively. With these results, it will now be even more interesting to tackle to following section that looks a life-course causes of poverty and precarity.

## 5.6 Professional trajectory and economic hardship in old-age

With the fourth block of models the general angle of analysis shifts. Up to this point the general perspective was one of static associated factors with the main exception of education, which I use as a proxy for socioeconomic or class-position at the beginning of life. In this block of models, I will turn towards a *life course* perspective. In terms of

theory this signifies that I aim to determine whether there are either causal factors for the explanation of social stratification in old-age poverty. Alternatively, should the latter not yield any results, I will assess whether there are any indications for the impact of critical life events that would require a more event-based „biographization“ framework for their interpretation and conceptualization with regards to financial hardship in old-age.

As has been presented in the part regarding the analyses and hypotheses (5.2), the key variable in this part is the typology of work-trajectories. The underlying original data and the methodology have been presented in the third chapter. A first section presents the resulting typology (5.6.1). Following this, a brief analysis determining the sociodemographic profile of people associated with each specific cluster is carried out (5.6.2). In a third and final section, the results for the models for poverty and precarity are presented (5.6.3). Even though the variable for work-trajectories is certainly the most important one, it is not the only one concerning the professional life that is featured in this block of nested models. Additional variables are retirement timing, physical strain of a person's professional life and finally, social mobility.

### 5.6.1 Typology of work trajectory clusters

The clustering of work-trajectories determined four distinct clusters. They are graphically represented in figure 19 which shows the so-called state distribution plots for each cluster, i.e. for every time unit t the (stacked) distribution of states in which people were situated at that point in time.

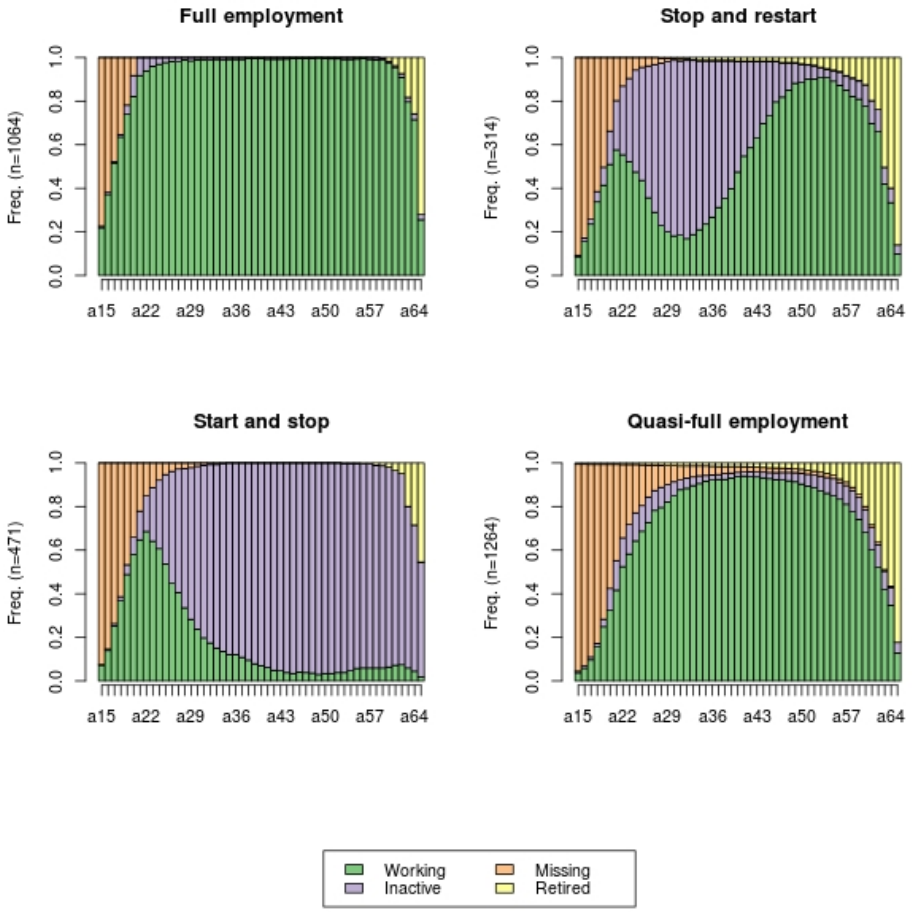


*Figure 19: Typology work trajectories VLV*
*Source: Own calculations based on VLV, 2011*

The clusters "Full employment" and "Quasi full-employment" regroup people whose professional life was characterized by high levels of employment and having experienced none or only short episodes of inactivity. The "quasi full-employment" group shows only minor differences to the first with a slightly higher frequency of missing data in the earliest period of the work-life, an increased percentage of people in unemployment and finally, a slight tendency of early retirement. The other two clusters represent two trajectories which are clearly more frequent among women. The cluster "Stop and restart" shows a higher frequency of unemployment between mid-twenties and mid-thirties, corresponding to what most likely is a break during which people from this group retire from the formal labor market and focus on family and other activities. The cluster "Start and stop" contains people who began working but from their mid-twenties onwards exited the labor market and remained formally inactive up until their retirement.

These described characteristics are even more visible in figure 20 which shows the state mean time plot for each of the clusters, meaning it shows for each state in each cluster how much time is spent in it on average.

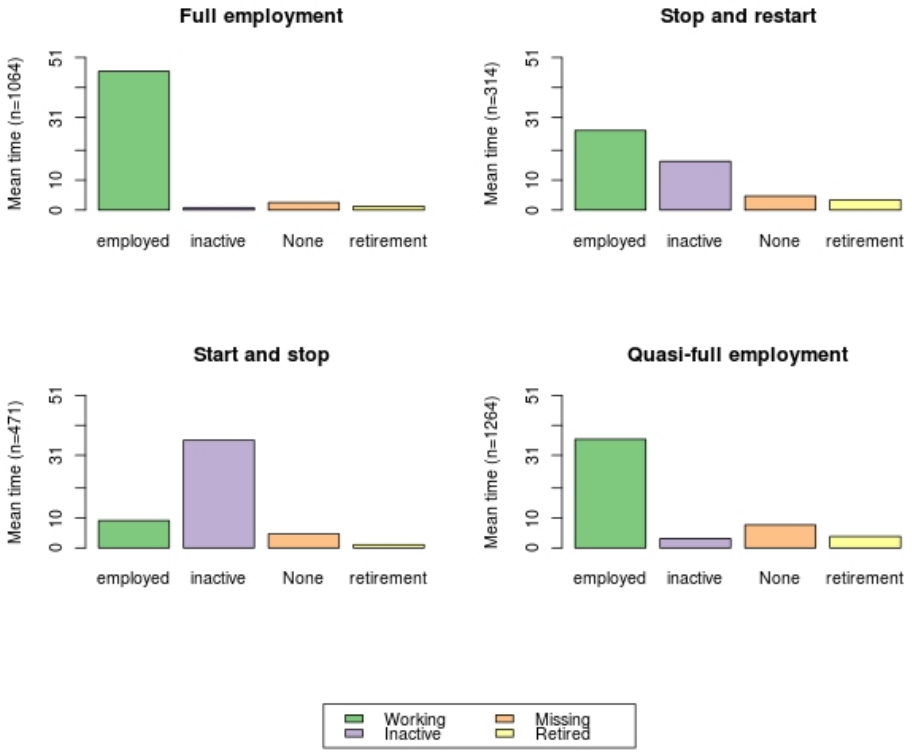


*Figure 20: State frequency plots work trajectory clusters VLV*
*Source: Own calculations based on VLV, 2011*

The identified categories of this typology are in line with previous work on the topic (Levy, Bühlmann, & Widmer, 2007; Widmer & Ritschard, 2009a). Also, without going too much into detail, at this point it can be said that with regards to the discussion on the de-standardization of life trajectories in Western industrialized countries and in Switzerland in particular, the findings in this thesis suggests the opposite: It appears that the generations that are studied in this thesis show highly standardized life courses, at least in the dimension of work-trajectories. However, this question has to be further assessed. To this end, the following section analyzes the basic socio-demographic profile of people in each cluster.

### 5.6.2 Sociodemographic profiles of work-trajectory clusters

In this section the focus lies on providing a brief overview regarding the characteristics of individuals that are found in each of those four work-trajectory clusters. Notably, this part will verify – or confirm – whether the second and third trajectory are indeed feminine work-trajectories. This section will employ binomial logit regression models on cluster membership for each of the clusters as main target variables. Covariates are given by the basic stratification criteria (age-group, sex and canton) and by education. Parallel to the previous part, the educational model is nested within the control model in order to be able to detect cases where age-, sex- or cantonal differences are captured with education.

| | Cluster: Full employment | | Cluster Stop and Restart | | Cluster Start and Stop | | Cluster Quasi-Full Employment | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| Women | 0.38*** | 0.36*** | 3.78*** | 3.96*** | 7.70*** | 7.68*** | 0.60*** | 0.61*** |
| Canton Valais (Ref. Geneva) | 1.21 | 1.20 | 0.68* | 0.67* | 1.18 | 1.21 | 0.91 | 0.91 |
| Bern | 1.68*** | 1.71*** | 0.88 | 0.88 | 1.10 | 1.15 | 0.64*** | 0.63*** |
| Basel | 1.21 | 1.20 | 1.12 | 1.12 | 1.30 | 1.33 | 0.72*** | 0.73*** |
| Ticino | 1.53*** | 1.49*** | 0.74 | 0.72 | 2.29*** | 2.40*** | 0.49*** | 0.50*** |
| Age group 70-74 (Ref. 65-69) | 1.36** | 1.39** | 0.89 | 0.91 | 0.79 | 0.79 | 0.91 | 0.89 |
| 75-79 | 1.69*** | 1.70*** | 0.97 | 1.00 | 0.83 | 0.80 | 0.71*** | 0.71*** |
| 80-84 | 1.33** | 1.32* | 0.93 | 0.97 | 1.23 | 1.23 | 0.74** | 0.73** |
| 85-89 | 2.08*** | 2.10*** | 0.47*** | 0.47*** | 1.24 | 1.25 | 0.60*** | 0.59*** |
| 90+ | 1.88*** | 1.88*** | 0.62** | 0.63* | 1.19 | 1.17 | 0.63*** | 0.63*** |
| Low education (Ref. apprenticeship) | | 1.13 | | 1.07 | | 0.94 | | 0.92 |
| Higher education | | 0.99 | | 1.19 | | 1.13 | | 0.90 |
| Constant | 0.41*** | 0.40*** | 0.07*** | 0.06*** | 0.03*** | 0.03*** | 1.55*** | 1.66*** |
| Observations | 3,019 | 2,979 | 3,019 | 2,979 | 3,019 | 2,979 | 3,019 | 2,979 |
| Log Likelihood | -1,833.00 | -1,803.52 | -928.58 | -911.88 | -1,099.62 | -1,085.85 | -1,984.51 | -1,958.87 |
| Akaike Inf. Crit. | 3,688.00 | 3,633.04 | 1,879.15 | 1,849.76 | 2,221.24 | 2,197.71 | 3,991.03 | 3,943.74 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 54: Cluster membership*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The first cluster is given by full-employment. The cluster membership analysis reveals strong effects for gender, cantons and age-groups. Women are clearly less likely to be included in this cluster with an odds ratio of 0.36 to 0.38, depending on whether education is added or not. This reflects the initial hypothesis that this is a male work-trajectory,. In these generations professional life courses were heavily gendered (Widmer & Ritschard, 2009). Furthermore, with Geneva serving as reference category, it appears that people living in Bern and in Ticino are more likely to be contained in this cluster. Also, these effects remain practically unchanged with the inclusion of education as an additional factor. The results for age-groups show highly interesting patterns. Generally speaking, it appears that the oldest generations have the highest likelihood of having a full-employment work trajectory with odds ratios of around 1.88 for people aged 90 and over and in the order of 2.08-2.10 for individuals in the age-group 85-89. The next generation aged 80-84 still shows a higher odds-ratio to be situated in this cluster, yet the drop is relatively pronounced given that they are situated at roughly 1.3 when compared to their peers aged 65-69. Interestingly, this could be connected to the discussion on de-standardization of individual's work trajectories given that there seems to be a relative decrease of the frequency of such full-employment work-history. Also interesting is the fact that there are no effects for education (and class) differences with regards to these trajectories. This cluster represents 34.2% of all individuals in the VLV sample.

The second group of clusters is the second work-trajectory which has already been identified as potentially being one that might be more frequent among women is that of *stop and restart*. Briefly summarized, people in this cluster temporarily retreat from the formal labor market and then re-enter it again towards the second part of their professional lives. The analysis regarding cluster membership reveals that the initial hypothesis holds indeed true as the odds ratio of 3.78 and 3.94 indicates that such a work-biography is roughly four times as frequent for women in comparison to men. Furthermore, in higher age-groups 85-89 and 90+ the stop and restart trajectory cluster is less frequent. A possible explanation for this finding is that in these generations the following trajectory, where women retreat from the labor market and do not re-enter it, might be more frequent than the one presented here. Once again, there are no discernible effects of education on the membership of this cluster. The stop and restart work-trajectory cluster represents 10.2% of people that have participated in the VLV survey in 2011.

The third work-trajectory cluster is the so-called start and stop group. As was suspected, based on the figure of clustered trajectories, this is a highly female trajectory. Women are 7.7 times as likely to have experienced such a work-trajectory. This number remains practically unchanged with the inclusion of education. The only other effect that is significant is an increased frequency of this cluster in the canton of Ticino with an odds ratio of 2.29 and 2.4 when controlling for education. The results for this group, which represents 14.9% of people in the sample, confirm the previous conclusion that life courses in Switzerland – at least those generations who are studied in this thesis – are to a very high degree gendered and standardized.

The fourth cluster is represented by what I refer to as “quasi-full employment”. The only

difference with people classified as being in the full-employment cluster is a slightly higher frequency of (minor) spells of unemployment as well as a higher frequency of missing values at the beginning of people's professional trajectories and a higher share of people who take a early retirement. The results for the cluster membership analysis shows a series of effects. Above all, there are clear gender effects with women – as was to be expected and completely in line with the findings so far – being much less likely to have such a trajectory. This again confirms the thesis of highly gendered work-biographies in Switzerland. Moreover, with Geneva being the reference category, the cantons of Bern, Basel and Ticino all show a lower likelihood to be associated with this particular trajectory. The results for age-groups shows that the odds-ratios for this trajectory increases almost linearly the younger the cohorts are with the exception of people aged 70-74. Whether this signifies that such a work-trajectory is becoming more frequent is possible but cannot be established for certain, given that the aforementioned second-lowest age-group does not confirm this trend. Finally, there are no discernible effects for education to be made out. This work-trajectory cluster is in fact the most frequent among all respondents of the VLV survey and represents a share of 40.7%.

5.6.3 Professional life course and financial hardship in old-age

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3099.8 | 3102.2 | 3056.6 | 3078.9 | 3102.3 | 3039.6 |
| BIC | 3178.2 | 3198.8 | 3147.1 | 3163.4 | 3192.8 | 3166.3 |
| Intercept | 0.2*** | 0.2*** | 0.27*** | 0.17*** | 0.19*** | 0.23*** |
| Women | 1.21 | 1.15 | 1.2 | 1.23* | 1.21 | 1.14 |
| Canton Valais (Ref. Geneva) | 1.78*** | 1.77*** | 1.81*** | 1.73*** | 1.78*** | 1.75*** |
| Bern | 1.04 | 1.03 | 1 | 0.98 | 1.04 | 0.93 |
| Basel | 0.9 | 0.89 | 0.89 | 0.84 | 0.9 | 0.82 |
| Ticino | 2.01*** | 1.97*** | 2.1*** | 1.97*** | 2.02*** | 2.02*** |
| Age group 70-74 (Ref. 65-69) | 1.19 | 1.19 | 1.14 | 1.2 | 1.19 | 1.16 |
| 75-79 | 1.09 | 1.09 | 0.99 | 1.1 | 1.09 | 1.01 |
| 80-84 | 1.16 | 1.15 | 1.02 | 1.19 | 1.17 | 1.04 |
| 85-89 | 1.24 | 1.23 | 1.02 | 1.23 | 1.25 | 1.02 |
| 90+ | 1.22 | 1.21 | 0.97 | 1.21 | 1.22 | 0.96 |
| Low education (Ref. Apprenticeship) | 2.12*** | 2.12*** | 2.12*** | 2.01*** | 2.13*** | 2.02*** |
| Higher education | 0.53*** | 0.53*** | 0.51*** | 0.56*** | 0.53*** | 0.54*** |
| Work traject.: Q.f.-empl. (Ref. Full-empl.) | | 0.93 | | | | 0.95 |
| Start and stop | | 1.17 | | | | 1.23 |
| Stop and restart | | 1.08 | | | | 1.12 |
| Retirement timing: Early (Ref. Legal) | | | 0.51*** | | | 0.5*** |
| Late retirement | | | 1.09 | | | 1.07 |
| Job physically hard | | | | 1.57*** | | 1.6*** |
| Upward social mobility (Ref. stagnation) | | | | | 0.95 | 0.97 |
| Downward social mobility | | | | | 1.07 | 1.05 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 55: Work trajectories and poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The results can be seen in table 55. However, they do not support the working hypothesis and suggest that work trajectories have no impact whatsoever on poverty in old-age. Neither do they have any discernible impact on educational and class differences concerning old-age poverty. Both factors, high education and low education remain practically at their initial level as found in the educational reference model (in column 1 of table 55). This is a highly surprising result and goes against the general findings in the literature. This finding will form one of the main points of discussion in the final, concluding part of this chapter. It also must be said that I tested interaction effects between work trajectory clusters and sex, given that specific trajectories can have different consequences depending on a person's sex, but found no results. On top of that, since trajectories are heavily gendered, integrating them into the same model as sex creates problems of collinearity. In summary, the hypothesis of cumulative disadvantage is not supported, as being poor in old-age seems to be largely determined by other

factors than a person's work trajectory. As it has been argued so far, the key factor for poverty continues to be education.

Also, work trajectories do not change anything in the other variables. Cantonal differences remain identical as in the educational model, gender-effects continue to be captured by education and age-effects are absent as well. AIC and BIC increase both which means the model including work-trajectories does not describe the data – with regards to poverty of course – better than the educational model on its own.

The third model focuses on a different measure of people's work-trajectory: It is centered around the variable retirement timing. In doing so, it specifically tests to what extent this event represents a critical life-event and whether it has the potential to have any effect on old-age poverty (Vandecasteele, 2010). The results show that people who retire early have a distinctly lower odds-ratio for poverty. This supports the hypothesis that those who take an early retirement tend to be wealthier classes of the population who have the financial means in order to afford to do so. This also reflects, to a certain extent, the critique by scholars from the political economy of aging: Welfare states and social policies favor the upper classes, the wealthy. The fact that they can afford to leave the labor market earlier while still having a distinctly reduced odds of being poor suggests that they institutional structures are highly favorable for them. None of the other factors change in this model.

In model four, the hypothesis of a strong link between poverty in old-age and physically demanding professions were tested. One might think of such activities as working on construction-sites, in factories or any other kind form of manual labor – in short: activities which are usually carried out by people with lesser education, the working classes.

As was to be expected, the odds-ratio for this factor is situated at 1.58 meaning that people who did have such a physically straining work-life have a roughly 60% higher risk to be suffering from financial hardship at their retirement age. This confirms the working hypothesis completely. However, this factor does not influence any of the other covariates in the model, notably educational differences which is highly interesting. The physical strain of people's work-life is a factor that on its own measures a dimension that impacts on old-age poverty. This conclusion is also supported with BIC and AIC scores which clearly decrease. The first passes from 3178 in the educational model to 3147 in the model containing the variable on the physical strain of the work-life. For the latter, the Aikaike information criterion, the value decreases from roughly 3100 to 3057. This result is highly interesting in a Marxist perspective. There seems to be an effect of “manual labor” and possibly of an “economic sector” which is independent from and is not reflected by the variable education. The latter, as has been explained in the theory part, is taken as a proxy of class-membership. The fact that there seems to be a difference related to class that is not captured with education raises important issues and will feature in the final discussion.

The last factor which was assessed in this block of models focusing on the impact of

people's professional lives was social mobility. As a reminder, social mobility as it is operationalized here compares a person's first with its last job. Based on the literature, professional careers that are characterized by an upward movement should be associated with positive outcomes in terms of economic wealth and significantly lower odds for poverty (see Keister & Southgate, 2012). Stagnating work-trajectories (work-biographies in which people remained in the same socioeconomic position all through their lives) and socially descending trajectories should be factors to increase the odds for poverty. Surprisingly, as is shown in model 5 of in table 55, however, there are no effects of social mobility movements on poverty or on educational differences at all, thus suggesting rejecting the outlined working hypotheses.

Finally, the full model for people's work-related life course and old-age poverty shows two key insights: Firstly, the combined effect of all these life course covariates on educational and class differences are negligible. Secondly, the factors which have been identified as having an influence on old-age poverty keep both, the same direction of effects as well as the strength of these effects. This means that all of these covariates measure different aspects that have an impact on poverty at the age of retirement and do not influence or mediate each other.

The same analysis has been repeated for the measure of precarity. The results thereof are shown in table 56. More than in any of the previous blocks of models previously, the results for precarity are a perfect carbon-copy of the dynamics found for the analysis of poverty. All effects in the educational model - cantonal differences, the absence of age- and gender-related effects and a persistence of educational differences throughout all nested models – remain stable across all of the models in this block. Also, the resulting effects precisely mirror the findings for poverty with only marginally different odds-ratios.

It thus can be deducted that with regards to the influence of the work-life, poverty and precarity follow the exact same dynamics and patterns which is to say that educational levels are the strongest predictor for poverty in old-age and none of the covariates in this block change that key relationship. Although highly unexpected, the findings for this section on the influence of people's work trajectory on economic difficulties in old-age seem highly robust with regards to the choice of indicator thereof.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3927.3 | 3931.9 | 3897.8 | 3904.5 | 3929.3 | 3881.9 |
| BIC | 4005.7 | 4028.5 | 3988.3 | 3988.9 | 4019.8 | 4008.6 |
| Intercept | 1.49** | 1.5** | 1.91*** | 1.33* | 1.48** | 1.7** |
| Women | 1.06 | 1.06 | 1.05 | 1.07 | 1.05 | 1.03 |
| Canton Valais (Ref. Geneva) | 1.39* | 1.38* | 1.41* | 1.36* | 1.39* | 1.37* |
| Bern | 0.91 | 0.91 | 0.89 | 0.86 | 0.91 | 0.85 |
| Basel | 0.73* | 0.73* | 0.73* | 0.69** | 0.73* | 0.69** |
| Ticino | 1.42* | 1.41* | 1.46** | 1.39* | 1.41* | 1.42* |
| Age group 70-74 (Ref. 65-69) | 1.15 | 1.15 | 1.1 | 1.15 | 1.15 | 1.11 |
| 75-79 | 1.07 | 1.07 | 1 | 1.08 | 1.07 | 1.01 |
| 80-84 | 1.06 | 1.06 | 0.96 | 1.07 | 1.06 | 0.97 |
| 85-89 | 1.1 | 1.09 | 0.95 | 1.09 | 1.1 | 0.94 |
| 90+ | 1.06 | 1.06 | 0.89 | 1.05 | 1.06 | 0.87 |
| Low education (Ref. Apprenticeship) | 1.98*** | 1.98*** | 1.97*** | 1.88*** | 1.98*** | 1.88*** |
| Higher education | 0.42*** | 0.42*** | 0.41*** | 0.44*** | 0.42*** | 0.43*** |
| Work traject.: Q.f.-empl. (Ref. Full-empl.) | | 1 | | | | 1.01 |
| Start and stop | | 1.06 | | | | 1.1 |
| Stop and restart | | 0.92 | | | | 0.94 |
| Retirement timing: Early (Ref. Legal) | | | 0.63*** | | | 0.63*** |
| Late retirement | | | 1.09 | | | 1.07 |
| Job physically hard | | | | 1.53*** | | 1.53*** |
| Upward social mobility (Ref. stagnation) | | | | | 0.93 | 0.94 |
| Downward social mobility | | | | | 1 | 0.99 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 56: Work trajectories and precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

## 5.7 Family events: A biographization of financial hardship?

The final block of models focuses on people's family life. The focus lies on testing the hypothesis of a *biographization* of poverty and precarity. In such a framework, which is just as often called an „individualization“, certain life events are considered to trigger poverty rather than social position (Vandecasteele, 2010, 2011). To test the relevance of this hypothesis I will analyze the effect of three life-events from the dimension of the family-life: The timing of the first child's birth, having experienced a divorce or relationship dissolution in general and finally, having experienced the loss of a partner.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Akaike Inf. Crit. | 3100.4 | 3102.5 | 3102.2 | 3102.2 | 3102.5 |
| Bayesian Inf. Crit. | 3178.8 | 3211.1 | 3186.6 | 3186.7 | 3211.1 |
| Intercept | 0.19*** | 0.19*** | 0.19*** | 0.2*** | 0.19*** |
| Women | 1.2 | 1.19 | 1.21 | 1.2 | 1.19 |
| Canton Valais (Ref. Geneva) | 1.76*** | 1.73*** | 1.76*** | 1.76*** | 1.73*** |
| Bern | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 |
| Basel | 0.89 | 0.9 | 0.89 | 0.89 | 0.9 |
| Ticino | 2*** | 2.02*** | 2*** | 1.99*** | 2.02*** |
| Age group 70-74 (Ref. 65-69) | 1.21 | 1.21 | 1.22 | 1.21 | 1.21 |
| 75-79 | 1.11 | 1.12 | 1.12 | 1.11 | 1.12 |
| 80-84 | 1.2 | 1.22 | 1.21 | 1.2 | 1.22 |
| 85-89 | 1.28 | 1.32 | 1.29 | 1.28 | 1.32 |
| 90+ | 1.26 | 1.28 | 1.27 | 1.25 | 1.28 |
| Low education (Ref. Apprenticeship) | 2.13*** | 2.1*** | 2.14*** | 2.13*** | 2.1*** |
| Higher education | 0.53*** | 0.53*** | 0.53*** | 0.53*** | 0.53*** |
| Birth first child cohort: late(Ref. average) | | 1.35* | | | 1.35* |
| Earlier than cohort | | 1.18 | | | 1.18 |
| No child | | 0.93 | | | 0.93 |
| Experience of partner's death | | | 0.97 | | 0.94 |
| Experience of relationship dissolution | | | | 0.98 | 0.95 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | | |

*Table 57: Family trajectories and poverty in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

As was already the main conclusion for the previous section on respondent's work-trajectories, the final results in this section do not support the theories concerning the emergence of a new paradigm for the explanation of inequalities. Especially for the main critical life-events of losing a partner and breaking up a relationship (shown in column 3 and 4 of table 57) no significant effect could be detected. Those variables would have been the most likely to confirm a biographization/individualization paradigm. Instead, it can be concluded that this paradigm, which is based on very recent historical changes in the first place, does not apply to the generations that are studied here. They might, however, apply to younger generations. Thus, the traditional social stratification and class-framework for the explanation of inequalities prevail given that educational differences remain stable across the whole block of these models.

The only slight increase in the odds-ratio can be found in the early timing of the first child in comparison to the timing of the rest of the cohort. In that case the result of 1.35 suggests a weak but significant impact of this life event that – it should not be forgotten - happened multiple decades earlier in life. It appears that having a child earlier than is the norm in one's cohort has a significant yet weak potential to set a person onto a life-trajectory that leads into poverty in old-age. In fact, it must be remembered that in

these generations people generally married early and had children shortly after marriage – thus also at a relatively young age. Having a child significantly earlier was therefore most likely a highly non-normative event and might have involved other negative consequences such as the interruption of education and an early entry into the labor market in a non-skilled position. However, despite being a significant factor it does still not have any influence on educational and class differences. The same applies once again to all other factors in these models: Cantonal differences remain stable and unchanged throughout the whole block of models, so do gender- and age-related effects. Both of the latter remain absent throughout all models. The scores for the BIC and AIC also confirm that none of these variables in the area of the family-life adds substantial explanatory strength. The model with the lowest BIC and AIC scores is clearly the educational model. It remains the most parsimonious and thus the key model, reinforcing the class-framework.

Based on these results, it can be concluded that the demand from authors claiming the „end of class“ (Formosa & Higgs, 2013a) to replace the traditional social stratification approach with a post-modern biographization framework can be dismissed. It appears that in the generations that are captured by the VLV survey the predominant dynamic is one of strong social stratification and class-differences.

| | Precarity | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Akaike Inf. Crit. | 3924.1 | 3904.8 | 3906.2 | 3925.5 | 3904.8 |
| Bayesian Inf. Crit. | 4002.5 | 4013.4 | 3990.7 | 4010 | 4013.4 |
| Intercept | 1.48** | 1.55** | 1.49** | 1.45* | 1.55** |
| Women | 1.07 | 1.17 | 1.16 | 1.07 | 1.17 |
| Canton Valais (Ref. Geneva) | 1.39* | 1.36* | 1.39* | 1.4* | 1.36* |
| Bern | 0.91 | 0.9 | 0.91 | 0.91 | 0.9 |
| Basel | 0.72* | 0.71* | 0.72* | 0.72* | 0.71* |
| Ticino | 1.42* | 1.42* | 1.41* | 1.43* | 1.42* |
| Age group 70-74 (Ref. 65-69) | 1.16 | 1.18 | 1.19 | 1.16 | 1.18 |
| 75-79 | 1.08 | 1.16 | 1.15 | 1.09 | 1.16 |
| 80-84 | 1.07 | 1.18 | 1.18 | 1.08 | 1.18 |
| 85-89 | 1.13 | 1.3 | 1.29 | 1.14 | 1.3 |
| 90+ | 1.11 | 1.37 | 1.36 | 1.12 | 1.37 |
| Low education (Ref. Apprenticeship) | 1.96*** | 1.99*** | 2.01*** | 1.96*** | 1.99*** |
| Higher education | 0.42*** | 0.41*** | 0.41*** | 0.42*** | 0.41*** |
| Birth first child cohort: late(Ref. average) | | 1.11 | | | 1.11 |
| Birth of first child earlier than cohort | | 1.02 | | | 1.02 |
| No child | | 0.75* | | | 0.75* |
| Experience of partner's death | | | 0.65*** | | 0.95 |
| Experience of relationship dissolution | | | | 1.08 | 0.63*** |
| *Note: *p<0.1; **p<0.05; ***p<0.01* | | | | | |

*Table 58: Family trajectories and precarity in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Once again, the same models are repeated for the second indicator of economic hardship: precarity. Hence, the main question that is addressed here concerns whether the previously found conclusions hold true for a less strict indicator, whether the choice of threshold for the definition of economic hardship play an important role.

In most previous blocks of models the results for precarity largely followed the patterns that have been found for poverty, albeit with minor differences in the strength of the effects and in some cases significant results for precarity which had not been detected for poverty. In this particular case for family trajectories, the results diverge slightly from those found for poverty.

While having a child earlier compared to one's cohort appeared to be the only factor in the whole block of family-events that had a significant effect on the odds of being poor at the of retirement, this finding is absent for precarity. However, there are two effects that turn out to have a significant impact on the odds of being in a situation of precarity. Firstly, it is not having a child at all. For that factor, the odds ratio of 0.75 indicates a 25% weaker odds of being in a situation of precarity than having a child at an age that is

conform with a person's 5-year cohort. This result most likely concerns women who had no children and instead focused on acquiring a higher education. These women might have pursued careers in the formal labor market which in turn enabled them to contribute to the pension system and having an elevated old-age pension (see Schumacher et al., 2006).

The second factor that does have an effect is the experience of a partner's death. Unexpectedly, the odds-ratio of 0.65 suggests that people who did experience such an event are *less* likely to be in a situation of precarity. As far as the interpretation is concerned, it is once again slightly counter-intuitive and goes against numerous interpretations showing that it is an event that *creates* financial hardship (Vlachantoni, 2012) as well as theories showing that multi-person households (Haveman, 2001) and partnerships (Lalive d'Épinay et al., 2000) are equally protective against financial difficulties. At the same time, the findings for this model are coherent with previous models for precarity, notably the one measuring the impact of civil status. In that model the analysis revealed that widows and singles have lower odds of being in a situation of precarity. The interpretation thus can be framed in a similar context: It is a sign that the adjusted laws and regulations with respect to inheriting a partner's pension (Wanner & Fall, 2012) have been successful in eliminating this source of gender-inequalities.

In the full model that is show in column 5, a somewhat strange effect can be observed. Adding all of the aforementioned covariates for respondents family-lives to the educational model, the results for the experience of a partner's death and the experience of a relationship dissolution reverse each other. When controlling for the experience of having lost a partner by death, the factor of having experienced relationship dissolution becomes significant and shows an odds-ratio of 0.63. This indicates that people who experienced relationship dissolution tend to be less likely to be in a situation of financial precarity. Thus, for precarity the factor of relationship dissolution seems to be more dominant than having experienced the loss of a partner.

Regardless of these contrasting findings for these specific familial life-events, the key result from the analysis of precarity and family-trajectories is that educational differences as a proxy for class-differences persist throughout all nested models. In other words: The cardinal impact of social stratification on financial problems in old-age seems to be completely robust to the choice of threshold for such economic hardship.

## 5.8 The Swiss pension system and economic resources in old-age

As I have argued in section 2.3 of the theory chapter, the large theoretical framework that is employed in this thesis considers a person's financial resources in old-age the result of this person's position in the social structure – a person's class-membership -, the impact of specific trajectories and life events that occur over a person's lifetime, and finally, a person's embedding in a geographical, historical, cultural and institutional context. The latter is a dimension that has so far been understudied despite its crucial importance for poverty and precarity in old-age. Since elderly people primarily rely on a form of

pension that is provided by the institutional setting of the Swiss pension system, the so-called “three-pillar system”, the analysis thereof is the last remaining task in this chapter. The variable that is used in this part, the clustered results of various income sources, has been described in the third chapter.

A first section (5.6.1) presents the resulting typology of income sources. To better understand the characteristics of people who are situated in each of these groups, a membership-analysis is performed using basic sociodemographic variables. The results of this analysis are presented in 5.6.2. Finally, part 5.6.3 shows and discusses the results with regards to poverty and precarity.

5.8.1 Typology of income sources in old-age

The results revealed that there basically are five distinct clusters as far as income-sources are concerned. The first cluster is what can be called *„3-pillars“*, corresponding to people who live off AVS, professional and private pension funds. This is the triade of three pillars that people can rely on and represents an optimum situation. The second cluster *“2-pillars”* regroups people who only have the first and the second pillar and thus rely on AVS and professional pension funds exclusively. The third group is the *Work*-cluster which contains people who have indicated to be benefiting from all three pillars but also rely on a job, regular or occasional. The fourth group is the *social welfare* group which mainly relies on various kinds of institutional or private (friends and family) welfare. The fifth and final cluster in this typology of income sources is a group which can best be called *Savings* cluster, given that they do have the first pillar, the AVS, but they do not have a second pillar and instead rely on the third pillar, meaning on private savings and revenues.

Figure 21 offers a graphical representation of each of these income clusters and shows to what extent they are composed by the various income sources.

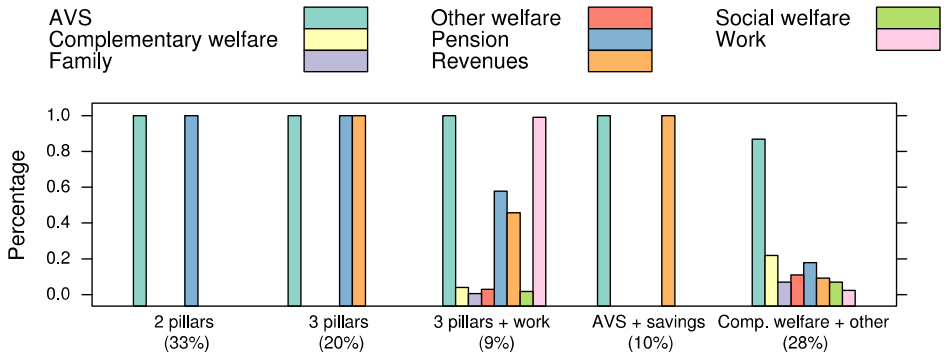


*Figure 21: Cluster group averages for income sources VLV*
*Source: Own calculations based on VLV, 2011*

Here it must be emphasized that these income source clusters already reflect to a large extent the results and logics of accumulation of capital resulting from individual's professional trajectories. In this sense, the analysis of income-sources in old-age already signifies studying the results of life-course processes. Also, there is a certain degree of redistribution built into these pension systems which could alleviate certain negative effects (such as negative work-trajectories).

### 5.8.2 Sociodemographic profiles of income source clusters

Having elaborated a typology of income sources that people aged 65 and older rely on, this section provides a basic socio-demographic profile of people in each group. In this section the analysis is restricted to the stratification criteria (age-group, sex, canton and educational status).

| | Cluster 3-pillars | | Cluster 2-pillars | | Cluster AVS+Savings | | Cluster Social welfare | | Cluster 3-Pillars + Work | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Basic | Edu. | Basic | Edu. | Basic | Edu. | Basic | Edu. | Basic | Edu. |
| AIC | 2982.3 | 2897.7 | 3919.9 | 3902.5 | 1956.4 | 1951.9 | 3439.6 | 3346.1 | 1732.3 | 1719.6 |
| BIC | 3048.7 | 2976.2 | 3986.3 | 3980.9 | 2022.7 | 2030.3 | 3506 | 3424.5 | 1798.7 | 1798 |
| Intercept | 0.28*** | 0.2*** | 0.45*** | 0.56*** | 0.04*** | 0.04*** | 0.25*** | 0.32*** | 0.36*** | 0.27*** |
| Women | 0.63*** | 0.7*** | 0.9 | 0.92 | 1.24 | 1.31* | 1.96*** | 1.72*** | 0.52*** | 0.54*** |
| Canton Valais (Ref. Geneva) | 0.84 | 0.94 | 1 | 0.98 | 1.86** | 1.97*** | 0.91 | 0.8 | 0.87 | 0.93 |
| Bern | 1.57** | 1.68*** | 0.97 | 0.92 | 2.05*** | 2.12*** | 0.53*** | 0.5*** | 0.84 | 0.88 |
| Basel | 2.41*** | 2.45*** | 1 | 0.98 | 0.95 | 0.95 | 0.4*** | 0.4*** | 1.12 | 1.15 |
| Ticino | 0.7* | 0.84 | 0.92 | 0.89 | 1.07 | 1.16 | 1.35* | 1.13 | 0.86 | 0.96 |
| Age group 70-74 (Ref. 65-69) | 0.84 | 0.86 | 1.19 | 1.22 | 1.69* | 1.71* | 1.03 | 0.97 | 0.68* | 0.68* |
| 75-79 | 1.02 | 1.07 | 1.21 | 1.23 | 1.55* | 1.59* | 1.26 | 1.17 | 0.37*** | 0.37*** |
| 80-84 | 0.94 | 0.99 | 1.34* | 1.39* | 2.06*** | 2.14*** | 1.39* | 1.25 | 0.11*** | 0.11*** |
| 85-89 | 0.85 | 0.93 | 1.13 | 1.17 | 1.69* | 1.78* | 2.02*** | 1.76*** | 0.11*** | 0.12*** |
| 90+ | 0.56** | 0.58** | 1.35* | 1.41* | 1.95** | 2.03** | 2.13*** | 1.93*** | 0.09*** | 0.09*** |
| Low education (Ref. Apprenticeship) | | 0.43*** | | 0.73** | | 0.79 | | 2.03*** | | 0.81 |
| Higher education | | 1.74*** | | 0.68*** | | 1.28 | | 0.68*** | | 1.59** |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

*Table 59: Income source cluster membership: Basic characteristics*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The first cluster captures people who rely on all three pillars. It represents 20.2% of all survey participants. The basic diagnostics reveal that women tend to be less frequent in this group with an odds-ratio between 0.63 and 0.7. Also, this compared with Geneva as a baseline category, this cluster is more frequent in the cantons of Bern and Basel. It is slightly less frequent in canton Ticino. This effect, however, is entirely captured as soon as education is added. Also, the oldest-old, individuals aged 90 and older are clearly less frequent in this cluster. This could be explained with the often cited time-lag in terms of social security systems. In short, those generations could obviously not have contributed to the second and third pillar as these institutional settings have only been installed decades ago at a time when those cohorts had already left the formal labor market. Finally, regarding educational differences the analysis shows a clear dynamic whereas people with a lower education are much less frequent in this cluster with an odds ratio of 0.43 and people with a higher education are much more frequent, as indicated with the odds ratio of 1.74.

The second cluster regroups people who rely on two pillars, meaning the first pillar of AVS contributions and on professional pensions. In other words, this group does not rely on any kind of social welfare, on savings or other third pillars revenues or work. It represents 33% of people in the sample. The analysis of cluster membership indicates weak differences in cohort-membership whereas cohorts aged 80-84 as well as those aged 90 and older show a slight increase in their odds ratios between 1.35 and 1.4. The other key information that this analysis revealed is that in comparison with people who have an average education, meaning an apprenticeship, there are significantly *less* people with both higher and lower educational statuses in this cluster. In other words, it seems that a majority of people with an apprenticeship seem to be located in this income source cluster.

The third cluster is given by individuals whose main source of income is AVS and private savings, or third pillar revenues more generally. This is the second smallest group and represents 9.8% of the sample. The strongest effects regarding cluster membership are found for the cantons of Valais and Bern – with odds ratios of 1.86 for Valais in comparison with Geneva and roughly twice as high odds for individuals living in Bern to be in this cluster - and certain age-groups or cohorts, respectively. Regarding cohort differences, it can be said that there seem to be important effects through almost all age-groups when compared with the young-old (those aged 65-69 which serves as reference category). Once again, a possible explanation for these differences could be found in the fact that older categories were not required by law to contribute to the second pillar as it has only been formally introduced in the 1984 (see Bertozzi et al., 2005).

One of the most interesting and relevant income source clusters is the one that captures people that rely on multiple types of social welfare. As will be confirmed in the follow analyses, this cluster also shows a strongly increased risk for poverty. It makes up 27.7% of all individuals aged 65 and older in the sample. This, it has to be emphasized, is more than a fourth of all people interviewed in the VLV survey.

The analysis revealed a multitude of effects. Above all, there are strong gender differences with women being roughly twice as likely to be situated in this cluster. Part of this effects is captured as soon as one controls for educational status. Secondly, there are strong cantonal differences whereas this type of income configuration is less frequent in Bern and Basel– actually, around half as frequent as in Geneva with odds ratios between 0.4 and 0.5. Finally, there are very strong effects for educational status. Highly educated individuals are less likely to be contained in this cluster with an odds ratio of 0.68 which stands in strong contrast with lesser educated people that have around twice as high a chance to be in this cluster when compared to their peers who have an apprenticeship.

The fifth and final income source cluster is represented by the work and three-pillar cluster. People that are characterized by this income source configuration thus rely on all three main pillars of the pension system but additionally work, either regularly or occasionally. This group represents the smallest among the five clusters and concerns around 9.3% of all people in the sample. The analysis of people's characteristics in this cluster shows that the ideal-type of person who is situated in this cluster is male (as indicated with an odds ratio of around 0.5 for women), aged between 65-69 and thus belonging to the young-old and finally, being well-educated (which is shown with an odds ratio of 1.59 for higher education).

### 5.8.3Income source clusters, poverty and precarity

The analyses on the sources of incomes (shown in table 60) first show a high diversity within the five clusters and second, demonstrated consistently strong relationships with poverty. Most importantly, the cluster of social welfare receivers shows a tremendously high odds-ratio of 9.82 meaning that people in this cluster have roughly ten times the chance of being in a situation of poverty in old-age compared to those who rely on the “ideal” full-rent composed from all three pillars. Equally high results are found for the cluster that regroups people who rely almost exclusively on AVS and on their private savings – in other words, people who do not have a second pillar. This cluster shows more than five times the odds for poverty in old-age compared with the baseline category of 3-pillar receivers. Roughly 3 times as high a risk for poverty is estimated for people who indicated to rely on all three pillars but also relying on a type of professional activity. Finally, the cluster with individuals who only have the first two pillars, AVS and professional pensions shows an odds-ratio of 2.5. Again, this cluster demonstrates a significantly increased odds for poverty. Moreover, as one of the only models in this chapter this institutional capital model significantly decreases the effect of low education on poverty: The odds-ratio drops from its reference level of 2.13 in the education model to 1.77.

| | (1) | (2) |
|---|---|---|
| Akaike Inf. Crit. | 3100.4 | 2849.9 |
| Bayesian Inf. Crit. | 3178.8 | 2952.4 |
| Intercept | 0.19*** | 0.05*** |
| Women | 1.2 | 0.98 |
| Canton Valais (Ref. Geneva) | 1.76*** | 1.91*** |
| Bern | 1.05 | 1.28 |
| Basel | 0.89 | 1.28 |
| Ticino | 2*** | 2.01*** |
| Age group 70-74 (Ref. 65-69) | 1.21 | 1.21 |
| 75-79 | 1.11 | 1.07 |
| 80-84 | 1.2 | 1.11 |
| 85-89 | 1.28 | 1.06 |
| 90+ | 1.26 | 0.98 |
| Low education (Ref. Apprenticeship) | 2.13*** | 1.77*** |
| Higher education | 0.53*** | 0.57*** |
| Income sources: 3-pillars + Work (Ref. 3-pillars) | | 2.9*** |
| Welfare | | 9.82*** |
| 2-pillars | | 2.51*** |
| AVS+savings | | 5.23*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | |

*Table 60: Income sources and poverty*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

It therefore turns out that the individual position in a complex welfare system proves to be the strongest determinant of poverty in old-age. Naturally, the indicator that is used here refers to the current position in terms of income-sources but clearly, the latter is the results from dynamics inscribed in the past life course.

| | (1) | (2) |
|---|---|---|
| Akaike Inf. Crit. | 3924.1 | 3660.4 |
| Bayesian Inf. Crit. | 4002.5 | 3762.9 |
| Intercept | 1.48** | 0.61** |
| Women | 1.07 | 0.91 |
| Canton Valais (Ref. Geneva) | 1.39* | 1.44* |
| Bern | 0.91 | 1.07 |
| Basel | 0.72* | 0.95 |
| Ticino | 1.42* | 1.4* |
| Age group 70-74 (Ref. 65-69) | 1.16 | 1.13 |
| 75-79 | 1.08 | 1.04 |
| 80-84 | 1.07 | 0.98 |
| 85-89 | 1.13 | 0.97 |
| 90+ | 1.11 | 0.87 |
| Low education (Ref. Apprenticeship) | 1.96*** | 1.62*** |
| Higher education | 0.42*** | 0.44*** |
| Income sources: 3-pillars + Work (Ref. 3-pillars) | | 2.12*** |
| Welfare | | 6.9*** |
| 2-pillars | | 2.08*** |
| AVS+savings | | 4.08*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | |

*Table 61: Income sources and precarity*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The key findings of the analysis on poverty are once again found in the results for precarity. The clusters of income sources are heavily associated with precarity in old-age. The strength of the association is not as high as with poverty – an odds-ratio of 6.9 for the welfare cluster, 4.08 for the AVS and savings cluster, 2.12 for 3-pillars and work and finally, 2.08 for 2 pillar rent-receivers – but the proportionality is roughly the same. Also, as in the previous block of models the addition of income source clusters does capture a part of social stratification for lower classes. It can thus be concluded that the income sources seem to be the strongest explanatory factors for economic hardship in old-age.

However, there is a problematic aspect to this finding. It consists of the fact that the cause and effect in this model are not necessarily that evident. In the case of the social and complementary welfare cluster, for example, the basic *requirement* that is necessary to be able to request social welfare from the government is actually to be in a situation of poverty *already.* In other words: It can almost be argued that this model runs the risk of creating a tautology between the explanatory and target variable. These models therefore also demonstrate the limits of what can be done with a strictly binary approach emphasizing being poor versus not being poor. However, this finding also suggests that there is considerable potential for further analyses starting from the five clusters as target

variable and to determine to what extent social origin, work trajectories and critical events have an influence on being situated in one specific cluster. This is equally important from a social policy point of view and again, could contribute to the determination of "pathways into vulnerability". For this reason, the next section focused on a final series of analyses with the aim of analyzing the membership to each of these income source clusters and the reliance on each of these income source configurations.

## 5.9 Life course analysis of income source clusters

This part presents the results for the life course analysis of each of the aforementioned income source clusters. As has been described in part 5.2 where the hypotheses are outlined, this section can be considered as the most straightforward application of a political economy of aging approach. It emphasizes people's position in a socio-economic structure and, consequently, the associations with life course factors. This could possibly shed light on the mechanisms that make people end up in any specific position.

The modeling logic has been described in the previous chapter on methodology and data. However, it still must be emphasized – given that there might be an aspect that is not intuitive at all -that there are three main blocks of models for each income source cluster. The first block contains the educational model as a reference model. In addition to the educational variables, it includes the most counter-intuitive indicator: Homeownership. The reasons for this inclusion is once again given by the institutional “loophole” that is provided by the legislation in Switzerland. Moreover, the recent discussion in the political arena shows how important this issue is and to what extent it represents a matter of general public interest. The second block of variables is given by the same covariates as in 5.6 that focus on people's professional trajectories. Thus it sheds light on the relationship between the work-related life-course and a specific income-source configuration in old-age. Finally, the third block repeats the same but focusing on family-trajectories rather than the professional life.

The first described block of income source clusters is the “ideal” case, from an institutional point of view. In case of a standard work-biography people should end up with this configuration. It consists of having all three pillars: The first pillar composed by the AVS rent, the second pillar consisting of the professional pension and the third pillar consisting of private savings or investments. Given that it is usually considered as ideal, it also served as reference category in the previous regression analysis. The second block then is the most interesting from a social policy point of view: It is composed by people who rely on various forms of social welfare. The third block then features people who rely more or less exclusively on their AVS and private savings (in other words, they do not have a second pillar). The fourth block contains people who only have the first two pillars (meaning they have neither private savings, nor do they rely on work or social welfare) and finally, the fifth block contains people who still work, despite being retired.

*Analysis of the "3-pillars" cluster*

| *3-Pillars* | *Basic* | *Edu* |
|---|---|---|
| AIC | 2897.6 | 2859 |
| BIC | 2976 | 2943.5 |
| Intercept | 0.2*** | 0.15*** |
| Women | 0.7*** | 0.72*** |
| Canton Valais (Ref. Geneva) | 0.94 | 0.73 |
| Bern | 1.68*** | 1.46* |
| Basel | 2.45*** | 2.24*** |
| Ticino | 0.84 | 0.71* |
| Age group 70-74 (Ref. 65-69) | 0.86 | 0.88 |
| 75-79 | 1.07 | 1.12 |
| 80-84 | 0.99 | 1.07 |
| 85-89 | 0.93 | 1.02 |
| 90+ | 0.58** | 0.66* |
| Low education (Ref. Apprenticeship) | 0.43*** | 0.45*** |
| Higher education | 1.73*** | 1.65*** |
| Homeowner | | 1.9*** |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 62: Binomial logit on income cluster membership 3-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Table 62 shows the basic socio-demographic profile of people who are situated in the cluster of 3-pillar benefactors. Interestingly, despite being the model which is usually considered as the ideal setting that people should aspire to, the results suggest that there is a rather clear profile of people who actually benefit from such ideal conditions at the age of their retirement. As a reminder, there are also only 20% of people who are situated in this cluster.

Above all, the significantly smaller odds-ratio of 0.7 for women is striking, showing that women are roughly 30% less likely to cultivate all three pillars before they reach the age of retirement. This result is even more considerable, given that the previous analyses that focused on poverty alone have found that differentials related to sex were entirely captured with differences in educational attainment. This model shows a clear contrast to these findings: Even when controlling for education, women are less likely to have all three pillars. This therefore can be seen as an indication that gender-inequality is still not eradicated and continues to persist in this part of the pension system – albeit in ways that are difficult to detect.

Cantonal differences are once again clearly visible with the cluster being clearly more frequent in the cantons of Basel (with an odds-ratio of 2.45) and in Bern (with an odds-ratio of 1.68). It should be noted, that in the second column where the variable homeowner is featured, the odds-ratios for the cantons decrease marginally – a decrease

by 0.18 for Bern to reach 1.46; for Basel the odds-ratio drops by 0.21 to 2.24- which means that a very small part of these cantonal variations can be attributed to differences in homeownership.

Regarding age groups, an unsurprising result is that the oldest cohorts, those aged 90 and older, are not situated in this cluster. Most likely this is due to them not having a professional pension from the second pillar – given that it only ever got set at a later time, thus making impossible to contribute to them or leaving them insufficient time to contribute adequately in order to benefit from them in retirement.

Another highly relevant insight is given by the results for education. The odds-ratio of 0.43 shows that clearly, having a very little or no education drastically decreases the chances of having a 3-pillar pension in old-age. This result suggests a strong intra-class dynamic with unskilled workers being at a disadvantage compared to their skilled counterparts. The decrease of chances is roughly in the order of two-thirds. At the same time the result indicate that just as low education highly decreases the chances to benefit from a complete 3-pillar rent at the age of retirement, a form of higher education massively increases the chances to do so. Clearly, capitalists are much more likely to have such a privileged rent-situation than people from the working-class. The positive impact of a higher education is even higher than the penalizing effect of a low education: The odds-ratio of 1.73 suggest a close to 75% increase in the odds of being in such a privileged situation. This result is strongly in line with a political economy perspective. It shows the effect of people's social capital (which is acquired early in their lives) on their actual position in old-age.

Finally, the variable of homeownership suggest that owning one's home is associated with roughly twice the chances of also benefiting from a 3-pillar rent in old-age. While this result does not confirm the hypothesis that homeownership might be a pathway into financial hardship, the result is not very surprising: It appears that people who are relatively well off by benefiting from a 3-pillar rent, are also the ones that have not difficulty affording to own their own home.

This first insight shows that this ideal case of a three-pillar pension seems quite a privileged setting and has shown the profile of people benefiting from it. In the following analyses, the aim is to deepen the understanding of the mechanisms that contribute to the mentioned profiles being associated with this cluster of incomes. The next block firstly assesses the role of people's work-life and work-trajectory. Following this, the same is done for people's family life.

| *3-Pillars* | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 2897.6 | 2903.2 | 2884.6 | 2893.1 | 2900.3 | 2888.4 |
| BIC | 2976 | 2999.7 | 2975 | 2977.6 | 2990.8 | 3015.1 |
| Intercept | 0.2*** | 0.2*** | 0.17*** | 0.21*** | 0.19*** | 0.17*** |
| Women | 0.7*** | 0.7*** | 0.71*** | 0.7*** | 0.7*** | 0.71** |
| Canton Valais (Ref. Geneva) | 0.94 | 0.95 | 0.93 | 0.95 | 0.94 | 0.94 |
| Bern | 1.68*** | 1.67*** | 1.68*** | 1.73*** | 1.67*** | 1.73*** |
| Basel | 2.45*** | 2.44*** | 2.43*** | 2.54*** | 2.45*** | 2.52*** |
| Ticino | 0.84 | 0.84 | 0.82 | 0.85 | 0.84 | 0.83 |
| Age group 70-74 (Ref. 65-69) | 0.86 | 0.86 | 0.89 | 0.86 | 0.86 | 0.89 |
| 75-79 | 1.07 | 1.07 | 1.14 | 1.07 | 1.07 | 1.14 |
| 80-84 | 0.99 | 0.98 | 1.08 | 0.98 | 1 | 1.08 |
| 85-89 | 0.93 | 0.92 | 1.06 | 0.93 | 0.93 | 1.07 |
| 90+ | 0.58** | 0.57** | 0.67* | 0.58** | 0.58** | 0.68* |
| Low education (Ref. Apprenticeship) | 0.43*** | 0.43*** | 0.43*** | 0.45*** | 0.44*** | 0.45*** |
| Higher education | 1.73*** | 1.73*** | 1.78*** | 1.68*** | 1.74*** | 1.73*** |
| Work trajectory: Quasi-full emp. (Ref. Full-emp.) | | 0.96 | | | | 0.95 |
| Start and stop | | 0.97 | | | | 0.93 |
| Stop and restart | | 1.04 | | | | 1.01 |
| Retirement timing: Early (Ref. Legal) | | | 1.42** | | | 1.43** |
| Late retirement | | | 0.82 | | | 0.83 |
| Job physically hard | | | | 0.77* | | 0.76* |
| Upward social mobility (Ref. stagnation) | | | | | 0.96 | 0.95 |
| Downward social mobility | | | | | 1.13 | 1.13 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | | |

*Table 63: Binomial logit on income cluster membership 3-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

As with the previous models in this chapter, table 63 firstly shows the educational model which is then nested within additional models that each feature a covariate capturing an aspect of people's work lives. Hence, the impact of those additional covariates is equally as important as the effect they have on the nested educational model. The first featured variable is that of work-trajectory. As a reminder, this refers to the typology of professional trajectories that has been described earlier in the chapter. Surprisingly, this variable seems to have no impact on the chances of being in this cluster. This runs against the working hypotheses that have been established at the beginning of this chapter. In fact, given that these clusters are supposed to be strongly dependent on people's work biography, it was to be expected that non-normative work-trajectories – such as the “start and stop” or the “stop and restart” clusters – should be less likely to be associated to this cluster and inversely, the optimal trajectories of full-employment and quasi-full employment should be more likely to be predictive. However, none of these links could be found in the data. Beyond not having any impact in itself, this variable does not create any notable shifts in the nested educational model either.

The second variable, however, does show a significant impact. Indeed, early retirement seems to be associated with a higher odds-ratio of being in this cluster. This confirms previous hypotheses and findings according to which the dynamic seems to be quite simple: People who retire early are simply those who can afford to do so. Also, there are no discernible shifts to be found in the other covariates contained in the model.

Another unsurprising result is that people who worked in physically demanding professions – one might think of hard manual labor such as builders, mechanics or electricians, for example – are less associated with the 3-pillar cluster. The mechanism behind this relationship might be due to more modest salaries gained in these industries. Hence, they make it more difficult to acquire a 3rd pillar which requires some savings that are invested. Again, this variable does not provoke any notable shifts in any of the other covariates.

Finally, the absence of any significant effects for social mobility suggests that there are no patterns related to up- or downward social mobility that influence the odds of being in this cluster or not. Furthermore, none of the other covariates are modified in this model. Also, the full model does not show any major shifts suggesting that none of these variables influence each other. Hence, it can be said that the previously described gender differences, cantonal differences and age-patterns are stable even when controlling for people's work-trajectories. Especially the result for women is highly interesting: Their “discrimination” seems to have nothing to do with specific work-trajectories which might have been the most likely explanation. Obviously, there seem to be other dynamics that create these gender-inequalities.

The picture that this second block paints refines the rough outline that was found in the first one. It shows that people in this 3-pillar cluster are not working in manual labor professions and that they are somewhat privileged: Besides being homeowners they also seem to be the ones that can afford an early retirement.

| *3-Pillars* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 2897.6 | 2891.5 | 2898.4 | 2897.1 | 2891.5 |
| BIC | 2976 | 3000.1 | 2982.8 | 2981.6 | 3000.1 |
| Intercept | 0.2*** | 0.23*** | 0.2*** | 0.21*** | 0.23*** |
| Women | 0.7*** | 0.75** | 0.72*** | 0.7*** | 0.75** |
| Canton Valais (Ref. Geneva) | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 |
| Bern | 1.68*** | 1.65*** | 1.68*** | 1.65*** | 1.65*** |
| Basel | 2.45*** | 2.4*** | 2.45*** | 2.43*** | 2.4*** |
| Ticino | 0.84 | 0.81 | 0.84 | 0.83 | 0.81 |
| Age group 70-74 (Ref. 65-69) | 0.86 | 0.85 | 0.86 | 0.85 | 0.85 |
| 75-79 | 1.07 | 1.08 | 1.09 | 1.05 | 1.08 |
| 80-84 | 0.99 | 0.98 | 1.01 | 0.96 | 0.98 |
| 85-89 | 0.93 | 0.92 | 0.96 | 0.9 | 0.92 |
| 90+ | 0.58** | 0.6** | 0.61* | 0.56** | 0.6** |
| Low education (Ref. Apprenticeship) | 0.43*** | 0.45*** | 0.43*** | 0.43*** | 0.45*** |
| Higher education | 1.73*** | 1.7*** | 1.73*** | 1.74*** | 1.7*** |
| Birth of first child later(Ref. average) | | 0.55** | | | 0.55** |
| Birth of first child earlier | | 0.96 | | | 0.96 |
| No child | | 0.93 | | | 0.93 |
| Experience of partner's death | | | 0.88 | | 0.81 |
| Experience of relationship dissolution | | | | 0.82 | 0.85 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | |

*Table 64: Binomial logit on income cluster membership 3-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The final model for the 3-pillar cluster membership tests for specific events that concern the family life. It shows no significant effects for having experienced the death of a partner or having experienced the dissolution of a relationship. The only characteristic that does have a significant association with the odds of being situated in this cluster is the fact of having a child later than usual in one's birth-cohort. However, there are no other shifts that can be observed in the other variables. Again, all gender-, regional- and age-specific patterns continue to be stable.

Generally speaking, the findings for this cluster are strongly in line with a political economy perspective and show the favorable situation of certain elderly people, particularly those having a high education and who belong to the capitalist class: The well-educated, those who are relatively well-off (and who also have a much smaller risk of poverty), those who can afford such things as owning a home or an early retirement and those who have worked in professions that did not require hard physical labor. At the same time, there are interesting results for intra-class dynamics as well. In terms of a Marxist framing, they suggest that there is a significant process of exploitation within the working class.

The following cluster can be considered to be the exact counterpart of this 3-pillar cluster. It regroups elderly citizens who have previously been shown to be much more likely to be living in poverty: People who rely exclusively on their first pillar, the AVS rent, plus a variety of social welfare sources such as complementary welfare, social help and even financial contributions from friends or family members.

*Analysis of the "social welfare" cluster*

| | Social welfare recipient | |
|---|---|---|
| | (1) | (2) |
| AIC | 3345.2 | 3305 |
| BIC | 3423.6 | 3389.4 |
| Intercept | 0.32*** | 0.4*** |
| Women | 1.72*** | 1.67*** |
| Canton Valais (Ref. Geneva) | 0.8 | 1.04 |
| Bern | 0.5*** | 0.57*** |
| Basel | 0.4*** | 0.43*** |
| Ticino | 1.13 | 1.34* |
| Age group 70-74 (Ref. 65-69) | 0.97 | 0.94 |
| 75-79 | 1.17 | 1.13 |
| 80-84 | 1.25 | 1.18 |
| 85-89 | 1.76*** | 1.61** |
| 90+ | 1.93*** | 1.71*** |
| Low education (Ref. Apprenticeship) | 2.04*** | 1.99*** |
| Higher education | 0.68*** | 0.71*** |
| Homeowner | | 0.55*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | |

*Table 65: Binomial logit on income cluster membership social welfare*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The first model regarding the social welfare cluster shows a very clear profile of the roughly 28% of people who principally rely on social welfare as a source of income in old-age. A social welfare receiver is predominantly female (odds-ratio of 1.72), tends to live in Geneva or Ticino, belongs to the age-groups that are often described as the "old-old" and the "oldest-old" with an odds-ratio of 1.76 for 85-89 year-olds and 1.93 for peopled aged 90 and older). Also, individuals with no education or only obligatory educational levels are situated about twice as often in this income-source configuration and people with a higher education have 30% less chance to be relying on social welfare compared to those having an apprenticeship.

A large part of these results are coherent with the findings of the previous models for poverty and precarity. The lower odds-ratios for Bern and Basel confirm that there are

indeed less people in situations of poverty and precarity in those two cantons given that there are less people relying on social welfare as well. Equally coherent are the findings for age-differences: Higher age-groups and older generations who did not contribute to the full three-pillar system – notably not having the“second-pillar” with professional old-age pensions – are more likely to be receiving social welfare in old-age.

Educational differences follow the same patterns as well with higher education (indicating inter-class effects) clearly being a factor that decreases the odds of relying on social welfare and lower education increasing it (suggesting the presence of intra-class effects). Also, homeownership remains a factor that is negatively related with financial difficulties in old-age: It appears that those who do own real-estate objects are simply those who can afford them. Furthermore, we also need to remember that homeownership is also a criteria which might nullify people's eligibility for complementary welfare (see section 2.3).

However, there is one result that contrasts, and to a certain extent even contradicts, a conclusion that has previously been found for poverty. Whereas in all previous models educational differences have been able to entirely capture gender-effects, they persist in this model. Differently put: In this case gender-differences do not “hide” educational(class) dynamics as was the case so far, but they seem to be independent forms of gender-discrimination. While gender-inequality is practically invisible on an global level, it is still a significant dynamic with regards to the institutions of social welfare.

| | Social welfare recipient | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| AIC | 3345.2 | 3346.5 | 3332.6 | 3328.2 | 3342 |
| BIC | 3423.6 | 3443 | 3423.1 | 3412.6 | 3432.5 |
| Intercept | 0.32*** | 0.36*** | 0.36*** | 0.28*** | 0.34*** |
| Women | 1.72*** | 1.68*** | 1.72*** | 1.75*** | 1.62*** |
| Canton Valais (Ref. Geneva) | 0.8 | 0.79 | 0.8 | 0.78 | 0.79 |
| Bern | 0.5*** | 0.49*** | 0.49*** | 0.47*** | 0.5*** |
| Basel | 0.4*** | 0.39*** | 0.4*** | 0.37*** | 0.4*** |
| Ticino | 1.13 | 1.09 | 1.15 | 1.11 | 1.11 |
| Age group 70-74 (Ref. 65-69) | 0.97 | 0.96 | 0.93 | 0.98 | 0.97 |
| 75-79 | 1.17 | 1.15 | 1.11 | 1.18 | 1.17 |
| 80-84 | 1.25 | 1.23 | 1.17 | 1.28 | 1.24 |
| 85-89 | 1.76*** | 1.72*** | 1.58** | 1.77*** | 1.75*** |
| 90+ | 1.93*** | 1.88*** | 1.7*** | 1.93*** | 1.91*** |
| Low education (Ref. Apprenticeship) | 2.04*** | 2.04*** | 2.05*** | 1.94*** | 2.01*** |
| Higher education | 0.68*** | 0.67*** | 0.66*** | 0.71*** | 0.67*** |
| Work trajectory: Quasi-full employment (Ref. Full-employment) | | 0.83 | | | |
| Start and stop | | 1.04 | | | |
| Stop and restart | | 0.94 | | | |
| Retirement timing: Early (Ref. Legal) | | | 0.74** | | |
| Late retirement | | | 1.26 | | |
| Job physically hard | | | | 1.49*** | |
| Upward social mobility (Ref. stagnation) | | | | | 0.88 |
| Downward social mobility | | | | | 0.78* |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | | |

*Table 66: Binomial logit on income cluster membership social welfare*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

In the second block of income-source life course models, the impact of people's professional trajectories on being a social welfare recipient is studied. The broad profile that has been outlined in the previous paragraph remains intact across all models continuously demonstrating gender-inequalities, age-effects and the same cantonal differences as in the previous block of models. Additionally, the analysis shows that having an early retirement decreases the odds of being a social welfare recipient. This result echoes those of the previous analysis:People who retire early simply wealthy enough to do so. Also identical with previous findings is the result that people with physically straining professions are more likely to be in a situation of financial difficulty in old-age and thus find themselves relying on social welfare. Highly interesting though is the result that people with socially descending mobility movements are *less* likely to be dependent on social welfare. This can perhaps be explained with the fact that since

most people in this cluster already have a relatively low education, this might also signify that they worked in lower professions all through their lives per se. Hence, there are very little people who actually are able to experience such descending careers in the first place.

| | Social welfare recipient | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| AIC | 3345.2 | 3343.4 | 3345 | 3336.7 |
| BIC | 3423.6 | 3452 | 3429.5 | 3421.1 |
| Intercept | 0.32*** | 0.27*** | 0.32*** | 0.28*** |
| Women | 1.72*** | 1.75*** | 1.77*** | 1.73*** |
| Canton Valais (Ref. Geneva) | 0.8 | 0.83 | 0.8 | 0.83 |
| Bern | 0.5*** | 0.51*** | 0.5*** | 0.51*** |
| Basel | 0.4*** | 0.41*** | 0.4*** | 0.41*** |
| Ticino | 1.13 | 1.17 | 1.13 | 1.18 |
| Age group 70-74 (Ref. 65-69) | 0.97 | 0.99 | 0.98 | 0.98 |
| 75-79 | 1.17 | 1.23 | 1.2 | 1.22 |
| 80-84 | 1.25 | 1.34 | 1.3 | 1.32 |
| 85-89 | 1.76*** | 1.93*** | 1.86*** | 1.88*** |
| 90+ | 1.93*** | 2.13*** | 2.08*** | 2.06*** |
| Low education (Ref. Apprenticeship) | 2.04*** | 2.05*** | 2.06*** | 2.05*** |
| Higher education | 0.68*** | 0.66*** | 0.67*** | 0.67*** |
| Birth of first child later than cohort (Ref. average) | | 1.05 | | |
| Birth of first child earlier than cohort | | 1.04 | | |
| No child | | 1.1 | | |
| Experience of partner's death | | | 0.86 | |
| Experience of relationship dissolution | | | | 1.47** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | |

*Table 67: Binomial logit on income cluster membership social welfare*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Finally, the family trajectory model shows a high stability of the initially observed patterns across all models. An unexpected key result for this block is that the experience of a divorce or a relationship dissolution has a strong effect on the odds of being a welfare recipient (with an odds-ratio of 1.47). Again, this was a factor that has not been detected in the previous models on poverty and precarity but appears as being significant with respect to relying on social welfare in old-age. Worth to note, the inclusion of this variables does not affect gender-inequality.

Again, it can be shown that the analysis of income sources - which, as has been argued, are already a result of complex multidimensional, individual life-course and institutional processes – it is possible to reveal patterns which have previously gone undetected.

Again, it appears that gender-inequality is still an issue with respect to social-welfare reliance. Thus, while on a more general level across the whole population that is studied in this thesis, there are relatively few discernible patterns that can be detected - and that above all, it is education and social stratification that most prominently explains financial difficulties at the age of retirement -focusing on income sources appears as a more concentrated and specific object of analysis. Furthermore, one has to keep in mind what kind of institutional settings and trajectories lead precede having access to social welfare. One can also consider this analysis to shed light on who is allowed to receive welfare support and who seems to be excluded from such support. In any case, this is an approach that yields interesting results. Nevertheless, the initially observed socioeconomic differentials continue to be present in this income source cluster. Again, these results back the conclusion that by no means can the social stratification framework be replaced in favor of an event-based framework. However, the impact of relationship dissolution shows that a theoretical model insisting on the *complementarity* between the two might be the most fruitful. The result from the third block show that traditional social stratification dynamics are at work in *parallel* to the impact of specific life events.

*Analysis of the "AVS and savings" cluster*

The third income source cluster regroups retired citizens who rely on a quite particular form of income: These people rely on their first pillar, the AVS, and on various kinds of third-pillar revenues. Differently put, they do not have a second pillar. Based on VLV data, this setting concerns roughly 10% of people.

| *Cluster "AVS + savings"* | *Basic* | *Edu* |
|---|---|---|
| AIC | 1951.9 | 1912.8 |
| BIC | 2030.3 | 1997.2 |
| Intercept | 0.04*** | 0.02*** |
| Women | 1.31* | 1.39** |
| Canton Valais (Ref. Geneva) | 1.97*** | 1.42 |
| Bern | 2.12*** | 1.78** |
| Basel | 0.95 | 0.83 |
| Ticino | 1.16 | 0.94 |
| Age group 70-74 (Ref. 65-69) | 1.71* | 1.78** |
| 75-79 | 1.59* | 1.69* |
| 80-84 | 2.13*** | 2.39*** |
| 85-89 | 1.78* | 2.04** |
| 90+ | 2.03** | 2.49*** |
| Low education (Ref. Apprenticeship) | 0.79 | 0.82 |
| Higher education | 1.28 | 1.2 |
| Homeowner | | 2.4*** |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 68: Binomial logit on income cluster membership AVS+Savings*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

For this cluster, numerous dynamics and patterns can be observed. Table 68 notably shows strong basic patterns related to gender, canton and age. Women show a roughly 30% increase in chances to be situated in this income source cluster. This is no surprise, given that women are more likely to have a break during their professional lives to focus on family and children, especially in the generations that are studied here. Moreover, women are also more likely to have had a part-time job for the same reasons and since professional pension funds are also depending on the amount of one's earnings, it is also likely that they did not earn sufficiently in order to have such a second pillar fund.

The second strong effect is related to age. Here, a clear increase can be observed the older people are. Cohorts which today are aged 70-74 show a 70% increase of the odds of being in this cluster. The next older cohort, those who were aged between 75-79 at the time they were interviewed for the survey, have a similarly elevated odds-ratio of 1.59. Those aged 80-84 then have an even higher odds-ratio at 2.13. The values for people even older remain in a similar magnitude. This is most likely a direct effect of the relatively late installment of mandatory professional pension systems. In other words and as has been discussed previously in this chapter, older cohorts have not been able to contribute to a certain pension pillars because they simply did not exist. Hence, the results in this model confirm these previous findings.

Furthermore, the next highly interesting element concerns the various cantons, with Bern and Valais having strongly increased odds-ratios for this cluster: 2.12 and 1.92, respectively. However, this effect has to be assessed in direct relation to homeownership. Indeed, as soon as the model accounts for homeownership the odds-ratio for Valais is no longer statistically significant and the one for Bern decreases by around 0.5. A possible explanation becomes very clear once we return to the description of the original variable in the third chapter where it has been shown that Valais has the highest ratio of homeownership in all of Switzerland at close to 60% in 2013 (Bundesamt für Statistik, 2015). Despite not referring to data specific to people aged 65 and older, it is very likely that homeownership among that age-group is equally as high. Hence, this cantonal difference is most likely due to the very high share of homeowners in Valais.

However, beyond this cantonal particularity, the actual fact that there is such a strong link between actual homeownership and being situated in this cluster – as is suggested by the odds-ratio of 2.4, an over two-fold increase in the odds- is highly relevant for the discussion of "institutional loopholes" that lead into difficult financial situations. The strong link between homeownership and the absence of a second pillar points towards a rather problematic mechanism. As has been explained previously in chapter 2, in Switzerland people have the possibility to exceptionally make use of their professional pension funds in order to acquire real-estate. As a reminder, these funds, the so-called second pillar, are normally not accessible until the age of retirement – with the stated exception. This aspect has recently been a topic of discussion in the media because it has been addressed by the minister for internal affairs, Mr. Alain Berset, who explicitly called it an institutional loophole that he wishes to disable in the future. Indeed, the data in this analysis does support such a conclusion. The fact that there are 2.4 times more homeowners in this cluster, combined with the previous result from section 5.8 that has shown that people in this cluster have a roughly four-fold increase in the odds of suffering from poverty compared to 3-pillar receivers, would not only be in line with the hypothesis that these people have indeed used their professional pension funds in order to buy real estate but also with the conclusion that doing so might become a financial burden at the age of retirement. The reason for the latter being related to the decrease in liquid income per month while the fixed costs related to the real estate object– anything from mortgage payments to the physical maintenance – might become a serious financial burden.

An additional hypothesis that I tested for this cluster is actually the second "exception" or loophole that can be found in the rules concerning the use of professional pension funds. Besides the acquisition of real-estate, it is possible to use the second pillar in order to pursue an independent economic activity – in other words, being self-employed. In order to shed more light on this particular scenario, I have established an additional model (results not shown) extending the previous model with the variable "last job". The information gained from this additional model does, once again, fall in line with the previously stated hypothesis. Indeed, it can be observed that a considerably large part of people in this cluster have been independent (at least they have indicated this in their response for "last job"). This is reflected in a more than three-fold increase in the odds-ratio at 3.31. It is therefore possible that such individuals used their second pillar in

order to start such a pursuit. However, the logic does not necessarily have to be in this direction. In fact, it is also possible to pursue a self-employed activity and as a *consequence* of this type of professional activity, not to have a professional pension fund. The reasons for the latter being that self-employed people can chose not to have a second pillar.

Finally, an additional group that the extended model featuring people's last job shows as being significantly more represented in this cluster are elderly people who indicate having been “inactive”. This is an element that is relatively easy to interpret. People who truly have not worked or have only worked very little have, as a consequence, no professional pension funds, no second pillar. However, similar to the case of women, it is more difficult to explain why such people then have a third-pillar to rely on.

This first insight has already raised a series of interesting issues. The following models might enable to deepen the understanding of this cluster.

| *Cluster “AVS + savings”* | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 1951.9 | 1951.8 | 1943.2 | 1953 | 1952.1 | 1944.5 |
| BIC | 2030.3 | 2048.3 | 2033.7 | 2037.5 | 2042.6 | 2071.2 |
| Intercept | 0.04*** | 0.03*** | 0.03*** | 0.04*** | 0.04*** | 0.03*** |
| Women | 1.31* | 1.45** | 1.33* | 1.31* | 1.28 | 1.42* |
| Canton Valais (Ref. Geneva) | 1.97*** | 1.97*** | 2.01*** | 1.96** | 1.97*** | 2*** |
| Bern | 2.12*** | 2.15*** | 2.2*** | 2.09*** | 2.14*** | 2.22*** |
| Basel | 0.95 | 0.97 | 0.99 | 0.93 | 0.95 | 0.99 |
| Ticino | 1.16 | 1.22 | 1.19 | 1.16 | 1.16 | 1.24 |
| Age group 70-74 (Ref. 65-69) | 1.71* | 1.71* | 1.66* | 1.72* | 1.71* | 1.66* |
| 75-79 | 1.59* | 1.6* | 1.54 | 1.59* | 1.59* | 1.56* |
| 80-84 | 2.13*** | 2.18*** | 2.08** | 2.15*** | 2.09*** | 2.07** |
| 85-89 | 1.78* | 1.81* | 1.66* | 1.77* | 1.74* | 1.66* |
| 90+ | 2.03** | 2.07** | 1.86* | 2.03** | 2.02** | 1.88* |
| Low education (Ref. Apprenticeship) | 0.79 | 0.79 | 0.8 | 0.78 | 0.77 | 0.77 |
| Higher education | 1.28 | 1.29 | 1.24 | 1.3 | 1.27 | 1.26 |
| Work trajectory: Quasi-full emp. (Ref. Full-emp.) | | 1.14 | | | | 1.16 |
| Start and stop | | 0.73 | | | | 0.74 |
| Stop and restart | | 0.8 | | | | 0.84 |
| Retirement timing: Early (Ref. Legal) | | | 0.98 | | | 0.98 |
| Late retirement | | | 1.78** | | | 1.78** |
| Job physically hard | | | | 1.13 | | 1.11 |
| Upward social mobility (Ref. stagnation) | | | | | 1.06 | 1.06 |
| Downward social mobility | | | | | 0.76 | 0.74 |
| *Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 | | | | | | |

*Table 69: Binomial logit on income cluster membership AVS+savings*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Results for people's professional trajectory with regards to the membership of the "AVS+savings" cluster show only one significant result, namely an increased odds-ratio for late retirement. The previous block has given a number of possible scenarios or profiles of people who can be found in this cluster – homeowners, self-employed people, people from older cohorts – and it is the second of the mentioned groups that might offer a meaningful interpretation of this result. For people who are self-employed, it is easier to continue to work beyond the legal age of retirement. Obviously, given that this group has been shown to have roughly a fourfold increase in the odds of being poor at that age, the fact of continuing to work might be motivated much more by necessity than opportunity. Other than that, there are no significant results to report, neither are there any notable shifts in the other covariates of the educational model that is nested in each of these models in this block.

| *Cluster "AVS + savings"* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 1951.9 | 1953.1 | 1953.7 | 1953.7 | 1953.1 |
| BIC | 2030.3 | 2061.6 | 2038.1 | 2038.2 | 2061.6 |
| Intercept | 0.04*** | 0.04*** | 0.04*** | 0.04*** | 0.04*** |
| Women | 1.31* | 1.35* | 1.29* | 1.31* | 1.35* |
| Canton Valais (Ref. Geneva) | 1.97*** | 1.97** | 1.97*** | 1.98*** | 1.97** |
| Bern | 2.12*** | 2.13*** | 2.12*** | 2.13*** | 2.13*** |
| Basel | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Ticino | 1.16 | 1.17 | 1.17 | 1.17 | 1.17 |
| Age group 70-74 (Ref. 65-69) | 1.71* | 1.67* | 1.7* | 1.71* | 1.67* |
| 75-79 | 1.59* | 1.59* | 1.57* | 1.6* | 1.59* |
| 80-84 | 2.13*** | 2.12*** | 2.1*** | 2.15*** | 2.12*** |
| 85-89 | 1.78* | 1.76* | 1.74* | 1.79* | 1.76* |
| 90+ | 2.03** | 2** | 1.97** | 2.05** | 2** |
| Low education (Ref. Apprenticeship) | 0.79 | 0.77 | 0.79 | 0.79 | 0.77 |
| Higher education | 1.28 | 1.29 | 1.28 | 1.28 | 1.29 |
| Birth of first child later(Ref. average) | | 1.13 | | | 1.13 |
| Birth of first child earlier | | 1.37 | | | 1.37 |
| No child | | 0.69 | | | 0.69 |
| Experience of partner's death | | | 1.07 | | 1.05 |
| Experience of relationship dissolution | | | | 1.06 | 1.06 |
| *Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 | | | | | |

*Table 70: Binomial logit on income cluster membership AVS+savings*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

In the final block of models for this cluster where family events and family trajectories are assessed, there are no significant results to be found. Neither do any of these covariates create any observable shifts in the other variables.

In summary, this cluster and the discussed logics or pathways that might lead into this group of income sources offer large potential for discussion, notably from a legal point

of view. As has been pointed out, there is an ongoing discussion on whether these "exceptions" regarding the use of the second pillar should be reduced or even forbidden. Neglecting the benefits these exceptions might offer, the evidence found here does suggest that these could represent pathways into financially difficult situations in old-age. However, in order to confirm these findings and to provide an even broader basis for a discussion, more in-depth research is needed.

*Analysis of the "two-pillars"cluster*

| *Cluster "Two pillars"* | *Basic* | *Edu* |
|---|---|---|
| AIC | 3902.7 | 3887.6 |
| BIC | 3981.1 | 3972.1 |
| Intercept | 0.56*** | 0.64** |
| Women | 0.92 | 0.9 |
| Canton Valais (Ref. Geneva) | 0.98 | 1.13 |
| Bern | 0.92 | 0.99 |
| Basel | 0.98 | 1.03 |
| Ticino | 0.89 | 0.98 |
| Age group 70-74 (Ref. 65-69) | 1.22 | 1.2 |
| 75-79 | 1.23 | 1.21 |
| 80-84 | 1.39* | 1.34* |
| 85-89 | 1.17 | 1.11 |
| 90+ | 1.41* | 1.31 |
| Low education (Ref. Apprenticeship) | 0.73** | 0.71** |
| Higher education | 0.68*** | 0.7*** |
| Homeowner | | 0.71*** |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 71: Binomial logit on income cluster membership two-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The income source cluster of people who rely on incomes from the first and second pillar is the most frequent and concerns about one third of people. Compared with the previous groups, there are much less pronounced patterns. Gender and regional (cantonal) differences are absent, hence reflecting a strong contrast with the previous two clusters. Age-related patterns show that there are two age-groups that are slightly more represented in the cluster: Those aged 80-84 and those aged 90 and older. At the same time, these effects are quite weak and thus I will not elaborate further on this particularity. Homeownership appears as significant, whereas the odds-ratio of 0.71 indicates that there are about 30% less homeowners in this cluster compared to the other ones. The strongest effects, however, can be found for educational differences. Here it can be seen that both, people with little or no education as well as people with a form of higher education are less likely to be situated in this cluster. From this result it can be concluded that this cluster contains, above all, people with an apprenticeship.

| *Cluster "Two pillars"* | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3902.7 | 3907.7 | 3867.2 | 3901.5 | 3902.9 | 3872 |
| BIC | 3981.1 | 4004.2 | 3957.7 | 3986 | 3993.4 | 3998.6 |
| Intercept | 0.56*** | 0.53*** | 0.58*** | 0.58*** | 0.51*** | 0.53*** |
| Women | 0.92 | 0.91 | 0.91 | 0.92 | 0.95 | 0.93 |
| Canton Valais (Ref. Geneva) | 0.98 | 0.98 | 0.96 | 0.98 | 0.98 | 0.97 |
| Bern | 0.92 | 0.93 | 0.89 | 0.94 | 0.92 | 0.91 |
| Basel | 0.98 | 0.98 | 0.94 | 1 | 0.98 | 0.96 |
| Ticino | 0.89 | 0.9 | 0.87 | 0.9 | 0.9 | 0.89 |
| Age group 70-74 (Ref. 65-69) | 1.22 | 1.23 | 1.27 | 1.22 | 1.22 | 1.27 |
| 75-79 | 1.23 | 1.24 | 1.28 | 1.23 | 1.23 | 1.28 |
| 80-84 | 1.39* | 1.4* | 1.45** | 1.39* | 1.41** | 1.47** |
| 85-89 | 1.17 | 1.19 | 1.28 | 1.17 | 1.18 | 1.31 |
| 90+ | 1.41* | 1.43* | 1.58** | 1.42* | 1.42* | 1.62** |
| Low education (Ref. Apprenticeship) | 0.73** | 0.73** | 0.71** | 0.74** | 0.74** | 0.74** |
| Higher education | 0.68*** | 0.68*** | 0.7*** | 0.67*** | 0.68*** | 0.69*** |
| Work trajectory: Quasi-full emp. (Ref. Full-emp.) | | 1.08 | | | | 1.06 |
| Start and stop | | 1.05 | | | | 1.02 |
| Stop and restart | | 1.11 | | | | 1.07 |
| Retirement timing: Early (Ref. Legal) | | | 1.05 | | | 1.06 |
| Late retirement | | | 0.46*** | | | 0.46*** |
| Job physically hard | | | | 0.86 | | 0.87 |
| Upward social mobility (Ref. stagnation) | | | | | 1 | 1 |
| Downward social mobility | | | | | 1.23 | 1.24 |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

*Table 72: Binomial logit on income cluster membership two-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Table 72 shows the results for this cluster regarding professional trajectories and events. However, there is very little insight to be gained from these results as the only significant variable is retirement timing whereas an odds-ratio of 0.46 for "late retirement" shows that people in this group might be about half as likely as in other groups to be working beyond the legal age of retirement. The previous somewhat complex pattern related to age persists in all these models.

| *Cluster "Two pillars"* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 3902.7 | 3900.3 | 3901.9 | 3898 | 3900.3 |
| BIC | 3981.1 | 4008.9 | 3986.4 | 3982.5 | 4008.9 |
| Intercept | 0.56*** | 0.62*** | 0.56*** | 0.61*** | 0.62*** |
| Women | 0.92 | 0.87 | 0.89 | 0.92 | 0.87 |
| Canton Valais (Ref. Geneva) | 0.98 | 0.94 | 0.98 | 0.95 | 0.94 |
| Bern | 0.92 | 0.9 | 0.92 | 0.9 | 0.9 |
| Basel | 0.98 | 0.97 | 0.98 | 0.97 | 0.97 |
| Ticino | 0.89 | 0.88 | 0.89 | 0.87 | 0.88 |
| Age group 70-74 (Ref. 65-69) | 1.22 | 1.21 | 1.21 | 1.21 | 1.21 |
| 75-79 | 1.23 | 1.19 | 1.21 | 1.2 | 1.19 |
| 80-84 | 1.39* | 1.33* | 1.35* | 1.35* | 1.33* |
| 85-89 | 1.17 | 1.09 | 1.11 | 1.12 | 1.09 |
| 90+ | 1.41* | 1.3 | 1.31 | 1.35* | 1.3 |
| Low education (Ref. Apprenticeship) | 0.73** | 0.72** | 0.72** | 0.73** | 0.72** |
| Higher education | 0.68*** | 0.69*** | 0.68*** | 0.68*** | 0.69*** |
| Birth of first child later(Ref. average) | | 1.07 | | | 1.07 |
| Birth of first child earlier | | 0.79 | | | 0.79 |
| No child | | 1.02 | | | 1.02 |
| Experience of partner's death | | | 1.17 | | 0.77* |
| Experience of relationship dissolution | | | | 0.75* | 1.1 |
| *Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 | | | | | |

*Table 73: Binomial logit on income cluster membership two-pillars*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

There is also little insight to be gained from model 5 (as shown in table 73) that summarizes the results of people's family lives on the odds of being situated in the "2 pillars" income source cluster. Having experienced a relationship dissolution is only weakly signification and, with an odds-ratio of 0.75 suggesting that people in this clusters experience this event marginally less.

Perhaps also to the larger number of people that it represents, the most frequent cluster seems to show only little specific patterns.

*Analysis of the "3-pillars + work"cluster*

| *Cluster 3-Pill. + Work* | *Basic* | *Edu* |
|---|---|---|
| AIC | 1719.6 | 1720.3 |
| BIC | 1798.1 | 1804.7 |
| Intercept | 0.27*** | 0.25*** |
| Women | 0.54*** | 0.55*** |
| Canton Valais (Ref. Geneva) | 0.93 | 0.87 |
| Bern | 0.88 | 0.84 |
| Basel | 1.15 | 1.12 |
| Ticino | 0.96 | 0.92 |
| Age group 70-74 (Ref. 65-69) | 0.68* | 0.69* |
| 75-79 | 0.37*** | 0.37*** |
| 80-84 | 0.11*** | 0.12*** |
| 85-89 | 0.12*** | 0.12*** |
| 90+ | 0.09*** | 0.1*** |
| Low education (Ref. Apprenticeship) | 0.81 | 0.82 |
| Higher education | 1.59** | 1.57** |
| Homeowner | | 1.18 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 74: Binomial logit on income cluster membership 3-pillars+work*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The least frequent cluster – concerning only 9% of all people aged 65 and older – shows a relatively distinct profile of its members. People who benefit from the "ideal" setting of 3-pillars but still continue to work are male -with an odds-ratio of 0.54 for women indicating they have about half the odds of being in this group-, aged 65-69 – all other odds-ratios for older people indicate very small chances of being included in this group. Furthermore, and this is highly important, people in this cluster have a significantly better education with an odds-ratio of 1.59. Does this cluster therefore represent a small privileged minority which still pursues relatively lucrative professions beyond the age of legal retirement? The following models might give a closer look onto this question.

| *Cluster 3-Pill. + Work* | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 1719.6 | 1725.2 | 1697.4 | 1720.9 | 1717.4 | 1701.1 |
| BIC | 1798.1 | 1821.7 | 1787.9 | 1805.3 | 1807.9 | 1827.8 |
| Intercept | 0.27*** | 0.26*** | 0.28*** | 0.28*** | 0.24*** | 0.24*** |
| Women | 0.54*** | 0.55*** | 0.54*** | 0.54*** | 0.59*** | 0.59*** |
| Canton Valais (Ref. Geneva) | 0.93 | 0.93 | 0.96 | 0.94 | 0.93 | 0.97 |
| Bern | 0.88 | 0.89 | 0.91 | 0.89 | 0.86 | 0.92 |
| Basel | 1.15 | 1.16 | 1.22 | 1.17 | 1.14 | 1.23 |
| Ticino | 0.96 | 0.98 | 1 | 0.97 | 0.97 | 1.04 |
| Age group 70-74 (Ref. 65-69) | 0.68* | 0.68* | 0.64** | 0.68* | 0.67* | 0.62** |
| 75-79 | 0.37*** | 0.37*** | 0.34*** | 0.37*** | 0.37*** | 0.34*** |
| 80-84 | 0.11*** | 0.11*** | 0.1*** | 0.11*** | 0.11*** | 0.1*** |
| 85-89 | 0.12*** | 0.12*** | 0.1*** | 0.12*** | 0.12*** | 0.1*** |
| 90+ | 0.09*** | 0.09*** | 0.07*** | 0.09*** | 0.09*** | 0.08*** |
| Low education (Ref. Apprenticeship) | 0.81 | 0.81 | 0.82 | 0.82 | 0.83 | 0.86 |
| Higher education | 1.59** | 1.59** | 1.49** | 1.56** | 1.58** | 1.46** |
| Work trajectory: Quasi-full emp. (Ref. Full-emp.) | | 1.06 | | | | 1.11 |
| Start and stop | | 1.01 | | | | 1.06 |
| Stop and restart | | 0.93 | | | | 0.97 |
| Retirement timing: Early (Ref. Legal) | | | 0.8 | | | 0.79 |
| Late retirement | | | 2.15*** | | | 2.17*** |
| Job physically hard | | | | 0.88 | | 0.88 |
| Upward social mobility (Ref. stagnation) | | | | | 1.21* | 1.22* |
| Downward social mobility | | | | | 1.43 | 1.44 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | | |

*Table 75: Binomial logit on income cluster membership 3-pillars+work*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The results for this cluster's professional trajectory gives two insights. Firstly, people who are classified in this cluster have experienced upward social mobility over the course of their professional lives. This is reflected in the odds-ratio of 1.21 for this covariate. Secondly, the patterns related to age and gender remain stable. The fact that late retirement is a significant factor is actually a tautology, given that this group is defined by the fact that it contains people who still work at the age of their retirement.

| *Cluster 3-Pill. + Work* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 1719.6 | 1722.5 | 1721.5 | 1720.7 | 1722.5 |
| BIC | 1798.1 | 1831.1 | 1806 | 1805.1 | 1831.1 |
| Intercept | 0.27*** | 0.23*** | 0.27*** | 0.25*** | 0.23*** |
| Women | 0.54*** | 0.53*** | 0.55*** | 0.55*** | 0.53*** |
| Canton Valais (Ref. Geneva) | 0.93 | 0.94 | 0.93 | 0.95 | 0.94 |
| Bern | 0.88 | 0.9 | 0.88 | 0.89 | 0.9 |
| Basel | 1.15 | 1.18 | 1.15 | 1.16 | 1.18 |
| Ticino | 0.96 | 0.99 | 0.96 | 0.98 | 0.99 |
| Age group 70-74 (Ref. 65-69) | 0.68* | 0.69* | 0.68* | 0.69* | 0.69* |
| 75-79 | 0.37*** | 0.38*** | 0.37*** | 0.38*** | 0.38*** |
| 80-84 | 0.11*** | 0.12*** | 0.12*** | 0.12*** | 0.12*** |
| 85-89 | 0.12*** | 0.12*** | 0.12*** | 0.12*** | 0.12*** |
| 90+ | 0.09*** | 0.09*** | 0.1*** | 0.1*** | 0.09*** |
| Low education (Ref. Apprenticeship) | 0.81 | 0.77 | 0.81 | 0.81 | 0.77 |
| Higher education | 1.59** | 1.59** | 1.58** | 1.58** | 1.59** |
| Birth of first child later(Ref. average) | | 1.58* | | | 1.58* |
| Birth of first child earlier | | 1.29 | | | 1.29 |
| No child | | 1.22 | | | 1.22 |
| Experience of partner's death | | | 0.93 | | 1.14 |
| Experience of relationship dissolution | | | | 1.17 | 0.96 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | |

*Table 76: Binomial logit on income cluster membership 3-pillars+work*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

As far as family trajectories and events related to the family life are concerned, they offer one additional insight. People who benefit from a 3-pillar rent and who still work at the age of retirement tend to have had their first child at an age that is considered earlier as was usual among their birth-cohort. However, this result is very difficult to interpret with regards to the setting of income sources.

As was the case with the previous 2-pillar cluster, there amount of information that can be gained from this analysis is rather limited. This could also lead to an inversed conclusion; The absence of any more substantial patterns related either sex, canton, or events regarding people's professional or family-life can be regarded as evidence that there are no substantial patterns or mechanisms of discrimination that force people in to these remaining two clusters.

## 5.10 Discussion: The persistence of social stratification in economic inequalities for the elderly in Switzerland[50]

In this chapter I set out to explore the life course construction of old-age economic hardship in Switzerland and its underlying dynamics, including the unequal distribution across sex and age groups, with women and the "oldest-old" being much cited disadvantaged key-groups. Based on two indicators for economic difficulties in old-age, poverty and precarity, I considered two main frameworks given by social stratification, emphasizing social structures on one hand, and an event-based biographical approach, on the other hand. Furthermore, I tested three main mechanisms with regards to the life course that are often opposed in the literature but that finally present several overlaps: critical life period and cumulative (dis)advantages and biographization or individualization.

The presented results, based on the VLV survey, disqualify the demands by certain authors to replace the social stratification and class-framework with a more event-based framework. On the contrary, it shows strong support the the relevance of the former, suggesting that after all, social stratification remains to be the predominant dynamic in the older population when it comes to economic inequality, with the early life stages playing a crucial role. Also, these results are generally quite robust with regards to the choice of indicator for economic and financial hardship in old-age as well as for the indicators of social position. In most blocks of models the results for poverty corresponded to those found in precarity which is a much less strict definition of financial hardship and could be considered a proxy for *economic vulnerability*. Also, testing for different indicators of class such as a person's first, last or the household's highest ranking job, I generally find the same patterns as for the primary measure of class that is education. People in lower classes and socioeconomic positions are continuously more likely to be experiencing financially difficult situations in old-age. Hence, I confirm the findings by Levy et al. (1997) who showed considerable evidence for inequalities in Switzerland and I share their conclusion regarding the persisting influence of processes of social stratification reproducing and reinforcing them.

The interpretation of these results in terms of the outlined class-analysis framework leads to two conclusions: Firstly, the presence of strong effects for higher education compared to those having an apprenticeship can, as has been discussed at length in the theory chapter, be taken as evidence for the presence of strong inter-class differences. As a reminder, inter-class differences correspond with the "traditional" Marxist framework that opposes the "capitalist class" and the working class This is a highly expected result and thus lends itself for the support of theorists, scholars from the political economy of aging as well as critical gerontologists, who stress the continuing relevance of classes for the study of old-age. The second interpretation that can be made focuses on the strong differences between people with no or little education and those with an apprenticeship. As has been argued, both of those groups belong to the working class. Yet, these results show that within that sub-population, there are strong and clearly distinct patterns of

50 This discussion principally follows the conclusions that can be found in Gabriel et al. 2015

discrimination or, in the terminology of Wright, exploitation and domination.

Gender differences largely captured through educational differences. The only transgression to this trend is a continuing gender-inequality with regards to being a social welfare recipient. Similarly, the higher frequency of poverty among the oldest-old is completely captured by such cohort differences. This is clearly related to historical trends, to the quantitative but also qualitative extension of the educational system that, in Switzerland like abroad, was observed during the 20th century, especially from the 1950s onwards. In younger cohorts, people – women in particular – tend to have higher education and people with low education grow more and more scarce. However, for the individuals who did not benefit from those general improvements, the long-term impact is significant. These findings for the cohort effects also imply that in the short-term I expect old-age poverty to decrease simply to the fact that cohorts with predominantly lower education are continuously replaced with better educated ones.

An additional block of models focusing on other factors that are associated with financial difficulties at the age of retirement revealed that the following characteristics constitute sub-groups with an increased chance for such problems: People who are of non-Swiss origin, self-employed individuals and retired individuals that live with other people (friends, relatives or their children). Opposed to this: Individuals with a lower risk are homeowners and people who retired early. However, for homeownership it must be said that it represents a variable with is strongly dependent on the canton which is concerned: In the canton of Valais homeownership is very high whereas in Geneva it is relatively low[51].

While various studies, theories and institutional arrangements assume a strong link between professional trajectories and old-age economic hardship, I could not find this relationship in my dataset. It appears that the number of years of contribution to the pension system does not play a significant role. On one hand, this could be seen as a testament that the Swiss institutional system with its measures to prevent poverty (AVS and complementary welfare above all) seems to be working sufficiently as not to penalize non-standardized work-trajectories. However, these results do not have to signify just good news. The continuing strong impact of education throughout all models could also lead to an inversed interpretation where the conclusion is much more problematic: Regardless of a person's work-trajectory, the mere fact of not having an education creates a life-long disadvantage that even with a complete and standard work trajectory, one is still more prone to financial hardship in old-age. The pathway into poverty seems largely determined at the beginning of a person's life and principally relies on having an education or not. I believe that addressing the dynamics regarding educational differences, which then will go on to create significant social inequalities in the long-run, will be one of the key challenges for policy-makers today as well as in the mid-term.

Moreover, the results suggest that the measures introduced in the last revision of the AVS system and that aimed at eliminating inequalities seem to be working adequately, a

51 See also page 148 where the variable "homeownership" is discussed.

finding which is supported with the absence of a significant relationship for civil status, the events of having lost a partner (and even the presence of the contrary: a *decreased* chance for precarity in old-age) or having experienced a relationship dissolution. In the mid-1990s, widowhood was still important in explaining low levels of incomes among women compared to men (Lalive d'Epinay et al. 2000), but my results based on the VLV survey confirm the analyses by Wanner and Fall (2012), suggesting that the adaptations included in the 10th revision of AVS has been successful. Similarly, 15 or 20 years ago the expected rise of divorce as a civil status in the older generations was seen as a threat, especially for women. However, while marriage dissolution in later life is often associated with significant psychological distress (Höpflinger et al., 2013), my findings suggest it does not necessarily imply a deterioration of economic well-being to the point of slipping into poverty. The only life course event was found having a direct but weak poverty-triggering effect was that of childbirth timing. This confirms findings by Vandecasteele (2011) but probably requires a different interpretation, since for the older population this information refers to an event happened at least four decades earlier. However, it is also important to emphasize the limits of these findings that are based on a measure of poverty. While there is an absence of any detectable effects for the risk of poverty through the loss of a partner, the results do not exclude that there might nevertheless be a significant impact on people's economic situation in general.

Perhaps the key question that remains is why life course events seem to have very little effect and where they do (marriage dissolution, early child-birth), why they do not interfere with social stratification and class-dynamics. For this questions, there are two general interpretations. The first relates to the fact,as Vandecasteele (2010, 2011) points out, that the new biographical paradigm has grown in importance against the background of de-standardization and individualization of the life course in modern societies. It can thus be argued whether those mutations of the life course could be considered *prerequisites* in order to detect any influence of critical events over social stratification processes. Should this argument holds true, it would be an explication of the absence of such a relationship in my dataset, given that the studied generations can be considered to be the parents of the often cited baby-boomer generation and globally, had quite "traditional" life courses (Widmer and Ritschard 2009). The observed gender differences in the clusters of work-trajectories support this interpretation.

The second interpretation might draw on the fact that the idea of a biographization and the continuing relevance of class-dynamics are not exclusive. As Vandecasteele (2010, 2011) emphasizes, the two theories are much more complementary than contrasting. Hence, it is possible that there is a rise of the impact of biographical events – even though not yet fully detectable due to a time-lag and the cohorts that are studied in this thesis, as has been indicated in the previous paragraph – while "traditional" class-dynamics continue to exist and auto-reproduce. Here, there is still promising potential for further analyses combining the two dimensions: For example, one might assess whether life events impact people in different socio-economic positions differently.

The influence of an early transition into parenthood could be interpreted in terms of

causality in that it often implied abandoning education and starting work in low skilled positions. More generally, it is important to remember that the stratification theory includes a cumulative disadvantage perspective since low qualifications imply low professional career prospects.

The analyses on the sources of incomes first show a high diversity within the five clusters, and second, demonstrated strong relations with poverty, the individual position in a complex welfare system being a very strong determinant of poverty. Naturally, my indicator refers to the current position with regards to income sources but clearly, the latter is the results from dynamics inscribed in the past life courses. To some extent, I have therefore also found limits of what can be done with a strictly binary approach emphasizing being poor versus not being poor. This last block of models thus showed much-promising potential for additional analyses starting from the five clusters as target variable and to determine to what extent social origin, work trajectories and critical events have an influence on being situated in one specific cluster. This is equally important from a social policy point of view and again, could contribute to the determination of "pathways into vulnerability." Pursuing this line of analysis and studying the characteristics of people in each of these income source clusters as well as the impact of life course events on ending up in any of these clusters, a series of highly interesting insights were revealed. Particularly the three clusters of 3-pillar recipients, social welfare recipients and people who mainly relied on incomes from the first and third pillar – the so called "AVS+savings" cluster offered the most interesting insights.

More specifically, the analysis of the group of people who benefit from the often described "ideal case" of a 3-pillar rent, reflects the privileged situation that such a setting represents. It seems that a form of higher education might be the ticket that is most likely to grant access to this setting whereas, on the other side of the spectrum, it is practically impossible to have such a full-pension with little or no formal education. Beyond having a drastically lower risk of poverty, people in this group also seem to have the means to afford early retirement or owning their housing. Also, there are significantly less women in this cluster and people in Basel are represented more substantially in this group.

The second highly interesting cluster was that of people who rely on their first pillar, but also on a variety of social welfare and financial aid from various sources. Again, education is a key variable with people of a higher education being much less likely to be in this configuration of income sources. People with little or no education, on the other hand, show a much higher associated risk of ending up in such difficult financial circumstances. Furthermore, and highly interesting for this thesis, having experience a relationship dissolution increase the chance of being in this group as well. The latter suggesting that it is indeed possible that the traditional dynamics of social stratification (as captured through educational differences) are at work while biographical elements such as a relationship dissolution play a considerable role and provoke considerable negative consequences.

The third highly interesting cluster is one which captures people who do not have a

second pillar and instead rely on their first pillar and a form of a third pillar exclusively. It should be noted, this cluster also showed a strongly increased risk of poverty in the previous analysis and it showed a series of strong patterns. To start with, this cluster is characterized by important age-related effects. This can be explained through the relatively late introduction of mandatory professional pension funds, the second pillar. However, the analyses also showed that this cluster contains substantially more self-employed people and homeowners. These elements – increased risk for poverty, absence of a second pillar, a high number of self-employed people and a significantly increased share of homeowners – can be taken as evidence that two "institutional loopholes" are not only being used by a substantial number of people, but also that they turn into pathways into financial difficulties in old-age. The first one of such loopholes is the one which allows people to use their second pillar – otherwise inaccessible until the age of retirement - for the acquisition of real-estate. The second concerns the use of the second pillar for self-employment. Regardless of the benefits that the current legal settings provide, it is possible, based on the presented data, that they represent a non-negligible source of financial hardship in old-age. This finding also can be considered as a highly political finding given that Mr. Alain Berset, Minister of internal affairs, has recently addressed this issue in the media and has identified it as a potential problem to be solved.

Furthermore, this finding regarding homeownership also is an element which helps to understand the otherwise often inexplicable cantonal differences with Valais – the latter being a canton showing highly increased odds-ratios for poverty. In fact, the membership analysis for the "AVS+savings" cluster initially showed a strong association this region. As it turns out, this relationship could to some extent be captured with the variable homeownership. Furthermore, federal statistical data show that Valais has one of the highest concentrations of homeownership among all of Switzerland. This might lead to the conclusion that the previously described "loophole" of homeownership through second-pillar funds is often employed in this region.

Finally, the analyses suggest that there is continuing gender-inequality in this area of the Swiss pension system with women still being more susceptible to be relying on social welfare as a main source of income in old-age and women being significantly less likely to benefit from the often described "ideal" setting of having all three pillars. Women are also more likely to be situated in the cluster of people who rely exclusively on their first pillar, the AVS, and on a third-pillar – differently put, they are much more likely not to have a second pillar which can also be the result of having an incomplete work-biography. While previous results pointed towards a highly positive evaluation of Swiss social policies – notably the reforms and adaptations of recent years - with regards to financial hardship in old-age, these more elaborate analyses on income source clusters paint a less positive picture and shows continuing potential for improvements.

In conclusion, social stratification and the Marxist class-approach still present themselves to be the most adequate frameworks for the conceptualization of economic inequalities in old-age. Whether the same holds true for the social inequalities within functional and mental health will be the object of interest for the following chapter.

# 6. Social inequalities in health and the life course

In its first analytical chapter this thesis has demonstrated how poverty among elderly people has slightly decreased over the last three decades. Parallel to this, there have been significant improvements in people's health condition. Yet, it has been shown that some of the dynamics and patterns of inequality have remained constant during that time. Above all, dynamics related to unskilled workers with no or little education have a strong impact on poverty and on depression. The previous chapter has then assessed the relationship between this overall pattern related to class, poverty and people's biographies. It has shown that contrary to certain authors who claim otherwise, there is no evidence that certain critical events – a divorce, the death of a partner, stopping work at 35 years of age, for example – are the principal cause for financial hardship in old-age. Rather, it has been shown that education appears as the strongest predictor for people's economic situation in old-age indicating strong social stratification and class-dynamics. Not having an education is a mark that people bear their whole life, sending them on a life-path that will ultimately yield in a situation in old-age that is strongly characterized by financial hardship. Given these findings, it is tempting to conclude that inequality – the fact that some people find themselves in difficult life situations in old-age and others do not – may above anything be the result of class differences. Whether this logic also applies to health in old-age will be the focus of this chapter. It studies the underlying forces for people's health in old-age, opposing the two key frameworks of social stratification and the more event-based biographization perspective.

The structure of this chapter is the same as in the previous chapter on economic resources. It starts (6.1) with a presentation of the point of departure, meaning how functional health and depression are represented in the population in 2011. Following this, part 6.2 outlines the analytical models and the corresponding working hypotheses. The third part (6.3)then transitions to the empirical analyses. It offers a first overview of both functional health and mental health patterns in the population, based on age, gender and canton. After this first broad analysis, I will specify the dynamics associated with social stratification (6.4). Following this, part 6.5 looks at various factors which research has shown to have an important effect on these two health measures. As an additional variable, this chapter investigates the impact of personality on health. This is done in part 6.6. Then, the perspective then shifts towards a life course angle, starting with an assessment of people's work-trajectories and their impact on health (6.7) and concluding with the role people's family lives play (6.8) with regards to health. Finally, part 6.9 discusses the results and provides a conclusion for this chapter.

## 6.1 Functional and mental health among elderly people in Switzerland

Before starting the analyses it is important to have a first impression of where we start: The point of departure. Based on VLV data, an estimated 84% of all people over 65 are in good health and have no functional health impairments whatsoever. 12% live with minor health problems that might require them to rely on some external help in their daily lives, but they still remain independent. Finally, 4% reportedly are no longer capable of performing their daily activities independently – they are in a situation of dependency.

The estimates in VLV were compared with two recent reports by the Swiss Federal Statistical Office. The first one focused on the functional health status of the elderly living in private households (Bundesamt für Statistik, 2014) and the second on those living in institutions (Bundesamt für Statistik, 2012b).

There are some differences in the found estimates. The first OFS/BFS study reports 91% as being in good health and being perfectly autonomous. Further contrasting the results based on the VLV survey, the BFS/OFS report finds 7% of elderly people in Switzerland with difficulties[52] and 2% to be completely dependent. Based on the comparison with this first report, VLV seems to slightly over-report the prevalence of physical difficulties or dependence in the population. The differences between the data based on VLV and the aforementioned report, however, are most likely due to differences in their samples: The VLV-sample is based on five cantons, and partially includes people living in care-homes or with minor physical disabilities[53]. The first OFS/BFS report is based on a sample that excluded *all* people living in care-institutions and only included those still residing in their own household.

In the second report that focused exclusively on elderly people living in care-institutions (Bundesamt für Statistik, 2012b) the numbers change drastically: In this report 96% of individuals are found having trouble accomplishing at least 1 activity of daily living, thus only 4% of individuals being completely independent. In this second report, the analysis is obviously restricted to a population which is no longer autonomous due to the importance of their restrictions in managing their daily life, which explains these very high percentages in difficulties. Again, the differences with the estimates based on VLV data can be explained with these significant differences in the employed samples.

Given these two selective and therefore biased sources, however, it can be said that the sample that is used in this thesis generally captures a relatively representative sample of the general population in terms of functional health. Although proxy-participants were

52 The report distinguishes between „minor“ and „major“ difficulties, whereas these categories are collapsed in VLV. Thus the percentages for minor difficulties (6%) and major difficulties (1%) are merged to compare them to VLV data.

53 Only people with major physical or mental problems who responded to the proxy-questionnaire are excluded in this thesis

excluded, it can be considered that there is only a slight chance of under-reporting of major functional health problems.

In order to better understand the distribution of data for the indicator of mental health, the Wang depression score, it is useful to consider a three-level typology. According to this typology, suffering from 0-1 indicates no signs of depression and signifies good mental health. 2-3 symptoms can be regarded as being "upset". Finally, anything over 3 symptoms is considered as clinically depressive (Cavalli, Fagot, & Oris, 2013). It be pointed out, however, that this typology is not undebated. In this context it is merely used to better illustrate the distribution of data.

Based on this typology, there are 70% of all participants are in good mental health. 21% can be considered as being "upset" and finally, 9% can be classified as being depressive.

Comparing VLV with other sources in order to ratify its findings is not a straightforward. The main obstacle relates to the large number of indicators to measure depressive symptoms, different classifications to determine actual categories and statuses of mental health or to measure the intensity of depressive disturbances. Such methodological differences and the resulting variability in estimates are significant and must be kept in mind (Luppa et al., 2012).

A relatively exhaustive report on depression among the Swiss population by the Swiss Health Observatory (Baer, Schuler, Füglister-Dousse, & Moreau-Gruet, 2013) provides estimates for the prevalence of depressive symptoms among the elderly population. The results are summarized and contrasted with the findings from VLV[54] in the following table 77:

54 Here it must be emphasized that this comparison requires a number of transformations and manipulations of the data stemming from VLV that are not undisputed. As has been explained in this section on the general nature of the Wang depression score that is used in VLV, it is simply a count of depressive symptoms. Neither in its original conception, nor in the adjusted version as used in VLV are there strict rules on the „translation" between the number of depressive symptoms a respondent shows and generic categories such as „minor depression". The researchers at the CIGEV who initially constructed the adjusted indicator did recommend a general guideline on how such a translation – as disputed as it may be – could be created: From 0-1 symptoms a person can be considered as „In good mental health" and not showing any symptoms of depression; from 2-3 symptoms a person can be considered as „upset", which roughly can be compared to „minor symptoms" from the OBSAN report by Baer et al. And finally, anything surpassing 3 symptoms can be classified as „depressive" and thus be compared with the category of „intermediary to strong symptoms" from the OBSAN report.

| Source | Baer et al. | VLV | Baer et al. | VLV |
|---|---|---|---|---|
| Categories | 65-74 | 65-74 | 75+ | 75+ |
| No symptoms | 74.8 | 75.0 | 65.7 | 64.5 |
| Minor symptoms | 23 | 17.9 | 31.2 | 25.0 |
| Intermediary - strong symptoms | 2.2 | 7.1 | 3.2 | 10.4 |

*Table 77: Comparison OBSAN and VLV estimates for functional health*
Source: Population estimates based on VLV (weighted data)
OBSAN report: Baer, Schuler, Füglister-Dousse, & Moreau-Gruet, 2013

Despite the highest cautiousness that should be respected when comparing these findings, it can be seen that the general order of the estimates are actually comparable over large parts with more important differences mainly in the estimation of people with intermediary and stronger depressive symptoms. Both studies find roughly 75% of the population being free from any symptoms of depression in the age group 65-74. VLV is slightly lower concerning the estimation of people who show minor signs of depression and suggests that there are about three times as many people suffering from intermediary or strong depressive symptoms in that age group compared to the OBSAN report. However, what is similar again is that in the next age class 75 and older, there is a relatively important increase in both minor and stronger depression rates with a drop of the population not experiencing any depressive symptoms at all towards two-thirds of the population. VLV again finds much higher estimates for people with strong depressive symptoms. It should be noted that the differences in estimates can also be due to to the differences in the samples: Whereas the OBSAN report is representative for all of Switzerland, VLV is based on five selected key cantons. Nevertheless, those results confirm preliminary research showing that VLV generally performs strongly in terms of capturing vulnerable populations (Nicolet & Oris, In Press.).

Regardless of the diverging results, all of these presented estimates show that a significant part of the elderly population is suffering from health problems. 4% of people are physically dependent and require full-time external help. 12% have minor impairments. They might still be able to live autonomously but nevertheless require some external help to get by in their daily lives. As for mental health, about one elderly person out of ten is clinically depressed while 20% are upset.

The analyses in this chapter aim to shed light on the social background of these people as well as on biographical trajectories and events that might have contributed to their difficult living situations.

## 6.2 Analyses and hypotheses

The structure and operationalization that is described here largely follows that of the previous chapter for the analysis of poverty in old-age. For this reason the majority of

the descriptions for the following models are less exhaustive. Notably, where the same variables are used as previously this part exclusively focuses on the underlying hypotheses that are tested. Obviously, these are slightly different given that the main target variables in this section are given by functional health status and Wang depression scores.

Accordingly, this part will start with the control model that features only the variables of sample stratification. The second model then is the social stratification model which is the most crucial with regards to the exploration of social inequalities in health. Following this, a third model which is the associated factors model, mirrors the exact same approach as in the previous part on poverty. The fourth block of models then focuses on a specific aspect of health which is the impact of personality types. Part five then tests the effect of people's professional life trajectories on health inequalities. The sixth block of models is also identical as in the previous part and assesses the impact of life events related to the family life.

As has already been discussed in the theoretical chapter, health is a multidimensional resource in itself. For this reason this thesis employs two measures of health: Functional health status which assesses physical well-being and the Wang depression score which is a measure for mental health. Each model is always run with functional health status first and in a second step with the indicator for mental health, the Wang depression score.

### 6.2.1 Control model

A very first model is created using only the variables of stratification: Age-group, sex and canton. This model will give a first insight into the dynamics for health among the elderly population that is captured with the VLV survey.

As far as the underlying hypotheses are concerned there are multiple hypotheses that are tested. Above all, the literature suggests that there are considerable age-related effects in health. These are part of a so-called “natural” aging-process. By this scholars usually mean biological processes which naturally lead to a higher occurrence of health-problems the older people get. Furthermore, beyond the hypothesis of more frequent health-problems in higher age-groups, there are two competing paradigms that can be assessed with the measure of functional health in particular. The first paradigm is given by cumulative disadvantage theorists (Dannefer, 2003) who defend the hypothesis that health inequalities should increase the older people get. In this view, dynamics of cumulation widen the gaps in terms of health inequalities between people, which should be clearly visible in the higher age-groups. More specifically, this means that with increasing age the distance between people who are independent, in difficulties and who are dependent should *widen*. Opposing this view are scholars that represent the hypothesis that health inequality decreases over time and that the elderly population is generally a highly homogeneous population as a result of mortality selection processes (Beckett, 2000; Herd, 2006; Herd et al., 2011). Basically this second hypothesis posits that only a very specific population survives into old-age and others are “selected”

meaning they die and disappear from the observed population. Applied to the indicator of functional health this would mean that the "distance" between people who are in difficulty and people who are dependent should decrease towards the higher age-groups.
As for gender inequalities the situation presents itself in a similar light as for age-differentials. As has already been mentioned in the section that described the models for the historical comparison of health inequalities as, the majority of the literature documents high levels of gender-differences in health(Dahl, 1993; Stronks, Mheen, Bos, & Mackenbach, 1995). The key reason for these differentials is related to the higher life expectancy for women. Basically, since women live longer they are affected by aeries of health-difficulties that men are not. However, it must also be pointed out that beyond this dichotomy between increases and decreases in the heterogeneity of health-differentials in function of age there logically is also the possibility of a stability which, potentially, results from the previous two dynamics.
Finally, for cantonal differences, I posit that the continuing improvements in socio-sanitary conditions have been further improved (Lalive d'Épinay et al., 2000) creating a situation where all cantons in Switzerland are more heterogeneous than ever before. Thus, I test the hypothesis that there are no discernible cantonal effects for any of the two health indicators.

### 6.2.2 Social stratification model

The second block of nested models focuses on questions of social stratification and class differences. Again, this part mirrors the approach that has been adopted for the study of old-age poverty. Accordingly, this part starts with the educational model as a reference model. To this is then added ethnicity, first job, last job, the partner's last job, the households' CSP, and finally, a full model is built with the sample-stratification criteria,education and ethnicity. The underlying hypotheses across all these variables is one of strong social stratification, meaning a high correlation between indicators for socioeconomic position or class and a person's health situation – functional as well as mental health (Demakakos, Nazroo, Breeze, & Marmot, 2008; Marmot, 2006; Muntaner & Lynch, 1999; Stansfeld et al., 2006).

### 6.2.3 Associated factors

What follows then is the associated factors model which analyzes the effect of civil status, living alone and on a person's geographical context or the degree of urbanization of a person's environment, respectively.

The working hypotheses that are tested in this part firstly regard a body of literature which indicates a strong link between social isolation and negative health impacts, especially with regards to mental health (Cacioppo & Hawkley, 2003; Cattan et al., 2005; Wenger et al., 1996). Accordingly, being married and *not* living alone, the first two variables which are tested in this model should show the corresponding dynamics of being protective factors against negative health outcomes. With regards to civil status,

divorce and widowhood are used to test the hypothesis that they are associated with negative health outcomes given that they represent critical life events that have been shown to cause significant amount of psychological stress and generally represent a violent and strongly disruptive event in people's life (de Vries & Johnson, 2002; Lalive d'Épinay et al., 2010; Lalive d'Épinay, Cavalli, & Spini, 2003; Michel Oris et al., 2014; Spahni et al., 2015).

Finally, the impact of geographical environments has been shown in demography with regards to mortality gradients (Lerch & Oris, 2015; Lerch, Wanner, & Oris, 2015). It is therefore to be expected that this factor also should have a significant impact on health in general (Dorling, 2012).

### 6.2.4 Personality traits

The fourth model is a highly specific to the analysis health inequalities. In fact, as has been shown in the theory part, there is body of literature that suggests that health differences are among other factors the result from personal traits. In fact, the personal traits theory has been identified by the literature as being one of the main "paradigms" for the explanation of health inequalities – particularly with regards to socioeconomic inequalities in health (Mackenbach, 2012). Hence, the fourth nested model in this chapter will focus on the interrelationship between functional health status, social status (measured through education) and the big5 personal traits. All five of these variables are added at once in addition to the educational model.

The underlying hypothesis that is to be tested is based on a growing body of literature that shows a strong relationship between personality traits and health outcomes(Chow & Roberts, 2014; Hayward et al., 2013; Löckenhoff et al., 2008). The most important hypothesis to test in this part of the analysis is whether the addition of personality traits to the educational model is able to capture the initially observed social-health differentials. In a scenario where personality traits would capture educational and class differences, the implications would be significant: It would mean that class-differences are largely a result of certain personality traits among certain classes.

### 6.2.5 Work trajectory and family event models

The final two blocks of models for the analysis of social stratification in health and life course roots thereof are given with the work-trajectory models and family trajectory models. From a theoretical perspective, those two blocks with life course variables are implemented with regards to two specific frameworks that have both been described extensively in the previous theory chapter.

The first framework is given by a social stratification framework. In this regard life course variables should help to shed light on whether they can constitute the root-causes for the main dynamic of class-differences in health - both mental and functional health of

course(see Davey Smith, Gunnell, & Ben-Shlomo, 2001). Moreover, this first part will also give insights into the *temporal* dynamics of social stratification, meaning it will shed light on which life-stage is the most crucial for the creation of life-long stratification dynamics constructing socioeconomic inequalities in health. The second aim is to determine whether there are dynamics of critical life events, meaning whether there are certain events that are independent from class-differentials in health but nevertheless have a negative impact on health outcomes in old-age. This second paradigm represents a critical life event, biographization or individualization perspective (see Vandecasteele, 2011).

On a more specific level, I posit the following working hypotheses based on the literature review in the second chapter:

- As far as professional trajectories are concerned, it can be said that trajectories and events that can be attributed to lower classes (which, as has been outlined before, are also prone to be living in less abundant material conditions, being more prone to poverty, etc.) increase the risk for health problems. Accordingly, work-trajectories that transgress from the full-employment model that is favored by the Swiss pension system as well as having a physically exhausting and straining profession should show such dynamics.
- Moreover, I set the hypothesis that socially-descending mobility movements are also associated with poor health in old-age. The rationale behind this is that such a type of socially descending work-trajectory often implies considerable stress and financial hardship. In short: such a trajectory might carry considerable disruptive and negative potential for people's lives.
- Concerning the family life, the same rationale based on the non-normativity and disruptiveness of certain key life events create the working hypotheses. Accordingly, both divorce and the death of a partner are supposed to create negative health consequences in old-age.

## 6.3 Control model: Health among the Swiss elderly

| Ref. Independent | In diff. | Dependent |
|---|---|---|
| Women | 1.77*** | 2.77*** |
| Canton Valais (Ref. Geneva) | 1.09 | 0.83 |
| Bern | 0.68* | 0.29*** |
| Basel | 0.78 | 0.52** |
| Ticino | 1.11 | 0.95 |
| Age group 70-74 (Ref. 65-69) | 1.30 | 5.91 |
| 75-79 | 1.65* | 13.46** |
| 80-84 | 3.58*** | 28.16*** |
| 85-89 | 6.40*** | 54.77*** |
| 90+ | 14.94*** | 219.78*** |
| Constant | 0.05*** | 0.002*** |
| Akaike Inf. Crit. | 2,044.14 | 2,044.14 |
| *Note: *p<0.1; **p<0.05; ***p<0.01* | | |

*Table 78: Control model for functional health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Multinomial logit model displaying odds-ratios*

The results for the control model show three clearly emerging patterns (see table 78). Firstly, there is an important gender-effect. For people with minor physical problems, (corresponding to the category of„in difficulty“), women have an odds-ratio of 1.77, meaning a 77% increase compared to people who are completely healthy. For people with serious functional health impairments that render it impossible for them to tackle their daily lives independently (people who are „dependent“) women have an even greater odds of being situated in this category as expressed with the odds-ratio of 2.77. Such substantial results for gender-differences confirm the working hypotheses which did posit a strong relationship between health-inequalities and gender.

The second strong effect that can be seen is related to age. Clearly, the older people get the higher the risk for showing health problems. For being in difficulty, the increased odds becomes visible starting from 75-79 years of age with an odds-ratio of 1.65. It then increases to reach 3.58 for people aged 80-84 and then continuously increases even further: People aged 85-89 show an odds-ratio of 6.4 to be in difficulties and people over 90 years of age have almost 15 times the odds to be in such a situation. These age-patterns are even more pronounced for dependency: For the age-group of 75-79 the odds-ratio lies at 13.46 already and then increases drastically to reach 28.16 for peopled aged 80-84, 54.77 for people between 85-89 years of age and finally, 219.78 for people over 90. This means people over 90 face over 200 times the risk of having health problems that makes them relying on external assistance compared to people aged 65-69. This is a result which was to be expected and is fully in line with the outlined working hypotheses. Connecting this to the theory that was presented in chapter 2, it can be said

that this global age-related pattern reflects to a certain extent what has been called the „natural“ pattern of the aging process. This means an increased risk of suffering from health problems as age progresses. The rest of the chapter will show whether this overall pattern can be differentiated by introducing further covariates. In other words, I will explore the question whether parallel to these natural processes of aging there are socially constructed processes of inequality in health.

The third effect that becomes apparent in this first model is regional-specific. Here, Bern manifests both lesser odds of people in difficulties (odds-ratio of 0.68) as well as people who are dependent (odds-ratio of 0.29). Unlike what was expected based on the theory, the hypothesis of homogenization has to be dismissed. There are weak but existing cantonal differences. Whether these differences can be captured with another variable, with educational differences or the degree of urbanization, for example, will be determined with the following models.

| | Wang depression score (10) |
|---|---|
| Women | 1.49*** |
| Canton Valais (Ref. Geneva) | 0.85*** |
| Bern | 0.66*** |
| Basel | 0.70*** |
| Ticino | 1.04 |
| Age group 70-74 (Ref. 65-69) | 0.99 |
| 75-79 | 1.26*** |
| 80-84 | 1.57*** |
| 85-89 | 1.51*** |
| 90+ | 1.55*** |
| Constant | 0.91 |
| Observations | 2,020 |
| Log Likelihood | -3,134.39 |
| Akaike Inf. Crit. | 6,290.79 |
| *Note: *p<0.1; **p<0.05; ***p<0.01* | |

*Table 79: Control model for mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

When comparing the results for functional health with those of mental health the same effects as for the first health-indicator are found: There is empirical evidence for gender-, age- as well as cantonal effects. Gender differences are confirmed with an exponential coefficient of 1.49, showing a roughly 50% increase in risk for women. Women are thus much more likely to have depressive symptoms in old-age. This pattern has been found for functional health before, even more pronounced. Mental health results confirm this effect for age but in a much less dramatic proportion and with no comparable increasing tendency. The exponentiated model coefficient starts at 1.26 for the age group 75-79 and then remains at a comparable level of roughly 1.5 for the higher age-groups.

Cantonal differences show, similar as before, that the canton Bern manifests a lower prevalence of people with an increased number of depressive symptoms. For mental health the cantonal patterns are much more pronounced though: There is a similarly low result for Basel (0.7 exponentiated coefficient) and Valais (0.85).

Based on this first insight, there are relatively clear patterns related to sex, age as well as canton for both health-indicators. This first insight will be further explored in the following models in order to assess the impact of social stratification.

## 6.4 Social stratification and health in old-age

The second and third block of models for functional and mental health tests the principal hypothesis of social stratification and class-dynamics. According to this framework, it should above all be class-membership measured through educational attainment that predicts whether a person has all the physical resources to tackle the challenges of everyday life or whether a person shows signs of depression. The first block of models part features the covariates education(which is used as a proxy for class-membership) and ethnicity. These are two of the key dimensions of social stratification.

The results for the first block of models are presented in table 80.

| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent |
|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | |
| Women | 1.77*** | 2.77*** | 1.63*** | 2.51*** | 1.76*** | 2.74*** | 1.62*** | 2.50*** |
| Canton Valais (Ref. Geneva) | 1.09 | 0.83 | 1.01 | 0.76 | 1.15 | 0.89 | 1.07 | 0.82 |
| Bern | 0.68* | 0.29*** | 0.65** | 0.28*** | 0.72 | 0.31*** | 0.69* | 0.30*** |
| Basel | 0.78 | 0.52** | 0.80 | 0.54* | 0.80 | 0.54* | 0.83 | 0.57* |
| Ticino | 1.11 | 0.95 | 0.99 | 0.84 | 1.11 | 0.95 | 1.00 | 0.85 |
| Age group 70-74 (Ref. 65-69) | 1.30 | 5.91 | 1.29 | 5.75 | 1.27 | 5.67 | 1.26 | 5.53 |
| 75-79 | 1.65* | 13.46** | 1.59* | 12.75** | 1.63* | 13.09** | 1.56* | 12.48** |
| 80-84 | 3.58*** | 28.16*** | 3.36*** | 25.82*** | 3.55*** | 27.63*** | 3.34*** | 25.48*** |
| 85-89 | 6.40*** | 54.77*** | 6.14*** | 51.26*** | 6.36*** | 54.33*** | 6.12*** | 51.15*** |
| 90+ | 14.94*** | 219.78*** | 14.90*** | 213.69*** | 15.04*** | 220.81*** | 15.05*** | 216.10*** |
| Low education (Ref. apprenticeship) | | | 1.45** | 1.63 | | | 1.42* | 1.59 |
| Higher education | | | 0.63*** | 0.69 | | | 0.62*** | 0.68 |
| Not Swiss origin | | | | | 1.28 | 1.43 | 1.29 | 1.41 |
| Constant | 0.05*** | 0.002*** | 0.07*** | 0.002*** | 0.05*** | 0.002*** | 0.06*** | 0.002*** |
| Akaike Inf. Crit. | 2,044.14 | 2,044.14 | 2,026.84 | 2,026.84 | 2,045.21 | 2,045.21 | 2,027.97 | 2,027.97 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 80: Social stratification model 1 for functional health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Multinomial logit model displaying odds-ratios*

Two conclusions can be drawn from these results. Firstly, with the inclusion of these first two social stratification variables the patterns of age-, sex- and cantonal-related differences largely persist in terms of significance and remain practically at their identical strength as in the control model. Secondly, education has a significant effect on functional health differences which confirms the key hypothesis of social stratification and the importance of class in old-age. More specifically, the significant impact of low education hints at important "intra-class" dynamics between unskilled and skilled workers. The effect for high-education reveals inter-class differences between skilled workers and capitalists with a form of higher education. Swiss origin does not show any impact which means that this dimension of social stratification seems to be irrelevant with regards to this dimension of inequalities.

More in detail: In the control model which is shown in the first two columns of the table, the effect of gender lies at 1.77 for people who are in difficulties and at 2.77 for people who are dependent. In the model that includes the variable education this odds-ratio changes only marginally to 1.63 and 2.51 which indicates that there might, if ever, only be a small part of gender differences that is captured with educational differences but the significant impact of gender remains unchanged. For the model that features Swiss origin, gender remains at the same level as in the control model (1.76 and 2.74). In the full model that features both of these variables gender remains equally unchanged. As has already been explained for the control model, this confirms the working hypotheses of gender-specific health-patterns. Interestingly, and in complete contrast with the previous chapter where gender-differences were entirely captured with the addition of educational status and other variables off social stratification, this is not at all the case for functional health.

The same logic applies to cantonal differences: In the reference model Bern shows a decreased odds-ratio of 0.68 for people in difficulty and of 0.29 for people being dependent. Basel shows a slightly decreased odds-ratio of 0.52 but only for people who are dependent. The values in this reference model remain practically unchanged as was the case for gender-differences before: For Bern the odds-ratios are situated at 0.65 and 0.28 for the educational model, at 0.72 and 0.31 for the Swiss-origin model and finally at 0.69 and 0.30 for the full model. Basel remains at practically the same level all through these models as well (0.52, 0.54, 0.52, 0.57). This result indicates that cantonal differences are not related to differences in the composition of the population in terms of education or Swiss origin. Again, this leaves the possibility open that cantonal differences are the result of different social-policies in these cantons.

Also, the strong age-patterns remain the same with an increase in the odds-ratios for both, people being in difficulty and even more so for people being dependent. As an illustration: People aged 90 years and older who clearly show the most striking patterns in the control model with a highly increased-odds-ratio of 14.94 for being in difficulty and of 219.78 for being dependent will see the same odds-ratios over the whole model with only marginal changes. In the educational model the odds-ratios remain constant at 14.90 for being in difficulties and at 213.69 for being dependent; for the Swiss origin model these values lie at 15.04 for being dependent and at 220.81 for being in

difficulties and finally, in the full model the odds-ratio for being dependent is at 15.05 for being in difficulty and at 216.10 for being dependent. As has been commented in the previous part regarding the control model, the „natural“ age-related pattern remains even with the inclusion of social stratification variables.

Educational differences show patterns that correspond to the working hypotheses for social stratification and class-theories but they only apply for people being in difficulties and not for people being dependent. Specifically, people with a higher education show decreased odds-ratios in the order of 0.63 and parallel to this, people with lower education show increased odds-ratios of 1.45. With regards to the working hypotheses, this result is quite interesting. As has already been commented in the previous part on the control model: A large body in the health literature (above all in life course epidemiology) posits that health is a phenomenon that is composed of two main forces. First, it follows a natural pattern - („normal“ aging) with „naturally“ occurring higher prevalence of health problems with increasing age – and second, there is also anon-normal pattern that depends on a variety of social variables. Concerning the latter, socioeconomic position has been proven as a constant and robust predictor of health. The results for the educational model show that this second component of health, the socially constructed health component, does indeed exist. However, is appears that the influence of such social forces is limited to the category „being in difficulty“ and not to being dependent. Dependency, it appears, is largely a function of age and less prone to other social variables. Also, the very strong effect that age – and with this the „natural“ aging-process – present cannot be captured by educational achievements and class membership.

In terms of life-course dynamics, the results for the variable education can also be interpreted as somewhat of a support for both critical life period as well as cumulative disadvantage theory. Both of these theories place cardinal importance on the earliest life-stages. Education, which is exactly such an achievement that is acquired in the earliest life-stages turns out to be a significant predictor for health in old-age. However, the overwhelming fact remains that health in old-age seems to be even more affected by sex and age. As has argued before, this might indicate that there are either other, supplementary social forces which create these age- and sex-related patterns or that certain biological factors are at the root of these patterns. Life course epidemiology, as described in the theory chapter, might indeed offer an adequate framework for these findings. The basic assumption that both natural and socially constructed aging patterns affect the aging process and with it people's health-condition, might indeed hold true. For the life course this also means that health in old-age might be an area of study that is somewhat unique to this life-stage.

Furthermore, in contrast with the previous chapter on financial resources, Swiss origin does not seem to have any impact at all. Unlike the working hypotheses, the results suggest that people with a non-Swiss background do not significantly follow different health-dynamics. The full model that is show in column 7 and 8 of table 80 shows that Swiss origin and educational levels are not mediated by each other as the odds-ratios remain at the same level as in their respective models.

Overall, the model with the covariate education seems to capture certain dynamics in health, a conclusion that is supported with the fact that the score for the Aikaike Information Criterion (AIC) decreases slightly from 2044.14 in the control model to 2026.84 in the educational model. Also, as has been stated before, the addition of Swiss origin does not increase the model's capacity to capture the underlying dynamics. This is shown in the stagnating AIC scores for the Swiss origin model (AIC score of 2045.21) and for the full-model (AIC score of 2027.97).

The next section will specify the results for the second health-indicator which is the Wang depression score. Based on the results for functional health it will be highly interesting whether education fails to capture any of the gender-, age- and canton-related patterns but has a significant impact on its own.

| | Wang depression score (10) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Women | 1.49*** | 1.45*** | 1.48*** | 1.45*** |
| Canton Valais (Ref. Geneva) | 0.85*** | 0.84*** | 0.87** | 0.86** |
| Bern | 0.66*** | 0.66*** | 0.69*** | 0.69*** |
| Basel | 0.70*** | 0.71*** | 0.72*** | 0.72*** |
| Ticino | 1.04 | 1.02 | 1.05 | 1.03 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.99 | 0.98 | 0.97 |
| 75-79 | 1.26*** | 1.24*** | 1.25*** | 1.23*** |
| 80-84 | 1.57*** | 1.53*** | 1.56*** | 1.52*** |
| 85-89 | 1.51*** | 1.47*** | 1.50*** | 1.47*** |
| 90+ | 1.55*** | 1.51*** | 1.55*** | 1.52*** |
| Low education (Ref. apprenticeship) | | 1.18*** | | 1.16** |
| Higher education | | 0.99 | | 0.98 |
| Not Swiss origin | | | 1.17*** | 1.15*** |
| Constant | 0.91 | 0.92 | 0.88* | 0.89 |
| Observations | 2,020 | 2,020 | 2,020 | 2,020 |
| Log Likelihood | -3,134.39 | -3,129.17 | -3,129.95 | -3,125.27 |
| Akaike Inf. Crit. | 6,290.79 | 6,284.34 | 6,283.89 | 6,278.54 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | |

*Table 81: Social stratification model 1 and mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

The results for mental health (table 81) confirm the main conclusion from the block of nested models focusing on functional health in that they show the persistence of all age-, regional- and gender-related patterns that have been identified in part 6.1 on the control model. The main difference is found in the fact that Swiss origin does have a significant effect. While Swiss origin did not show any effect on health for the functional health measure, it does seem to be a factor that impacts people's mental health. Its

exponentiated coefficient is significant even though it is so at a rather low level of 1.17. More in detail, gender-differences are situated at an exponentiated coefficient of 1.49 in the control model which is shown in the first column of table 81. In all following models, this value remains at a similar level (1.45 for the educational model, 1.48 for the Swiss-origin model and 1.45 for the full model). The cantonal differences with Valais (exponentiated coefficient of 0.85), Bern (0.66) and Basel (0.70) showing a lower risk of mental health problems continue to be valid through all of the models in this block. Finally, the age-related patterns follow the same logic that has been described for the control model in 6.1 and stays unchanged throughout all the following nested models.

Whereas for functional health education had both a protective effect – people with higher education had less functional health problems – as well as a penalizing effect – people with lower education suffered more from functional health problems – only the latter applies to the case of mental health. The exponentiated coefficient of 1.18 signifies that individuals with a lower level of education have almost a 20% increased chance of having a higher count of depressive symptoms in old-age compared to people with an apprenticeship. Again, this is very much in line with the working hypotheses which posit that people in lower social classes are at a disadvantage through a multitude of mechanisms.

Finally, people of non-Swiss origin manifest an increased risk for mental health problems in roughly the same order as people with lower education. The interpretation for this result is the same: Non-Swiss people might have been situated in professional and social contexts which increase the chance for health problems. Since in this context this refers to mental health problems in particular, the relevant context might be related to having experienced an international migration, perhaps being separated from one's family, being in a foreign environment, suffering from a language barrier, experiencing more pressure and anxiety at the work place, and so on (Zufferey, 2014).

In summary, this block of models that focused on mental health shows that social stratification in this dimension seems is present. In addition to education, mental health also seems to depend on a person's country of origin. Yet, the combination of both of these factors still fails to capture the initial patterns related to age, gender and canton.

These results can lead to the following conclusion: As described in life course epidemiology, health is a phenomenon that has two main components. The first being a „natural“ pattern according to which there is a natural tendency of elderly people to experienced health problems. Parallel to this, there is a socially constructed „non-normative“ aging process, which seems to be related to social factors and health inequalities. For the latter, the socially constructed process, the found evidence might also be regarded as being coherent with theories of critical life period and the cumulative disadvantage literature. The results very much confirm the existence of these two patterns, whereas the „natural“ pattern is overwhelmingly stronger and is not affected by social influences. Nevertheless, social factors do have an impact on health in old-age and thus confirm the existence of such non-normative health processes.

The next section focuses on deepening this notion of non-normative aging patterns and health-inequalities that are related to socioeconomic position and class. In order to do so, the next section is centered around multiple indicators of socioeconomic position and class: First job, last job and the household's highest socioeconomic position.

Table 82 shows the results of this second block of analyses concerning social stratification for the indicator of functional health. The primary main conclusion is, yet again, that all of the main effects that have been identified for the control model and that have persisted through the first block of social stratification models remain stable. Accordingly, there are roughly the same gender, age and cantonal effects as in the control and educational model. One slightly counter-intuitive effect concerns the slight increase in gender-differences for the second model that is based on the covariate „first job“. In that model the odds-ratio for gender reaches 2.01 for people who are in difficulty whereas it was of 1.63 for the educational model. Moreover, people who are dependent have a gender-specific odds-ratio of 3.00 in this second model which represents a roughly 20% increase in odds. Gender-differences become even more apparent once the model controls for a person's first job.

The second main information that can be derived from these results is once again that the class-dynamic and social stratification hypothesis holds true: Those categories which refer to lower classes such as blue collar workers (manual workers) show increased odds-ratios for health problems. For the indicator first job, blue collar workers show higher odds-ratios for being in difficulty as well as being dependent. For the second and third indicators of socioeconomic position and their respective models the „penalizing“ effect being a blue-collar worker is more pronounced but is limited to the category of being dependent: It is situated at 2.55 for the model „last job“ and at 2.58 for the model capturing the household's socioeconomic position. Parallel to this, people in higher socio-professional categories (upper and management professions) show a protective effect. However, this effect is only found for the variables „last job“ and „household socioeconomic position“ (the third nested model in this block). More specifically, people who last worked in upper class or management professions have a roughly 40% decreased odds of being in difficulties (the exact odds-ratio is 0.66). Adjusted to the highest ranking job in the household level, this result is situated at 0.62. People who were self-employed in their first job show an increased odds of being in difficulties in the order of 2.33.

This second block of social stratification models featuring these additional indicators of socioeconomic position clearly confirmed the findings of the first block. Once again, they give full support of the working hypotheses for social stratification. Clearly, there are significant class-differences in health even though they are not able to capture the even more pronounced age, sex and cantonal differences.

In terms of life course dynamics, this result must be interpreted in the same way as has been done up until now: Among all models, the educational model remains the most convincing with the lowest score for the AIC. Hence, theories for critical life period and cumulative disadvantage are confirmed. Yet, they only capture a marginal part of

variation in social inequalities in old-age health and the major part seems to be related to patterns of sex and above all age. With this strong dependency on age, health in old-age seems to be a phenomenon that is quite distinct from the rest of the population in other life-stages.

| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent |
|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | |
| Women | 1.63*** | 2.51*** | 2.01*** | 3.00*** | 1.56*** | 2.89*** | 1.57*** | 2.72*** |
| Canton Valais (Ref. Geneva) | 1.01 | 0.76 | 1.00 | 0.78 | 1.04 | 0.76 | 1.03 | 0.77 |
| Bern | 0.65** | 0.28*** | 0.64** | 0.27*** | 0.66** | 0.30*** | 0.65** | 0.29*** |
| Basel | 0.80 | 0.54* | 0.78 | 0.51** | 0.77 | 0.54* | 0.76 | 0.54* |
| Ticino | 0.99 | 0.84 | 1.01 | 0.83 | 1.04 | 0.79 | 1.00 | 0.79 |
| Age group 70-74 (Ref. 65-69) | 1.29 | 5.75 | 1.33 | 5.77 | 1.33 | 6.10* | 1.30 | 6.06* |
| 75-79 | 1.59* | 12.75** | 1.63* | 12.96** | 1.65* | 13.18** | 1.57* | 12.76** |
| 80-84 | 3.36*** | 25.82*** | 3.42*** | 25.88*** | 3.41*** | 24.41*** | 3.24*** | 24.05*** |
| 85-89 | 6.14*** | 51.26*** | 6.25*** | 51.94*** | 6.19*** | 51.52*** | 5.78*** | 50.72*** |
| 90+ | 14.90*** | 213.69*** | 15.26*** | 216.48*** | 15.00*** | 209.11*** | 13.85*** | 198.92*** |
| Low education (Ref. Apprenticeship) | 1.45** | 1.63 | | | | | | |
| Higher education | 0.63*** | 0.69 | | | | | | |
| CSP: Upper class (Ref. White collar) | | | 0.92 | 0.80 | 0.66** | 1.00 | 0.62*** | 0.82 |
| Self-employed | | | 2.33** | 2.26 | 1.16 | 1.77 | 0.98 | 1.25 |
| Intermediary | | | 0.53** | 0.65 | 0.70 | 0.76 | 0.73 | 0.84 |
| Blue collar | | | 1.45** | 1.66* | 1.06 | 2.55*** | 1.11 | 2.58*** |
| Inactive | | | 0.56 | 2.43 | 1.23 | 1.85 | 1.50 | 1.38 |
| Constant | 0.07*** | 0.002*** | 0.05*** | 0.002*** | 0.07*** | 0.002*** | 0.07*** | 0.002*** |
| Akaike Inf. Crit. | 2,026.84 | 2,026.84 | 2,037.21 | 2,037.21 | 2,044.38 | 2,044.38 | 2,042.74 | 2,042.74 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 82: Social stratification model 2 for functional health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Multinomial logit model displaying odds-ratios*

| | Wang depression score (10) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Women | 1.45*** | 1.53*** | 1.47*** | 1.46*** |
| Canton Valais (Ref. Geneva) | 0.84*** | 0.83*** | 0.84*** | 0.83*** |
| Bern | 0.66*** | 0.66*** | 0.67*** | 0.67*** |
| Basel | 0.71*** | 0.70*** | 0.71*** | 0.70*** |
| Ticino | 1.02 | 1.02 | 1.01 | 0.99 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.99 | 0.99 | 0.99 |
| 75-79 | 1.24*** | 1.25*** | 1.25*** | 1.24*** |
| 80-84 | 1.53*** | 1.55*** | 1.53*** | 1.50*** |
| 85-89 | 1.47*** | 1.49*** | 1.49*** | 1.46*** |
| 90+ | 1.51*** | 1.53*** | 1.54*** | 1.50*** |
| Low education (Ref. Apprenticeship) | 1.18*** | | | |
| Higher education | 0.99 | | | |
| CSP (First, last, household): Upper class (Ref. White collar) | | 1.01 | 0.95 | 0.95 |
| Self-employed | | 1.05 | 0.94 | 0.94 |
| Intermediary | | 0.88* | 1.01 | 1.11 |
| Blue collar | | 1.10* | 1.19*** | 1.40*** |
| Inactive | | 1.02 | 1.10 | 1.15 |
| Constant | 0.92 | 0.90 | 0.92 | 0.92 |
| Observations | 2,020 | 2,020 | 2,020 | 2,020 |
| Log Likelihood | -3,129.17 | -3,129.60 | -3,127.66 | -3,116.53 |
| Akaike Inf. Crit. | 6,284.34 | 6,291.19 | 6,287.33 | 6,265.05 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 83: Social stratification model 2 for mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

All of the patterns that have so far been discussed regarding social stratification and health in old-age are supported by the findings for mental health shown in table 83. Just as before, all of the gender-, age- and cantonal-specific effects remain constant through all the models. Gender effects are situated at 1.45 for the reference educational model and remain at that level for the model containing the variable first job (exponentiated coefficient of 1.53), last job (exponentiated coefficient of 1.47) and for household socioeconomic position (exponentiated coefficient of 1.46). Cantonal differences remain equally strong with Valais, Bern and Basel showing lower values and thus featuring less individuals with increased depressive symptoms compared to Geneva. Age-effects also remain constant and in the general order of what has been described in the control and educational models. Finally, confirming the social stratification hypothesis, blue-collar workers consistently show increased exponentiated coefficients for depression. This finding is equally stable across the various indicators of socioeconomic position: 1.10 for first job, 1.19 for last job and 1.4 for the households highest ranking job.

So far I have shown that health in old-age is a phenomenon that is strongly determined by age. Also, there considerable gender and cantonal differences can be found. None of these strong patterns can be explained with any sort of social stratification criteria, neither with education, neither by a person's country of origin (being Swiss or not), nor with a person's first, last or the household's highest ranking last job. However, despite not being able to capture these main patterns, almost all of the aforementioned social stratification indicators have a considerable and independent impact on health in old-age. This applies both to functional as well as mental health (depression). In short: The main „paradox“ that this thesis has put forward, the continuing persistence of socioeconomic inequalities in health is fully confirmed based on the VLV dataset. The following part will aim to assess whether there are any external, associated variables that influence this main relationship in any way.

## 6.5 Factors associated with health in old-age

The models in this section have an important policy component: Many programs that are put into practice by federal agencies focus on specific sub-groups (which can be identified with variables such as those featured in this block of analyses) that are considered to be at a disadvantage and which should be specifically supported.

| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| Women | 1.63*** | 2.51*** | 1.63*** | 2.45*** | 1.62*** | 2.36*** | 1.63*** | 2.51*** | 1.66*** | 2.30*** |
| Canton Valais (Ref. Geneva) | 1.01 | 0.76 | 1.07 | 0.87 | 1.09 | 0.77 | 0.92 | 0.76 | 1.04 | 0.84 |
| Bern | 0.65** | 0.28*** | 0.66* | 0.28*** | 0.69* | 0.28*** | 0.62** | 0.28*** | 0.65* | 0.27*** |
| Basel | 0.80 | 0.54* | 0.80 | 0.63 | 0.85 | 0.55* | 0.78 | 0.55* | 0.84 | 0.64 |
| Ticino | 0.99 | 0.84 | 0.98 | 0.92 | 1.07 | 0.85 | 0.92 | 0.86 | 0.98 | 0.91 |
| Age group 70-74 (Ref. 65-69) | 1.29 | 5.75 | 1.28 | 5.65 | 1.28 | 5.62 | 1.29 | 5.74 | 1.29 | 5.51 |
| 75-79 | 1.59* | 12.75** | 1.54 | 12.61** | 1.61* | 12.44** | 1.59* | 12.75** | 1.60* | 12.42** |
| 80-84 | 3.36*** | 25.82*** | 3.28*** | 25.27*** | 3.62*** | 25.05*** | 3.38*** | 25.97*** | 3.65*** | 25.01*** |
| 85-89 | 6.14*** | 51.26*** | 5.81*** | 46.67*** | 7.05*** | 49.95*** | 6.20*** | 51.51*** | 6.92*** | 46.61*** |
| 90+ | 14.90*** | 213.69*** | 13.88*** | 178.99*** | 16.92*** | 204.32*** | 14.82*** | 215.09*** | 16.18*** | 173.58*** |
| Low education (Ref. apprenticeship) | 1.45** | 1.63 | 1.43* | 1.70 | 1.46** | 1.62 | 1.46** | 1.64 | 1.46** | 1.69 |
| Higher education | 0.63*** | 0.69 | 0.65*** | 0.77 | 0.62*** | 0.68 | 0.63*** | 0.69 | 0.62*** | 0.76 |
| Living situation: Assisted (Ref. Home) | | | 1.99* | 0.74 | | | | | 1.93* | 0.7 |
| Institution | | | 2.79 | 11.64*** | | | | | 2.87 | 11.74*** |
| With other people | | | 2.47** | 2.36 | | | | | 2.20* | 2.13 |
| Single (Ref. Married) | | | | | 1.32 | 1.14 | | | 1.3 | 1.08 |
| Widow | | | | | 0.94 | 1.19 | | | 0.88 | 1.18 |
| Separated/Divorced | | | | | 2.15*** | 1.49 | | | 2.08*** | 1.59 |
| Region: Intermediary populated (Ref. Dense) | | | | | | | 1.08 | 0.94 | 1.07 | 0.99 |
| Out of Switzerland | | | | | | | 0.96 | 0.80 | 0.96 | 0.96 |
| Thinly populated | | | | | | | 1.33 | 1.10 | 1.34 | 1.22 |
| Constant | 0.07*** | 0.002*** | 0.06*** | 0.002*** | 0.06*** | 0.002*** | 0.07*** | 0.002*** | 0.05*** | 0.002*** |
| Akaike Inf. Crit. | 2,026.84 | 2,026.84 | 1,998.22 | 1,998.22 | 2,026.18 | 2,026.18 | 2,036.92 | 2,036.92 | 2,022.80 | 2,022.80 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 84: Associated factors and functional health in old-age. Source: Own calculations based on VLV, 2011. Note: Multinomial logit model displaying odds-ratios*

Functional health has so far proven to be an indicator that is strongly related to age, gender and canton and beyond that, has proven to be highly robust with regards to any additional variables which are tested in this chapter. This statement largely applies to the results that are found for the block of models concerning so-called „external“ factors - factors that have been identified by the literature as having an important effect on health. Once again, the primary conclusion to be drawn from the results is that generally, age-, sex- and canton- as well as educational and class-related patterns in functional health persist throughout all models in this block.

Other than this, this block of models demonstrates the importance of certain specific characteristics for functional health in old-age. Above all, the first model shows one variable that represents the major exception to the previous statement as it provokes some shifts in the age-effects. This variable is„living situation“. Obviously, since this indicator specifies whether a person lives at home, in an institution, in an assisted home-living situation or with relatives or friends, it has considerable explanatory force and captures some of the other effects. More specifically, this variable shows that people who are living at home but with assistance have around twice the odds of being in physical difficulties compared to people who are independent. Also, individuals who are living in care-institutions have roughly 11.5 times the odds of being completely dependent on other people to manage their daily lives. These two results are nothing but obvious: Home-assistance obviously is only required for people with minor physical impairments and living in an institution principally concerns individuals with major physical impairments. A result that provides some interesting insight is that respondents who indicated to be living with other people (their own children, friends or other family members) have around 2.5 times the odds of being in difficulty. This result might indicate that there are people with minor health problems that, instead of living in home-assisted settings, chose or are forced to live with other people who provide care and assistance. It is important to remember that in the previous chapter, this living arrangement has also turned out to be particularly prone to financial hardship. Hence, people who live in these circumstances are most likely those who cannot afford commercial care-giving solutions.

The second variable that was tested for is civil status. In the working hypotheses I posited that living in a relationship should be a factor that is protective of one's health and opposed to that, living alone – in other words, being single, divorced or widow – are factors that have been shown to be negatively associated with health. The result of the logistic regression model only identifies people who are divorced as being slightly more than twice as likely to be experiencing minor physical health problems in old-age compared to those who are completely independent. However, civil status does not provoke any shifts in any of the gender, age or cantonal effects. Most importantly, it does not change educational and class differences either.

The third model included a geographical variable that captured respondent's environment in terms of urbanization. It is particularly interesting to assess whether cantonal differences are captured. However, this is not the case. Neither does this variable have any effect on its own or on any of the other aforementioned effects.

Finally, the full model features all of the previous variables. However, it does not give any insights in any mediator effects among them. Their odds-ratios remain stable, just as the other effects concerning gender, canton, age or educational and class differences.

Across all of these models, it appears that the second model that is centered around the variable living situation offers the best fit for the data. This is reflected in the AIC score of 1998.22 for this model which, especially compared to the reference educational model of 2026.84, is the lowest for this block of models.

| | Wang depression score (10) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Women | 1.45*** | 1.39*** | 1.40*** | 1.45*** | 1.40*** |
| Canton Valais (Ref. Geneva) | 0.84*** | 0.84*** | 0.85** | 0.81*** | 0.85** |
| Bern | 0.66*** | 0.67*** | 0.67*** | 0.66*** | 0.67*** |
| Basel | 0.71*** | 0.72*** | 0.72*** | 0.70*** | 0.72*** |
| Ticino | 1.02 | 1.03 | 1.04 | 0.99 | 1.00 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.97 | 0.97 | 0.99 | 0.97 |
| 75-79 | 1.24*** | 1.21*** | 1.22*** | 1.24*** | 1.22*** |
| 80-84 | 1.53*** | 1.48*** | 1.51*** | 1.52*** | 1.48*** |
| 85-89 | 1.47*** | 1.41*** | 1.45*** | 1.47*** | 1.42*** |
| 90+ | 1.51*** | 1.43*** | 1.47*** | 1.51*** | 1.44*** |
| Low education (Ref. apprenticeship) | 1.18*** | 1.18*** | 1.17*** | 1.18*** | 1.16** |
| Higher education | 0.99 | 0.99 | 0.98 | 0.99 | 0.99 |
| Living situation: Assisted (Ref. Home) | | 1.29** | | | 1.27* |
| Institution | | 1.36 | | | 1.34 |
| With other people | | 1.64*** | | | 1.55*** |
| Single (Ref. Married) | | | 1.08 | | 1.11 |
| Widow | | | 1.11** | | 1.09 |
| Separated/Divorced | | | 1.29*** | | 1.26*** |
| Region: Intermediary populated (Ref. Dense) | | | | 1.08 | 1.07 |
| Out of Switzerland | | | | 0.91 | 0.92 |
| Thinly populated | | | | 0.98 | 0.97 |
| Constant | 0.92 | 1.04 | 0.89* | 0.91 | 0.87* |
| Observations | 2,020 | 2,020 | 2,020 | 2,020 | 2,020 |
| Log Likelihood | -3,129.17 | -3,125.11 | -3,122.07 | -3,127.02 | -3,119.71 |
| Akaike Inf. Crit. | 6,284.34 | 6,278.22 | 6,276.15 | 6,286.03 | 6,279.43 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | |

*Table 85: Associated factors and mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

The results for the block on associated factors and mental health are shown in table 85. They primarily follow the same pattern that has been seen in most previous blocks of models already: The basic effects for gender, canton and age remain unchanged throughout all of these models. They remain at the same level as in the educational model, which once again serves as reference model, while certain variables do turn out to have an effect on their own.

Firstly, as was the case for functional health, the variable living situation has a strong impact. People who are living in situations of home-assistance or who are living with others are more susceptible to be experiencing mental health difficulties. The increase is in the order of roughly 30% for people living with home-assistance and 64% for individuals living with other people. Differently than what would have been expected, living in a care institution is not a factor that seems to increase depressive symptoms.

Regarding civil status, the working hypotheses are confirmed: Both, being divorced or separated and being a widow both increase the susceptibility for depression in old-age. This confirms the findings in the literature that these events are significant occurrences which trigger considerable stress and thus have a major impact on mental health. While the working hypotheses posited that marriage might be a protective factor for mental health problems and thus the resulting exponentiated coefficients should reflect this, no evidence has been found to support this. The geographical context variable does not have any impact on its own, nor does it change any of main effects for gender, age, education or canton.

Finally, the full model demonstrates that none of these variables in this block are influencing each other. All exponentiated coefficients remain stable at their respective levels compared to the individual models. AIC scores for the best fitting model once again suggest that the variable living situation captures the underlying dynamics best and that this variable improves the model when compared with the educational model.

So far, the analyses in this chapter have all reinforced the social stratification paradigm. The following two blocks of models will again challenge this finding by testing two different paradigms. Firstly, I will test whether there is evidence for the theory that emphasizes *personal traits* such as people's personality. This is the focus of the following part. In the last two parts, the focus will then shift towards a life course perspective. Again, it will be assessed whether it can provide insights into the underlying dynamics of social stratification or whether it even may disqualify the latter by providing evidence for a biographization and individualization framework for the construction of health inequalities.

## 6.6 Personality traits and health in old-age

The persistence of socioeconomic inequalities in health is the paradox which is at the core of this chapter. As has been explained extensively, this thesis principally relies on social stratification and class-theory as frameworks to explain the latter. To extend such a

framework and to test its validity, this thesis extends its analysis to include a life course perspective as well. However, social stratification and life course perspective are merely two among a multitude of other theories and frameworks that have been identified by health-scholars as holding considerable potential to explain this paradox – see the review and synthesis of the state-of-the-art in the field by Mackenbach. A third „paradigm“ that has been identified by Mackenbach (2012) is the „personal traits“ paradigm. It is centered around the idea that personal traits – an individual's „personality“ - are some of the most important determinants of health. Given that the VLV survey included an extensive block of information on psychological aspects including a shortened version of the big 5 personality assessment questionnaire, these variables were included in the analysis as well. They make up the following block of models and thus permit to assess its validity.

| | Functional health (Ref. Independent) | | | |
|---|---|---|---|---|
| | In diff. | Dependent | In diff. | Dependent |
| | (1) | (2) | (3) | (4) |
| Women | 1.63*** | 2.51*** | 1.67*** | 2.49*** |
| Canton Valais (Ref. Geneva) | 1.01 | 0.76 | 1.09 | 0.81 |
| Bern | 0.65** | 0.28*** | 0.75 | 0.29*** |
| Basel | 0.80 | 0.54* | 0.87 | 0.55* |
| Ticino | 0.99 | 0.84 | 1.02 | 0.84 |
| Age group 70-74 (Ref. 65-69) | 1.29 | 5.75 | 1.22 | 5.32 |
| 75-79 | 1.59* | 12.75** | 1.52 | 12.12** |
| 80-84 | 3.36*** | 25.82*** | 3.19*** | 24.89*** |
| 85-89 | 6.14*** | 51.26*** | 6.53*** | 53.79*** |
| 90+ | 14.90*** | 213.69*** | 15.97*** | 229.21*** |
| Low education (Ref. apprenticeship) | 1.45** | 1.63 | 1.51** | 1.67 |
| Higher education | 0.63*** | 0.69 | 0.60*** | 0.65 |
| Big 5: Extraversion | | | 0.98 | 1.08 |
| Big 5: Agreeability | | | 1.08* | 1.00 |
| Big 5: Conscientiousness | | | 0.86*** | 0.83*** |
| Big 5: Neuroticism | | | 1.17*** | 1.12 |
| Big 5: Openness | | | 0.93* | 0.94 |
| Constant | 0.07*** | 0.002*** | 0.09*** | 0.005*** |
| Akaike Inf. Crit. | 2,026.84 | 2,026.84 | 2,008.79 | 2,008.79 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 86: Personality traits and functional health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Multinomial logit model displaying odds-ratios*

Table 86 shows the results of personal traits for functional health. Once again, the main message from this block is relatively straightforward: Certain personal traits do have an effect on functional health in old-age. Yet, as a whole, they fail to capture the major patterns related to sex, age, canton or education.

More in detail, the first column of table 86 shows the educational model which serves as a reference model. The second column features five variables related to personality. The results then show that most of the cited main effects that are found in the educational model remain constant. There are two areas where there are marginal shifts: The effect for cantonal differences for people being in difficulty in the canton Bern is slightly captured with the addition of personality covariates. The same capturing effect can be observed in the age-group of individuals aged 75-79. Whereas in the educational model individuals in this age-group have an odds-ratio of 1.59 suggesting that they are roughly 60% more likely to be experiencing minor health impairments, this effect disappears in the personality traits model. In other words: That initial difference was apparently due to differences in personality. However, despite these two shifts the majority of effects remains constant. Personality, it can thus be concluded, does not capture these effects at large. Hence, the social stratification framework still remains a valid and relatively robust framework for the conceptualization of health inequalities in old-age.

On their own, personality traits have significant impact on health, most importantly for people who are in difficulty. Overall, there are two personality traits that turn out to have protective properties and two might, based on these results, have negative health consequences. Agreeability, which is basically the level of empathy that a person manifests, is a factor that increases the risk for minor health impairments in old-age. Similarly, neuroticism is also a factor that increases the odds for physical health problems. The order of this increase is roughly 20% compared with people who have no health problems at all. Protective personality traits are conscientiousness on one hand and openness on the other hand. Simply put, conscientiousness means being organized, thorough, and having the drive of wanting to do a task well. People who score high on this personality dimension have less health problems overall: Less minor functional health problems as well as less major physical impairments. Openness, the other personality trait that is protective against negative health outcomes, can roughly be regarded as the level of curiosity that a person has. The odds-ratio of 0.93 for people who are in difficulty means that people with a higher score for openness have a marginally lower chance of 7% to have minor health problems in old-age.

The fact that these personality traits show relatively strong patterns indicates that the paradigm of personal traits does indeed apply. The literature usually presents these various theories as being distinct „paradigms“ which implies to a large extent that they should be considered as being mutually exclusive. However, the results in this section suggest that multiple paradigms can be at work at the same time and that the theories are much more complementary than opposing each other. While I have so far found strong evidence for dynamics of social stratification in health, there is just as much evidence that personal traits are an additional dimension that create health inequalities.

Another key conclusion that can be drawn from this finding regards the impact of the earliest life-stage. The literature generally agrees on the fact that personality is mostly stable across the life course. Hence, this finding is fully compatible with life course theories of critical life period and cumulative disadvantage. In this respect, the life course-related conclusions in this section rejoin those that have been made for social stratification. Nevertheless, the continuing existence of such strong age effects also suggests that age is an even more important predictor – and with it the whole life-stage of retirement as a whole – that influences respondents *in addition* to the influence of earliest life-stages. This conclusion can be investigated even further by analyzing these dynamics in the area of mental health.

| | Wang depression score (10) | |
|---|---|---|
| | (1) | (2) |
| Women | 1.45*** | 1.47*** |
| Canton Valais (Ref. Geneva) | 0.84*** | 0.85** |
| Bern | 0.66*** | 0.72*** |
| Basel | 0.71*** | 0.75*** |
| Ticino | 1.02 | 1.01 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.97 |
| 75-79 | 1.24*** | 1.22*** |
| 80-84 | 1.53*** | 1.47*** |
| 85-89 | 1.47*** | 1.47*** |
| 90+ | 1.51*** | 1.48*** |
| Low education (Ref. apprenticeship) | 1.18*** | 1.19*** |
| Higher education | 0.99 | 0.98 |
| Big 5: Extraversion | | 0.95*** |
| Big 5: Agreeability | | 1.03** |
| Big 5: Conscientiousness | | 0.96*** |
| Big 5: Neuroticism | | 1.10*** |
| Big 5: Openness | | 0.98* |
| Constant | 0.92 | 0.98 |
| Observations | 2,020 | 2,020 |
| Log Likelihood | -3,129.17 | -3,078.85 |
| Akaike Inf. Crit. | 6,284.34 | 6,193.70 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 87: Personality traits and mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

For the second indicator of health, the Wang depression score, the results for personal traits practically mirror the findings in the previous part on functional health. As can be seen when comparing the first two columns of table 87, all of the baseline-effects for

age, sex, canton and education remain stable. The addition of personality traits changes nothing in these patterns. However, all of the five personality traits on their own do have a relatively weak but still significant impact on mental health. Three of the personality traits seemingly have a protective effect with regards to depression and two seemingly increase the risk of depression. The first of these protective personality traits is extraversion. The exponentiated coefficient of 0.95 indicates a 5% decrease of the chance of having depressive symptoms in old-age. Similarly, conscientiousness decreases this risk about 4%. The third factor that reduces depression is openness with a weak but significant exponentiated coefficient of 0.98 reflecting a 2% decrease. Opposed to these protective factors, agreeability, the „empathy" people might manifest in their personality, increases the risk of depression by about 3%. Finally, neuroticism, the only personality trait which did not affect functional health at all, shows a weak yet significant negative impact with regards to depression in the order of 10%.

In conclusion, it can be said that the interpretation that has been formulated following the analysis of personal traits for functional health still holds true for this block of models. Personality, as has been shown, manifests relatively weak but still highly interesting patterns in itself. As a whole block of variables it completely fails in capturing any of the key effects that are visible in the educational model (which is then nested in the personality model). The personal traits paradigm therefore seems to apply and to be an additional source of inequalities in mental health in old-age.

As the results so far have shown, health in old-age shows strong patterns that are related to the stratification criteria gender, age and canton. The main framework which is brought forward in this thesis to explain such patterns of inequalities is the social stratification framework and particularly the focus on class-differences. The block in this chapter that focused on social stratification has confirmed the relevance of this framework for the explanation of health-inequalities. In addition to this primary framework, the last part of this chapter has also demonstrated how personality traits are an additional source of health inequalities. Yet, they seem not to be related to social stratification at all and truly measure an independent and completely separate dimension of influence. Unlike it was the case for economic inequalities that have been studied in a previous chapter, these gender-, age- and regional-specific inequalities are not captured by social stratification and its key variable education. Neither are they convincingly captured with personality traits. In other words: This chapter has so far been able to demonstrate the existence of multiple layers of inequalities in old-age health but has not found any evidence for any relationships between them, much less it was able to demonstrate any root causes of one theory for inequalities at large.

In the next section, the attention turns towards a third paradigm that has been brought forward for the explanation of health inequalities: The life course perspective. As before, the focus now lies even more on the question whether this block of variables is able to capture the main areas of health inequality or whether they can offset any of the previously found patterns of inequalities in health related to education or personality.

## 6.7 Professional trajectories and health in old-age

The first block of life course models is concerned with people's work-trajectories and the impact that they have on health in old-age. In this first block of models I added the variables for people's clustered work-trajectories, social mobility and retirement timing. These variables are described in detail in chapter 3. The typology of work-trajectories is described in the previous chapter. The results of this block of models are shown in table 88.

| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependant |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Women | 1.63*** | 2.51*** | 1.72*** | 2.36*** | 1.59*** | 2.46*** | 1.64*** | 2.54*** | 1.68*** | 2.35*** |
| Canton Valais (Ref. Geneva) | 1.01 | 0.76 | 1.03 | 0.72 | 1.01 | 0.77 | 1.00 | 0.75 | 1.01 | 0.72 |
| Bern | 0.65** | 0.28*** | 0.66* | 0.27*** | 0.66* | 0.28*** | 0.64** | 0.27*** | 0.65** | 0.26*** |
| Basel | 0.80 | 0.54* | 0.82 | 0.52* | 0.80 | 0.54* | 0.77 | 0.51** | 0.78 | 0.49** |
| Ticino | 0.99 | 0.84 | 0.98 | 0.88 | 0.99 | 0.82 | 0.99 | 0.84 | 0.96 | 0.87 |
| Age group 70-74 (Ref. 65-69) | 1.29 | 5.75 | 1.30 | 5.63 | 1.28 | 5.79 | 1.30 | 5.85 | 1.30 | 5.79 |
| 75-79 | 1.59* | 12.75** | 1.61* | 12.15** | 1.59* | 12.88** | 1.60* | 13.04** | 1.63* | 12.53** |
| 80-84 | 3.36*** | 25.82*** | 3.35*** | 25.75*** | 3.28*** | 26.01*** | 3.43*** | 26.70*** | 3.33*** | 26.81*** |
| 85-89 | 6.14*** | 51.26*** | 6.06*** | 51.59*** | 6.00*** | 52.13*** | 6.16*** | 51.92*** | 5.94*** | 52.94*** |
| 90+ | 14.90*** | 213.69*** | 14.88*** | 217.47*** | 14.75*** | 215.86*** | 15.12*** | 218.66*** | 14.95*** | 224.49*** |
| Low education (Ref. apprenticeship) | 1.45** | 1.63 | 1.46** | 1.57 | 1.42* | 1.63 | 1.40* | 1.56 | 1.37* | 1.50 |
| Higher education | 0.63*** | 0.69 | 0.63*** | 0.70 | 0.63*** | 0.68 | 0.65*** | 0.71 | 0.64*** | 0.73 |
| Work trajectory: Q.-full empl. (Ref. Full-empl.) | | | 1.06 | 0.80 | | | | | 1.08 | 0.80 |
| Start and stop | | | 1.06 | 0.83 | | | | | 1.08 | 0.83 |
| Stop and restart | | | 0.49** | 1.72 | | | | | 0.50** | 1.73 |
| Upward social mobility (Ref. stagnation) | | | | | 1.04 | 0.86 | | | 1.05 | 0.88 |
| Downward social mobility | | | | | 0.79 | 1.00 | | | 0.78 | 0.99 |
| Job physically hard | | | | | | | 0.75* | 0.72 | 0.75* | 0.70 |
| Constant | 0.07*** | 0.002*** | 0.07*** | 0.003*** | 0.07*** | 0.002*** | 0.08*** | 0.003*** | 0.09*** | 0.003*** |
| Akaike Inf. Crit. | 2,026.84 | 2,026.84 | 2,022.98 | 2,022.98 | 2,031.79 | 2,031.79 | 2,026.29 | 2,026.29 | 2,027.43 | 2,027.43 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 88: Work-related life course and functional health in old-age Source: Own calculations based on VLV, 2011 Note: Multinomial logit model displaying odds-ratios*

For the block of models concerning people's professional life, the same key finding as for almost all previous blocks of models applies. While some of the integrated covariates do show significant results concerning their impact on health in old-age, none of them is able capture or mediate the basic effects for sex, gender, canton and – most importantly - education. The results thus suggest that the social stratification paradigm remains valid. In addition to the social stratification framework, there is evidence that there are specific life events and even one type of trajectory that is associated with health problems in old-age which would correspond to a framework that emphasizes events.

Most importantly, column 3 and 4 includes the variable for people's clustered work-trajectories. Here, it can be seen that individuals who had a so-called „stop and restart“ trajectory have only about half the odds of experiencing minor health difficulties in old-age. Briefly summarized, a start and restart work trajectory means that people in this cluster started their professional lives normally at the age of roughly 20 years of age, then had a break approximatively around the age of 30 years where they retreated from the formal labor market and finally, they re-entered it again after a hiatus of up to 10 years. This is a trajectory that mainly concerns women, as the analysis in the previous chapter has shown. Yet, the odds-ratio for women remains unchanged. None of the other covariates change either. This finding runs against the working hypothesis which posited that it is above all non-standard work-trajectories that are negatively associated with health in old-age. As it turns out, this result calls for a different interpretation. It is imaginable that people- again, this concerns mainly women - who started working again after a temporary hiatus (which often is related to having children) were particularly resilient and had a capital of good health that enabled them to do so. Thus, in old-age they obviously still are slightly more resilient which creates the stated result of them being in better health.

The second model is based on the variable social mobility. Here, there are no results to speak of. Neither does this factor have any impact on its own, nor does it create any shifts for the other factors in the model.

The third model tests the impact of a job's physical demands on health. As was the case for work-trajectories in the second model, the results for this model are contrary to the sketched out working hypothesis. While I posited that having a physically taxing profession should be associated with an increased odds of health problems in old-age, the contrary is the case. The odds-ratio of 0.75 for people who are in difficulty and who indicated in the survey that they did carry out a physically demanding profession shows that such individuals have a 25% decreased chance of suffering from minor physical impairments in old-age compared to people who are fully independent. The answer to this contradictory finding might be found in one of the key principles in demography and is close to the interpretation of the results concerning the work trajectory: Selection processes. One should never forget that the population which is studied here, „old“ people aged 65 and older, is an already selected population and people with serious health problems might have deceased before they were captured in this survey. Simply put: The population that is captured in the VLV survey does already have one aspect in common which is that they did survive up until the age at which they were interviewed.

This might explain this contradictory finding for the physical strain of a person's work-life. Those with physically straining lives and who were not particularly resilient might have already deceased and thus have disappeared from the population that is studied here. Those who are still alive and included in the survey, on the other hand, are highly resilient and thus might reach relatively high ages.

Finally, the full model does not give any further insights into possible mediator or suppressor effects for which there would be certain shifts in the observed effects. Also, the AIC scores are at a very similar level all through this block of models. This can be interpreted as an indication that none of these models and corresponding variables does capture a significant dimension of health inequality compared to the educational model.

| | Wang depression score (10) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Women | 1.45*** | 1.42*** | 1.43*** | 1.46*** | 1.40*** |
| Canton Valais (Ref. Geneva) | 0.84*** | 0.84*** | 0.84*** | 0.83*** | 0.83*** |
| Bern | 0.66*** | 0.67*** | 0.66*** | 0.65*** | 0.65*** |
| Basel | 0.71*** | 0.71*** | 0.71*** | 0.69*** | 0.69*** |
| Ticino | 1.02 | 1.01 | 1.02 | 1.01 | 1.00 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.99 | 0.99 | 0.99 | 1.00 |
| 75-79 | 1.24*** | 1.24*** | 1.25*** | 1.25*** | 1.25*** |
| 80-84 | 1.53*** | 1.52*** | 1.53*** | 1.55*** | 1.54*** |
| 85-89 | 1.47*** | 1.47*** | 1.48*** | 1.47*** | 1.47*** |
| 90+ | 1.51*** | 1.51*** | 1.52*** | 1.52*** | 1.51*** |
| Low education (Ref. apprenticeship) | 1.18*** | 1.18*** | 1.18*** | 1.15** | 1.15** |
| Higher education | 0.99 | 0.98 | 0.99 | 1.01 | 1.01 |
| Work trajectory: Q.-full empl. (Ref. Full-empl.) | | 1.02 | | | 1.03 |
| Start and stop | | 1.10 | | | 1.11 |
| Stop and restart | | 1.05 | | | 1.06 |
| Upward social mobility (Ref. stagnation) | | | 0.95 | | 0.95 |
| Downward social mobility | | | 1.00 | | 0.99 |
| Job physically hard | | | | 0.83*** | 0.83*** |
| Constant | 0.92 | 0.91 | 0.92 | 1.04 | 1.02 |
| Observations | 2,020 | 2,020 | 2,020 | 2,020 | 2,020 |
| Log Likelihood | -3,129.17 | -3,128.01 | -3,127.96 | -3,120.47 | -3,117.92 |
| Akaike Inf. Crit. | 6,284.34 | 6,288.03 | 6,285.92 | 6,268.94 | 6,273.84 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 89: Work-related life course and mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

Again, the same analysis as before has been carried out for the indicator of mental health. The results found in this section (see table 89) are practically identical with those on functional health. All of the basic effects that have already been described in the control model remain constant: Gender, age and canton. The same applies for educational differences which do not show any signs of significant change in any of these nested models. Accordingly, the interpretation of these results also follows the ones that have been provided previously. The major difference with this block is that none of the work-trajectories has a significant impact. This is contrary to the working hypothesis which supposed that non-normative trajectories should leave a negative „imprint“ on people and should be associated with negative mental health consequences. However, as was already the case for functional health, these working hypotheses have to be nullified.

Summarizing, the results for people's work-lives do no lend themselves for the disqualification of social stratification and class as a main reference framework for the explanation of health inequalities in old-age. There are weak effects for the stop and restart trajectory for functional health and having a physically demanding profession is a factor that decreases the risk for health problems for both functional and mental health. Unlike the results for personality traits, I claim that the evidence found in this part is not conclusive enough as to confirm the existence of an event-based biographization and individualization paradigm. The last section that focuses on people's family trajectories will give one last element of information that should enable to reach a final verdict on these issues.

## 6.8 Family trajectories and health in old-age

The second block of life-course models focused on people's family trajectories. Basically centered around three key events related to the family life, this block of models also assesses whether social stratification dynamics, as well as age-, sex- and canton-related differences can be explained with such life course information.

The results for the family events and their impact on functional health in old-age are shown in table 90.

| Ref. Independent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent | In diff. | Dependent |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Women | 1.63*** | 2.51*** | 1.59*** | 2.42*** | 1.66*** | 2.23*** | 1.66*** | 2.51*** | 1.61*** | 2.14*** |
| Canton Valais (Ref. Geneva) | 1.01 | 0.76 | 1.01 | 0.79 | 1.02 | 0.75 | 1.05 | 0.76 | 1.05 | 0.78 |
| Bern | 0.65** | 0.28*** | 0.65** | 0.30*** | 0.66* | 0.26*** | 0.68* | 0.28*** | 0.68* | 0.28*** |
| Basel | 0.80 | 0.54* | 0.81 | 0.56* | 0.80 | 0.55* | 0.82 | 0.54* | 0.82 | 0.57 |
| Ticino | 0.99 | 0.84 | 1.01 | 0.91 | 1.00 | 0.83 | 1.04 | 0.85 | 1.05 | 0.90 |
| Age group 70-74 (Ref. 65-69) | 1.29 | 5.75 | 1.30 | 5.63 | 1.30 | 5.43 | 1.33 | 5.73 | 1.33 | 5.33 |
| 75-79 | 1.59* | 12.75** | 1.58* | 12.65** | 1.60* | 11.70** | 1.68* | 12.70** | 1.67* | 11.58** |
| 80-84 | 3.36*** | 25.82*** | 3.37*** | 26.26*** | 3.42*** | 22.32*** | 3.61*** | 25.64*** | 3.62*** | 22.83*** |
| 85-89 | 6.14*** | 51.26*** | 6.18*** | 53.35*** | 6.32*** | 41.78*** | 6.82*** | 50.83*** | 6.82*** | 43.43*** |
| 90+ | 14.90*** | 213.69*** | 14.87*** | 213.05*** | 15.43*** | 169.15*** | 16.53*** | 212.68*** | 16.41*** | 169.14*** |
| Low education (Ref. apprenticeship) | 1.45** | 1.63 | 1.45* | 1.61 | 1.46** | 1.58 | 1.46** | 1.63 | 1.46** | 1.57 |
| Higher education | 0.63*** | 0.69 | 0.64*** | 0.71 | 0.63*** | 0.69 | 0.62*** | 0.69 | 0.62*** | 0.71 |
| Birth of first child later than cohort (Ref. average) | | | 1.06 | 1.84* | | | | | 0.99 | 1.80* |
| Birth of first child earlier than cohort | | | 0.84 | 1.53 | | | | | 0.82 | 1.61 |
| No child | | | 1.09 | 1.29 | | | | | 1.11 | 1.37 |
| Experience of partner's death | | | | | 0.93 | 1.59* | | | 1.02 | 1.65* |
| Experience of relationship dissolution | | | | | | | 1.61*** | 0.96 | 1.63** | 1.09 |
| Constant | 0.07*** | 0.002*** | 0.07*** | 0.002*** | 0.07*** | 0.002*** | 0.06*** | 0.002*** | 0.06*** | 0.002*** |
| Akaike Inf. Crit. | 2,026.84 | 2,026.84 | 2,033.83 | 2,033.83 | 2,026.84 | 2,026.84 | 2,024.29 | 2,024.29 | 2,031.26 | 2,031.26 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 90: Family trajectory and functional health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Multinomial logit model displaying odds-ratios*

The main result that has been repeatedly found throughout this chapter also holds true for this first block of family life course models. The effects for sex, age, canton and education remain absolutely unchanged. This can be seen when comparing the odds-ratios for these variables from the first, educational model with the remaining four models.

The second model included the event of child-birth and the timing thereof. Here, the results suggest that having a child later than usual[55] respondent's cohort increases the risk for serious functional health problems by 84%. The reason for this finding can most likely be found in demography again. Studies have shown that births at a later age have a negative health effect for women). Concerning both sexes equally, a more sociological explanation is that a late childbirth, just as an early childbirth, represents a non-normative life event. As such, it might have the potential to be highly disruptive and to set people on a life-course that will create dynamics of negative accumulation with the end-result being a higher risk for negative health-outcomes in old-age. More concretely, this might entail financial consequences from disrupting a promising professional career in order to (re-)focus on a family-life. Or, it might mean increased psychological stress that also has the potential to create negative effects on functional health. Such a conceptualization of a non-normative event that shows a negative effect on health in old-age is also what has been established as a working hypothesis. However, despite having an effect on its own, it does not create any shifts in any other covariates in the model, thus further reinforcing the social stratification and class-theory framework.

Furthermore, in terms of life course dynamics this result for having a child late shows that there is another life-stage that can exert significant impact on people's health in old-age. The importance of this life-transition – in fact, the entry into parenthood is often considered to be a proxy for the entry into adulthood in general – runs against the working hypotheses of critical life period and cumulative disadvantage theory. This findings challenges the crucial impact of the earliest life-stages on health even further, given that the continuing persistence of age-related effects in all of these models shows how age and the later life-stages are of utmost importance for a person's health.

The third model accounted for the event of a partner's death. Here, clearly, the odds-ratio of 1.59 for people who are dependent means that experiencing this event provokes a rise in the chance for major health problems by nearly 60%. This comes as no surprise given that this relationship has been set as a working hypothesis given that there is a broad body of literature that documents the various negative psychological and financial consequences such an event has. The fact that it has a negative impact on health can therefore largely be explained that it must be a consequence from such psychological and financial triggers. Again, this covariate does not have any significant impact on health inequalities that are related to sex, age, gender or education.

The fourth model is built around the binary variable of having experienced a relationship

55 This variable is also described in 3.4 of the theory chapter. Briefly summarized, the „normality“ of the timing of the first child was determined as the average of each 5-year cohort +/- the standard deviation of that same 5-year cohort.

dissolution or a divorce. Here, the results indicate that having experienced this life-event the negative consequences are in the form off a roughly 60% increase in the odds-ratio of having minor physical problems (being „in difficulties“) in old-age. The interpretation of this event is almost similar to the previous model regarding a partner's death. Divorce and relationship dissolutions in general are non-normative life-events that can have a tremendous negative impact on both a psychological and economic level. Again, as in the previous model, these negative consequences might lead to negative trajectories that ultimately increase the risk for functional health problems at the age of retirement. Otherwise, as was the case for all the other covariates in this block, divorce or relationship dissolution do not change anything with regards to patterns in health-inequality among sexes, age groups, cantons or classes.

Finally, the full model provides very little additional insight as none of the key covariates from this block change compared to their respective models. This shows that none of these variables are mediated by each other – they all measure different and independent effects. Also, the overall effect of all of these family-related covariates does not cause any shifts in the key patterns related to sex, age, region or education. This conclusion is also supported by the scores for the Aikaike Information Criterion (AIC) which lies at 2026.84 at its reference level for the educational model and then does not convincingly decrease for any of the following models. The conclusion therefore is, as has been suggested already, that none of these models in this block significantly add information for the description of health inequalities that might go deeper than the educational model does.

Parallel to all previous blocks of models, the analysis was repeated for the Wang depression score in order to determine the robustness of the previous results with regards to the different dimensions of health.

| | Wang depression score (10) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Women | 1.45*** | 1.43*** | 1.41*** | 1.45*** | 1.39*** |
| Canton Valais (Ref. Geneva) | 0.84*** | 0.83*** | 0.83*** | 0.84*** | 0.84*** |
| Bern | 0.66*** | 0.67*** | 0.66*** | 0.67*** | 0.67*** |
| Basel | 0.71*** | 0.72*** | 0.71*** | 0.71*** | 0.72*** |
| Ticino | 1.02 | 1.04 | 1.02 | 1.03 | 1.04 |
| Age group 70-74 (Ref. 65-69) | 0.99 | 0.98 | 0.97 | 0.99 | 0.98 |
| 75-79 | 1.24*** | 1.24*** | 1.21*** | 1.25*** | 1.22*** |
| 80-84 | 1.53*** | 1.53*** | 1.47*** | 1.55*** | 1.49*** |
| 85-89 | 1.47*** | 1.49*** | 1.38*** | 1.50*** | 1.41*** |
| 90+ | 1.51*** | 1.51*** | 1.40*** | 1.54*** | 1.41*** |
| Low education (Ref. apprenticeship) | 1.18*** | 1.17*** | 1.17*** | 1.18*** | 1.16** |
| Higher education | 0.99 | 0.99 | 0.99 | 0.98 | 0.99 |
| Birth of first child later than cohort (Ref. average) | | 1.16** | | | 1.14** |
| Birth of first child earlier than cohort | | 1.03 | | | 1.04 |
| No child | | 1.05 | | | 1.07 |
| Experience of partner's death | | | 1.17*** | | 1.20*** |
| Experience of relationship dissolution | | | | 1.09 | 1.14** |
| Constant | 0.92 | 0.89 | 0.93 | 0.89 | 0.86** |
| Observations | 2,020 | 2,020 | 2,020 | 2,020 | 2,020 |
| Log Likelihood | -3,129.17 | -3,126.26 | -3,124.21 | -3,127.94 | -3,119.07 |
| Akaike Inf. Crit. | 6,284.34 | 6,284.52 | 6,276.41 | 6,283.88 | 6,274.15 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | |

*Table 91: Family trajectory and mental health in old-age*
*Source: Own calculations based on VLV, 2011*
*Note: Poisson model displaying odds-ratios*

This final block of results for mental health and family events (shown in table 91) does not deviate from the same pattern that has continuously been found for all models in this chapter. While there are two (or three, respectively) family-related life-events that do manifest a negative impact on mental health in elderly people, none of the covariates that were added on top of the educational baseline-model were able to capture any of the basic effects for sex, age, canton or education. Therefore, this block once again confirms the social stratification framework as being a valid explanation of certain inequalities in old-age.

More specifically, the two family-events that prove to be significantly related to depression in old-age are having one's first child at a rather *late* age (with an exponentiated coefficient of 1.16 indicating an almost 20% increase in the chances) on one hand, and experiencing a partner's death (with an exponential coefficient that is almost similar of 1.17) on the other hand. An interesting effect can be observed in the

full model that is shown in column 5. While having experienced a divorce or relationship dissolution did not appear as a significant factor in model 4 which was based on the educational model and *only* included the latter covariate on top of that, it did appear as a significant force of influence in the full model. A secondary analysis revealed that it is actually the variable of having experienced a partner's death that acts as a suppressor effect and that makes the former appear as significant. Outside of that particularity, the full model also confirms all of the previous discussions regarding functional health. In short: Critical family events turn out to be a marginal but yet significant source of influence for inequalities in health in old-age. However, they do not capture any of the basic effects for gender, age and canton which might be related to other factors.

With that, the working hypotheses related to social stratification as well as for those critical life events are once again fully supported. Generally speaking,there is no evidence that these events on their own dismantle the overall explanatory force of the social stratification framework. The patterns that are confirmed in this and the previous block regarding family-events, along with the two blocks of results for people's professional lives, do indicate that critical life events in general might be an additional source of health inequality in old-age. It thus appears that rather than determining which of the three identified paradigms – social stratification, personal traits and life course perspective – might be key to the explanation of socioeconomic inequalities in health, this chapter has revealed that all of them are at work. However, none of the three paradigms is able to completely capture the patterns of inequality that are related to sex, age and canton.

## 6.9 Discussion: Just scratching the surface – the many dimensions of health-dynamics in old-age

Before discussing the results that have been found in this chapter, it is crucial to recall the context of the findings in this thesis up to this point. The fourth chapter has demonstrated that inequalities on an average level have decreased over the last three decades between 1979 and 2011. Meanwhile, some of the patterns *relative* to inequality have remained the same. Above all, poverty and mental health inequalities related to education – which is used as an indicator of class – persist up until today. By contrast, functional health has been shown to be a dimension that over the last 30 years has become less influenced by social stratification – there is no discernible effect of education (as a measure of class) in 2011.

The fifth chapter focused on inequalities within the specific dimension of economic resources at the age of retirement. The main result in that chapter was quite straightforward: Above all, there is a long-lasting dependency on education and class with regards to financial hardship in old-age. It is also education and class which explain the totality of gender-differences, age-effects and even a part of cantonal differences. In addition, there have been a small number of life course-related effects that have been found to have a significant impact on financial resources in old-age. These are the early entry into parenthood or a divorce / relationship dissolution (the latter actually showed

up in an in-depth analysis of social welfare recipients rather than the analysis of poverty and precarity itself). With this finding, that fifth chapter provided some of the strongest support in favor of the social stratification and class framework. It largely disqualified the ongoing debate of „the end of class“. With respect to the life course perspective, this overwhelming support for the social stratification view signified that two theories, which had been identified as being compatible with such a view, could be validated. On one hand, this applied to the critical life theory and on the other, the cumulative disadvantage theory. An alternative framework that stresses the key importance of critical life events and goes as far as to speak of a „biographization“ and „individualization“ of inequalities could be dismissed. Based on this chapter, inequalities in old-age seemed above all determined by the somewhat „traditional forces“ of class. This chapter documents a harsh reality for many people from these generations. It turns out that the cards they were dealt at the beginning of their lives, in what kind of class they were born into, would largely determine the rest of their lives – at least financially.

With this context, the main aim in this chapter was to study health in old-age and once again test the relevance of the social stratification framework and its two key life course mechanisms that are critical life theory and cumulative disadvantage. For the previous chapter on economic resources the main story in terms of theory was given by the two bodies of literature with on one hand the „life course view“ which posited that it was certain key life-events that lead people into difficult situations, and on the other hand, the more traditional class-framework which posits that it is dynamics related to class and socioeconomic position that largely determine a person's situation in old-age. However, as has also been shown, those two are not necessarily in opposition but are much more likely to be complementary to each other.

For health inequalities, the same theoretical outline was re-assessed again. Furthermore, this chapter included an additional body of literature that was integrated in this analysis: The so-called “personal traits paradigm“. Proponents of that paradigm see the source for health-differentials in personal characteristics, above anything else.

The analyses were once again based on the VLV survey and considered two dimensions of people's health: Firstly, their functional health which is basically their physical ability to face their daily lives independently and secondly, their mental health which is simply a measure of the number of depressive symptoms a person is suffering from.

Perhaps more than anything, the primary insight of this chapter consisted of a demonstration that health is a much more complex and multi-layered dimension of people's lives than economic hardship is. In the previous chapter I was able to explain, to a very large extent, the dynamics – social stratification - that seem to be at work with regards to poverty and precarity. Poverty, it seems, is a quite one-dimensional phenomenon very strongly linked to factors related to social stratification and class. For health, the conclusion is quite a contrast. Much rather than capturing straightforward key dynamics, this chapter revealed multiple and independent forces that are at work with regards to health inequalities. These individual factors are not mediated or related by each other and did hardly reveal any conclusive key factors that are more important than

others. Such a result can be interpreted using intersectionality theory which has been discussed in the chapter on theory. Rather than clearly apparent main forces, there seems to be a whole matrix of influences that are at work when it comes to health. Hence, I see great potential in adopting such a holistic "matrix-based" approach, trying to incorporate the interaction and interplay between the multiple forces. For example, looking at age-effects in function of gender, or gender in function of social stratification.

The key patterns in health for people aged 65 and older are related to age, sex and cantons. The strongest effect is clearly that of age, particularly for major physical impairments (people being „dependent" on external help to accomplish the basic tasks in their daily lives). This result can be interpreted as evidence for what life course epidemiology calls the „natural aging process" which is largely caused and determined by fixed biological factors. This key pattern was robust and remained unchanged with regards to the addition of socio-structural variables (class and socioeconomic position, geographical area, civil status), life course variables (work and family trajectories) as well as the psychological dimension of personality. Such a result was not expected. In the theoretical part of this thesis I brought forward a body of literature that posits that parallel to this „natural" pattern of aging there is a „socially constructed" pattern of aging that speeds up the deterioration of health in relation to age. However, the results in this chapter totally dismiss this hypothesis. None of the covariates featured in this chapter was able to capture this age-effect in a consistent way.

The second variable which has manifested a robust and continuing effect throughout all models was that of sex. Health in old-age is strongly gendered. This conclusion was to be expected based on a vast body of literature that documents such gender-differences in old-age health across a broad selection of indicators. Key driver is the continuing difference in life-expectancy for men and women. As of the writing of this thesis, life expectancy at birth for men in Switzerland was of 80.5 compared to 84.8 for women[56]. Clearly, women live longer than men and by doing so they are exposed to a series of health-problems that their male counterparts do not experience. Researchers from many disciplines have long studied this difference and it is generally accepted that it is the cumulative result of multiple factors that creates gender-differences. Such factors include health-affecting lifestyle differences (smoking and drinking, for example), risky behavior and working in professions that affect health negatively (those with heavy manual labor). Identical with the findings for age-effects, gender-effects proved to be absolutely robust and unaffected by any of the additional variables that were tested in this chapter.

The third effect that remained constant across all the analyses performed in this chapter was that of cantonal differences. Again, this chapter has only been able to demonstrate the continuing significance of this factor but was not able to provide any insights into possible sources or root causes. Cantonal differences do not seem to be stemming from urban/rural differences, neither in the differences of educational levels and class-structure of the cantonal populations. Neither have any of the life course variables any noticeable effect on this relationship. What this finding thus leaves open is the

56 Life-expectancy indicators for the year 2013 as published by the federal statistical office on their website www.bfs.admin.ch

question of differences in social policies or specific health-programs directed at the elderly in their respective cantons. Related to this issue, a possible explanation is the number of people living in health institutions and who therefore have been excluded in the sample. Given the results in this chapter, I believe that this axis of analysis contains the most promising potential for this particular question.

Parallel to these constant factors affecting old-age health, social stratification has nevertheless proven to be a dimension that has a weak, yet significant impact. People in the lower classes with little or no education are more likely to be experiencing minor health impairments in old-age and they show more signs of depression. The same findings can be found for other indicators of a person's socioeconomic position or class: Blue-collar workers are much more likely to suffer from health impairments and depression. The same applies to people who are self-employed. The counterpart to such individuals, people from the upper classes with higher educational levels, less frequently experience situations where their functional health is compromised or they suffer from depressive symptoms.

As suggested in the life course epidemiology literature, the two-component model of aging, with a primary dimension being the natural aging process and the second being the socially constructed aging process, seems to apply. And the socially constructed part is, once again, given by social stratification. Interestingly, the majority of these „social“ forces affect *minor* functional health problems (being „in difficulties“) and mental health. More severe functional health problems (being dependent) seem largely determined by the aforementioned three key patterns related to age, sex and cantons. The general hypothesis of social stratification as a key framework for the explanation of inequalities in old-age therefore still holds true. However, as was pointed out before, the fact that these analyses did not reveal any relationship with the main effects of sex, age and canton means that social stratification in health is not the same far-reaching and profound underlying force for the creation of inequalities as it has been found to be for people's financial resources. Instead, it can be qualified as an additional but fully independent source of inequalities in old-age health.

The main innovative element in this thesis consisted of combining – or extending - the traditional social stratification framework with a life course perspective. This should ideally reveals deeper-lying root causes of social stratification dynamics, pathways that are associated with difficult life-conditions in old-age and should give insights into the impact of different life-stages.

The results in this chapter revealed that a partner's death and the dissolution of a relationship are two life course events that do have an effect on both functional and mental health in old-age. The same is true for having a child later than „the norm“, meaning later than it usually was the case among a person's cohort. On top of this, the work-trajectory of having a major break from the formal labor market in the middle of one's professional life appeared as having a protective effect for functional health. Hence, there is evidence that the life course paradigm does apply – even with relatively weak effects and not always coherently between functional and mental health. The more

important conclusion for this question was, however, that life course information had no effect on any of the basic patterns in health related to sex, age and canton. Neither did any of these covariates change anything with regards to educational and class differences. The general conclusion from these observed effects must be similar as that for social stratification: The life course paradigm is an additional dynamic for health in old-age that runs in parallel with numerous others.

Given the availability of data on personal traits, it was possible to test a third paradigm that has been identified by the literature as holding potential to explain socioeconomic inequalities in health: The personal traits paradigm. According to this framework, the key element in understanding health inequalities lies in people's personality.

As it turns out, this chapter was able to find considerable patterns and effects for health that go back to personality. The effects are relatively weak but still they are statistically significant. Certain personal traits such as conscientiousness or openness seem to reduce the likelihood for health difficulties in old-age while others such as neuroticism increase them. The analysis for functional health showed effects for almost all personality traits and for mental health, *every* personality trait seems to affect the outcomes in old-age in some way. Most importantly though, the addition of personality traits to the statistical models did not cause any shifts in the other covariates which, again, were given by sex, age, canton and educational differences. The conclusion yet again points towards health as a multidimensional and multi-layered construct with just as many factors of influence. Personality traits, in this view, are yet another additional factor along with gender, age, region, social stratification and life course events and trajectories.

Finally, a last element that has to be pointed out at this stage is that of sample bias. As was described in the third chapter on data methods, the sub-sample of the VLV dataset with individuals that had „complete profiles“ for the analyses in this chapter was relatively low at 66% of the initial sample. The analysis of the resulting sub-sample showed that particularly people in the higher age-groups and people with a low education tend to be excluded from the analysis due to incomplete data. Nevertheless, I consider the strength and consistency of the found effects across all models in this chapter, particular the documented age effects and social stratification dynamics, to be a confirmation of the relevance of the found effects.

In conclusion, social stratification is an important force for the creation of health inequalities and with that, for inequalities in general. However, the results show more than ever that social stratification is merely one among multiple other paradigms and other factors of influence that are *complementary* to each other and by no means exclusive as some authors suggested. The dynamics that create the observed age, sex and cantonal differences remain open and therefore offer potential for further analyses.

# 7. Conclusion

## 7.1 Main objectives

This thesis focuses on the “elderly” or the “old” population- people aged 65 and older – living in Switzerland. At the heart of the investigation lies the question of *inequality* which basically can be defined as differences in the distribution of a resource among a specific population at a given time and place. Simply put, it is the difference between those who are well-off and those who are struggling. Given that this is a thesis in socioeconomics, an inherently interdisciplinary field, I specifically set out to create a broad “tour d'horizon” of inequality among this population, emphasizing a correspondingly strong interdisciplinary and multi-faceted approach: Rather than focusing on one particular resource I decided to study three; rather than limiting the analysis to one particular moment in time, I wanted to explore the temporal dynamics over the last three decades; and finally, rather than testing the relevance of one particular paradigm, I aimed at extending an existing paradigm and opposing it with a newly emerging one.

The result of this broad conception is that this research explores three distinct indicators: poverty, functional health – which is a measure of physical ability – and mental health – basically the extent to which people are suffering from depressive symptoms. I then look at these three indicators from two main angles: Firstly, from a comparative angle where I assess the evolution of each over the last three decades since 1979 up to 2011. Secondly, from an exploratory angle where the focus lies on determining the factors and dynamics that shape the distribution of each of these resources, with a particular emphasis on the so-called life course. Hence, this thesis focused on three main research questions:

- How have inequalities in poverty and health among the elderly people living in Switzerland evolved over the last three decades?
- What are the underlying dynamics for old-age poverty in 2011 and particularly, do events and trajectories related to people's life course have any influence?
- What are the underlying dynamics for functional and mental health in 2011? And parallel to the second question: Does the life course, trajectories and events in the relational, professional and family-life play a significant role?

With this agenda, I choose a very specific “lens” of interpretation that goes back to the Marxist tradition: Social stratification and class-theory. According to such a position, inequalities among a population are not randomly given but they are the result of the way a society is organized. As Marx observed more than a century ago, the key force in organizing society is the economy. It sorts people into either the Bourgeoisie (the “capitalists”) or the working class. And as such, it determines to a large extent how people's living conditions look like. Todays societies have evolved a great deal from the time this idea was formulated. At the same time, the actual concept of class was not very clearly defined by Marx himself. In order to operationalize the class-analysis framework so that it may serve as the key guideline for this project and most notably in the empirical analyses, it was necessary to lay out a more concrete interpretation of it. In this process the works of Erik Olin Wright, an American neo-Marxist have been of the most central importance. He posits that the most fundamental aspect in the Marxist class-analysis framework is that it relies on exploitation and domination. Furthermore, Wright has established a comprehensive and rigorous system that allows for the introduction of more complexity into the classical two-class logic that Marx suggested. The application of the Marxist tradition in gerontology can be found in the political economy of aging tradition and among what today has become the critical gerontology school. These two bodies of theory represent the key framings for this thesis. In the Marxist tradition they also emphasize the cardinal importance of class for the analysis of inequalities in old-age. Recently, a number of scholars have disqualified the analysis of inequalities relying on class in what has become the so-called “postmodernist critique”. This thesis sheds light on this ongoing debate by testing the relevance of the century-old class-framework.

Beyond simply assessing the relevance of the aforementioned social stratification and class framework, I aimed to extend this rather “static” view with a dynamic life course view. Often referred to as the “life course paradigm”, the latter basically is a way of studying people by taking into account all of the events, trajectories and social roles that they have experienced in their lives. More specifically, when studying a phenomenon such as poverty, for example, this approach emphasizes that a researcher not only to takes into consideration a persons characteristics at a given time –being married and having a job, for instance – but the whole sequence of events and social statuses that proceeded them: How much time has the person worked? Where there any episodes of unemployment? Before being married, has the person had other meaningful relationships that broke-up?

Applied to the social stratification and class-theory framework, the life course perspective offers two insights: Firstly, should there indeed be proof for a strong relationship between a person's socioeconomic position and the cited resources, it could shed light on what kind of events or trajectories are associated with each class. Simply put, it would enable to characterize the biographies of either capitalist or working-class people. Secondly, in case of an absence of social stratification and class-forces, it could show how certain events or biographies – regardless of a person's social position – are related to poverty, bad-health or depression in old-age. In fact, some authors argue that the life course perspective represents an actual counter-theory to the social stratification and class-theory framework. They argue that in today's world, class does no longer determine anything but it is much more certain events – losing a job, having a child or having a divorce, for

example – that largely determine people's living conditions. Testing the relevance of such event-based explanations for poverty, poor health or depression was a key objective of this thesis.

In order to answer these questions and shed light on these key hypotheses, I used data from three waves of a survey that focused on the living and health conditions of elderly people in Switzerland. The waves were collected in 1979, 1994 and 2011 and were each time conducted by the Center for interdisciplinary gerontology (CIG) at the University of Geneva. The first two waves focused on Geneva and Valais, the third wave then included three additional cantons in Basel, Bern and Ticino. For the third iteration of the survey in 2011 entitled “Vivre – Leben – Vivere” (VLV) and that ran under the main title “old-age democratization? Progress and inequalities among the elderly population in Switzerland”. I have participated in the project as a fieldwork coordinator in Bern and Basel.

## 7.2 Summary of empirical findings

### 7.2.1 Historical evolution 1979-2011: Declining inequality, stagnating patterns

The first analytical chapter focused on the temporal dynamic of poverty and health. Most importantly, it focused on analyzing inequalities in these dimensions and how social stratification and class-dynamics for these three indicators have evolved over the last three decades. The chapter revealed both, tremendous progress and improvements for the elderly population on one hand, while at the same time documenting considerable patterns of inequality on the other hand.

The evolution of all three indicators – poverty, functional and mental health – document significant improvements in material and health conditions for the elderly population between 1979 and 2011. Economic inequalities decreased and overall there are less people who are poor, less people in poor physical health, and less people with depressive symptoms. This first finding reflects the numerous advances and improvements that the older population has benefited from over the last three decades.

More specifically, as far as poverty is concerned, it was without any doubt the installment of the three-pillar system that has been a major factor in decreasing old-age poverty. The AVS guarantees every elderly citizen a basic income in particular played a key role in this process. Beyond that, it appears that civil status has lost its strong impact that has been observed in earlier studies. Today, there is no meaningful relation between civil status and poverty in old-age.

The evolution of health also reflects, to a certain extent at least, the significant socio-sanitary and medical progress that has been made in that period. The narrative that is found in the literature, that people not only live longer but they generally do so in better health, finds support in the analyses based on VLV data. More specifically, the evidence for the functional health indicator suggest that if physical health problems occur, they tend to do so in old-age, are less of a profound nature that renders people completely dependent on external health. Rather, health physical health problems remain of a minor

nature and people can generally remain independent and autonomous up to a very high age requiring, if ever, only minimal assistance with their daily lives. Of course, this statement is based on purely physical problems and also, is limited to the functional health measure that is used in this research. Not included are mental health problems or cognitive impairments which might nevertheless render a person unable to live independently. Depression, for example, has not seen any major shift since 1979. Thus, it must be concluded that people's health is a highly complex phenomenon. As it has already been argued, it seems to follow multiple dynamics and is less straightforward to assess and grasp as poverty.

Contrasting this story of considerable progress, the analyses in that chapter have revealed that some of the underlying forces influencing these resources remained similar and that some of the discriminatory patterns remain stable. All indicators of inequality showed strong patterns related to sex and canton that were not related to class-differences and are most likely related to a continuing gap between cantons – this could be a result of varying social policy or infrastructure – and to a continuously gendered society, as is conceptualized in the literature for example in the master status theory.

As for the core theoretical framework of this thesis, the class-analysis framework, the results in the chapter on historical trends show that people with little or no formal education are just as likely to be experiencing a situation of financial hardship in 2011 as they were thirty years ago in 1979. The same applies to depression in old-age. No significant shifts have been observed for the latter. Furthermore, in 1979 the category of "high education" was also significant, suggesting the presence of inter-class inequality. However, this effect would then disappear and is no longer significant in 2011.

Hence, the observed class-effects in chapter four are largely restricted to the category of "low education" as far as poverty and depression are concerned. This category captures unskilled workers which in the analyses are then compared to the reference group of people who have an apprenticeship. This comparison of the latter two groups has, in the theory chapter, been termed the intra-class hypothesis. The fact that there are significant results indicate that, surprisingly, the main class dynamic is not between the traditional entities of capitalists and workers but *within* the working-class itself. This points towards what Wright calls an increase regarding within-class-strata.

It must be pointed out that this thesis has only scratched the surface of the large potential that this comparative data-base offers. The database would offer many more information such as life course variables regarding marriage or retirement timing, information on personality and political opinions on people's social participation. With this wealth of data social stratification between 1979 and 2011 could be assessed to determine mediating factors or it could be tested with regards to the impact of life course events[57].

Also, it must be said that in certain cases the dynamics were not completely linear between the three waves 1979, 1994 and 2011. Particularly the data collected in 1994

57 Among all other researchers at the CIGEV institute Marie Baeriswyl's PhD thesis offers the most comprehensive insight into these temporal dynamics, even though the general focus lies more on a gender- and social participation issues rather than social stratification.

contrasted the findings in 1979 and 2011 and seems to have captured certain dynamics that are different than the other two waves. An example for such an anomaly can be given with old-age poverty and education: In 1979 having a low education turned out to be a factor that increased the risk for old-age poverty. In 2011 the same dynamic was found. However, in 1994 this negative impact for people with low education was absent while people with a higher education were significantly less at risk of poverty.

In conclusion, the observable social stratification and class dynamics were limited to intra-class dynamics with regards to poverty and depression. Functional health seemed to follow different patterns with gender and age being strong predictors but being only weakly effected and in 2011, having no longer any association with class at all.

### 7.2.2 Poverty in old-age and the life course: The persistence of social stratification:

With the chapter that focused on economic resources in old-age the angle of analysis changed. The previous chapter adopted historical and comparative angle. It focused on the role and relevance of social stratification and class in poverty, functional and mental health over the last three decades. The second and third analytical chapter of this thesis then focused on the situation in 2011 and adopted a life-course angle. Accordingly, the main objective in this second approach consisted of analyzing inequalities while extending – or opposing - the previously used social stratification framework with a life course perspective. It should shed light on the interrelation between social stratification and class with life course trajectories and life course events.

In this chapter the object of interest was given by people's financial resources at the age of retirement. This was measured using monthly household income adjusted to the household size. Given the distribution of this variable in 2011 and given the ongoing debate regarding poverty in old-age in Switzerland, I focused on financial hardship rather than the whole distribution of incomes. This was done using two indicators. Firstly, a relative “strict” one based on the absolute poverty line. This indicator should identify people who are effectively struggling from financial problems in their daily lives, basically people who are poor. Secondly, I used a broader indicator of financial difficulties which I called “precarity”. It basically sets the threshold for what financial difficulties are at a slightly higher level, at 150% of the absolute poverty line. Conceptually, this indicator not includes people who are really struggling financially, but also those who just about able to get by, those who are really close to being under the threshold, those who might fall below the poverty line should they experience negative life events. This second indicator can also be regarded as capturing those who are economically “vulnerable”.

The chapter was able to prove how social stratification and class consistently represented the key force with regards to financial hardship in old-age. Particularly belonging to the group of unskilled workers, which in this analysis was defined as having little or no formal education, creates a life-long “scarring” effect that seems to persist up until the age of retirement. Even when measured with other indicators of socioeconomic position such as a person's first job, a person's last job or taking into consideration the position of

other people in the household, this relationship held true. In addition, the treshhold for financial hardship does not play a significant role given that practically identical results were obtained for poverty and precarity. This confirms earlier studies such as Levy et al. (1997) who found significant patterns of social stratification in Switzerland and consider it to be among the key structuring forces in Swiss society.

In terms of class, the strong effects for both categories of low and high education point towards strong inter- and intra-class dynamics. Hence, there seem to be considerable patterns of exploitation: On one hand between the upper (capitalist) class and workers; on the other hand within the working class itself, whereas unskilled workers seem dominated by skilled ones.

With regards to the life course, the overwhelming importance of education is in line with the theories of cumulative disadvantage and critical life period. Both of these theories stress the crucial importance of the earliest life-stages for the rest of people's lives. Generally acquired in exactly those early life stages, education plays a key role in determining the financial resources people have at their disposal at the age of retirement – a life-stage, it should not be neglected, which starts roughly 40 years later.

Educational differences largely explain gender effects for financial difficulties in old-age. The same applies to differences related to age and cohorts. Differently put, the increased risk for poverty among women and people from older generations is to a very large extent due to the fact that these two sub-groups of the elderly population more frequently have lower educational levels than the rest of the population. In younger cohorts, people – women in particular – tend to have higher education and people with low education grow more and more scarce. However, for the individuals who did not benefit from those general improvements, the long-term impact is significant. These findings for the cohort effects also suggest that over the next decade old-age poverty will further decrease due to the “mechanical” replacement of cohorts with low levels of education with younger ones that are better educated.

Besides the continuing strong impact of social stratification and class in financial difficulties in old-age, the other key finding of this chapter is that professional trajectories do not have any detectable impact. It appears that having a specific type of work-biography - one that is characterized by full or almost full-employment on one hand, or a fragmented one with considerable spells of inactivity on the other hand- does not play a significant role for people's financial situation in old-age. The major factor remains education. In this sense, there is no evidence for specific work-related “pathways” into poverty and precarity in old-age.

Similarly, having experienced a divorce, relationship dissolution or the death of a partner do not have any impact on poverty or precarity. Thus, these findings dismiss the new “biographical” paradigm for financial difficulties which has recently grown in importance against the background of de-standardization and individualization of the life course in modern societies. This can be interpreted by acknowledging that those mutations of the life course could be considered *prerequisites* in order to detect any

influence of critical events over social stratification processes. Should this argument holds true, it would be an explication of the absence of such a relationship in my dataset, given that the studied generations can be considered to be the parents of the often cited baby-boomer generation and globally, had quite “traditional” life courses (Widmer and Ritschard 2009). The observed gender differences in the clusters of work-trajectories support this interpretation. The only impact of a life-course variable that I was able to detect was the influence of an early transition into parenthood. However, this finding was not related to educational differences.

In summary, the empirical evidence resulting from this chapter does not support the hypothesis that a “biographical” or “individualization” paradigm is at work with regards to financial hardship in old-age. Rather, it can be considered as representing an additional cause for financial problems in old-age. This conclusion also corresponds to a view according to which this biographical paradigm does not necessarily represent an opposing view to social stratification and class-dynamics but that it is a complementary framework that might apply *parallel* to the more traditional two former bodies of literature.

The last part of this chapter focused on the analyses on the various sources of income people have at the age of retirement, focusing on five distinct clusters of incomes. The results for this analysis showed, for all income-source clusters, very strong patterns related to poverty and precarity. Most relevant was the cluster that regrouped people whose main source of income was the AVS and who were benefiting from various sorts of financial aids and social welfare.

However, it must be said that the covariate used in this block – the configuration of incomes at the age of retirement- is already the cumulative results of a person's life-trajectory: The pension people receive in old-age obviously depends on the years they were active on the labor market and during which they have contributed to the three-pillars. In addition, this final analysis runs into an epistemological problem where the target variable is not sufficiently distinguishable from the explanatory variables. In fact, for some income sources such as complementary welfare, the actual criterion of admission is to be in a situation of poverty *already.*

For this reason, a last block of models focused on exploring each of the five clusters, using them as a target variable and determining to what extent social origin, work trajectories and critical events have an influence on being situated in one specific cluster. This is equally important from a social policy point of view and again, could contribute to the determination of “pathways into vulnerability”. Also, it must be said that this last block of analyses is the closest operationalization of the Marxist class-analysis perspective – and consequentially of the political economy of aging tradition which is the application of the former framework to the study of retired people – given that it *directly* focuses on the position of people within an socio-economic and institutional structure that is the Swiss pension system.

Above all, the strongest and most interesting patterns were found for three clusters:

Firstly, for the cluster of people who benefit from a 3-pillar rent. Here, there results suggests very pronounced class-patterns with both lower education being a factor that strongly decreases the chances of being situated in this group and higher education considerably increasing the chances of cluster membership. Furthermore, it was found that people in this group also tend to have the means to afford early retirement or owning their housing. And finally, there are significantly less women in this cluster and people in Basel are more represented in this group.

The second highly interesting cluster was that of people who rely on their first pillar, but also on a variety of social welfare and financial contributions. As before, education is a key variable, particularly for people with higher levels being much less likely to be in this cluster and people with little or no education having a much higher associated risk of ending up in such difficult financial circumstances. Moreover, having experienced a relationship dissolution increases the chance of being in this group as well. The latter suggesting, once again, that it is indeed possible that the traditional dynamics of social stratification (as captured through educational differences) are at work all the while biographical elements such as a relationship dissolution play a considerable role and provoke considerable negative consequences.

The third highly interesting cluster is one which features people who do not have a second pillar and instead rely on their first pillar and a form of third pillar revenues exclusively. This cluster shows strong age-related effects which can be explained through the relatively late introduction of mandatory professional pension funds, the second pillar. However, the analyses also showed that this cluster contains substantially more self-employed people and homeowners. Recalling the increased risk for poverty of this cluster, these findings can be taken as evidence that two “institutional loopholes” are being made use of and, a very problematic finding, that they represent pathways towards financial problems in old-age. The first concerns the use of people's second pillar for the acquisition of real-estate. The second concerns the use of the second pillar for self-employment.

Generally speaking, the analyses on income source clusters indicate that gender-inequality in this area of the Swiss pension system seems to persist. Women are still more susceptible to rely on social welfare as a main source of income in old-age and they are significantly less likely to benefit from the often described optimal setting of having all three pillars. Furthermore, they are also more at risk to rely exclusively on their first pillar, the AVS, and on a third-pillar at the age of retirement. This frequent absence of a second pillar is very likely the result of an incomplete work-biography. Hence, previous results that were taken as evidence of the success of Swiss social policies with regards to financial hardship in old-age – notably the reforms and adaptations of recent years – have to be contrasted with these more elaborate analyses on income source clusters. The latter findings outline a less positive picture and show continuing potential for improvements.

In conclusion, this second analytical chapter showed that social stratification and the Marxist class-approach presents themselves to be the most adequate frameworks for the

conceptualization of poverty in old-age. With that, the early life stages appear as the most crucial periods in people's lives. Finally, life course events only have a marginal influence on people's financial situation in old-age and certainly have no impact on the overwhelmingly powerful determinant of education. As such, life course events can be regarded as additional sources of financial hardship in old-age and can be considered a complimentary body of theory along with social stratification and class.

To a certain extent, the performed analyses have also shown the limits of an approach that focuses on poverty and precarity. In fact, given that these two measures are binary in nature this also opens the possibility that a series of effects are simply not detected because they do not influence the classification of people according to this binary logic. Hence, there might be remaining potential for further analyses that model the entirety of the income distribution.

### 7.2.3.Health in old-age and the life course: Dissecting a multidimensional aspect

The main aim in the sixth chapter was to study health in old-age and in doing so, to test the relevance of the social stratification framework and to extend it with a life course perspective. For the previous chapter on economic resources the main „opposition“ in terms of theory was given by the „life course view“ which posited that it was certain key life-events that lead people into difficult situations much rather than the life-long dependency on class. For health, the same life course perspective was re-assessed again. Furthermore, this chapter included an additional body of literature that was integrated in this analysis: The so-called "personal traits paradigm“. Proponents of that paradigm see the source for health-differentials in personal characteristics, above anything else.

This chapter also relied on data from the VLV survey and considered two health indicators. Firstly, the functional health indicator measure to what extent people are autonomous and able to tackle their daily lives on their own. Secondly, the Wang depression score is, as its name suggests, a measure of how many depressive symptoms a person is suffering from.

Results in the sixth chapter strongly contrast those of the chapter on economic resources. Whereas poverty and precarity in old-age are principally determined by social stratification and class, health revealed itself as a much more complex phenomenon. Rather than finding a single principal factor, the analyses revealed multiple,independent and complementary forces.

There are three principal factors that create the key patterns that can be found in old-age health. Age, above all, showed the strongest effects. Particularly major functional health problems, being physically dependent, are strongly linked with higher age-groups. None of the covariates in the analyses were able to capture these age-related effects. This dismisses the working hypotheses which posited that health in old-age is principally determined by social factors. Rather, it shows that biological processes are the main cause for physical health problems in old-age.

The second key effect is related to sex. Health in old-age is strongly gendered as suggested by a broad body of literature. In strong contrast to old-age poverty, none of these gender-differences were captured by socioeconomic indicators such as education, first or last job or work-trajectories. It appears that a key driving force for these gender differences are the continuing differences in life-expectancy: Women tend to live longer than men. For this reason they are alive to experience health-problems which their male counterparts do not.

Thirdly, cantonal differences remained persistent throughout all models. Interestingly, none of them were captured by indicators of socioeconomic composition of the population such as education or the degree of urbanization. It can therefore be concluded, that these cantonal differences are most likely related to differences in social policies. Given the strength of these effects, this aspect would be a highly relevant question for further research.

Social stratification has nevertheless proven to be a dimension that has a significant impact - despite not being the principal force. People with little or no education are more likely to be experiencing minor health impairments in old-age and they show more signs of depression. It is to note that social stratification principally affect *minor* functional health problems (being „dependent“) and mental health. More severe functional health problems (being dependent) seem largely determined by the aforementioned three key patterns related to age, sex and cantons. The general hypothesis of social stratification as a key framework for the explanation of inequalities in old-age therefore still holds true.

An additional force that explain a part of health differentials among elderly people are life course events. The experience of a partner's death and the dissolution of a relationship both have a negative effect health, for functional as well as mental health. Furthermore, having a child later than usual in a person's birth-cohort equally increased the risk for negative outcomes in both health-indicators. It appears that having a child later in life creates significant physical and psychological pressure that has effects that last even beyond the age of retirement. Work-trajectories appeared only significant for the cluster that contained people who had a major break from the formal labor market in the middle of their professional life. Interestingly, this trajectory appeared as having a protective effect for functional health.

As was the case for the previously presented factors of influence, life course dynamics represent an independent and additional force of influence that is not affected by any other covariate in this chapter. This suggests that the biographical paradigm does indeed apply. Yet, once again it has to be concluded that it is complementary to social stratification and other theories and by no means excludes any other explanations.

Beyond the two key frameworks with social stratification and the life course perspective, a third theory for the explanation of health inequalities in old-age was tested: The personal traits theory. According to this framework, the key element in understanding health inequalities is given by people's personality. The result of this analysis showed

that there are significant effects for health that are related to personality. Compared with the previously described forces, however, the impact of personality is at a relatively marginal level. Yet, all of the included personality traits revealed itself as statistically significant. The evidence from this analysis once again points to the conclusion that health is a multidimensional and multi-layered construct with just as many factors of influence.

In conclusion, this final chapter nevertheless confirmed that social stratification is a non-negligible force for the persistence of health inequalities as measured by the two indicators of functional health and depression. The results demonstrate, however, that social stratification is merely one valid explanation among multiple other paradigms and other factors of influence, all of which are *complementary* to each other and by no means exclusive as some authors suggested. From a theoretical point of view, it is interesting to interpret these results by referring to intersectionality theory and thus, to try and go beyond simply analyzing isolated dimensions that impact health but to build a system – a whole "matrix" of influences – of various influences that impact health. I see great potential in further determining the dynamics and logics of the interplay between these forces. Similarly, the dynamics that create the observed age, sex and cantonal differences remain open and unexplored. They also offer significant potential for further analyses.

## 7.3 Theoretical contribution and discussion of results

In terms of theory, this thesis mainly contributed to two ongoing debates that are strongly related to each other. The primary contribution concerns the relevance of Marx's class-theory and the social stratification framework for the conceptualization of inequalities among the elderly population in Switzerland. Simply put, this theory posits that inequalities are largely a result of what kind of class people belong to. Should they belong the working class – particularly as unskilled workers - they might have a lack of resources in old-age. Opposed to this, for people belonging to the upper or bourgeoisie-class, this should represent a general abundance of resources in old-age. The background for the discussion on the actual relevance of this theory is given by what can be called the postmodern critique or the "Anti-class movement". According to these positions, today's modern western societies are characterized by a general dissolution of traditional structures and institutions. The traditional nuclear family models and marriage as the primary form of relationship has been replaced by a multitude of new arrangements including patchwork families, non-marital relationships and families or living in separate housings. There have been tremendous transformations in the area of people's work-lives, notably a decline of job-security, strong flexibilization, a general rise of non-linear careers and related to the latter, a reorganization of education-to-work transitions with the often cited "life-long-learning" headline. Also, todays social structure does no longer resemble to the kind of society that led Marx to formulate his theory. No longer is there a strict binary distinction between working-class and the bourgeoisie but there have been complex processes of increasing complexity which created a multitude of new class-relations within the original two-class system. The combined effect of all these transformations creates a world where people's lives are

much more unstable, flexible, individualized, de-standardized, de-institutionalized and risk is one of the key characteristics. In such a world, it is argued, class is a concept that is obsolete and that does no longer capture any meaningful social dynamics. The first contribution addresses this discussion and sheds light on whether this statement holds true.

The second contribution is the extension of a social stratification framework with a life course perspective. Here, three theories linking resources with the life course have been identified. Firstly, the critical life period theory which, as the name suggests, stresses the cardinal importance of people's early life conditions in shaping the rest of their lives. Closely related is the second theory which is given by the cumulative disadvantage theory. Also emphasizing the importance of early life conditions and the negative effects that adversary early life conditions can have this second theory goes beyond the first by specifically defining the *process* which translates negative life conditions into later life. Again, as the name suggests, the dynamics are those of accumulation of negative or positive characteristics over time. Both of these two theories thus show how the first life stage is the pivot point in life during which the basics for social stratification and class-dynamics are laid. The third framework addressed the postmodern critique and posits that in today's society it is less important to what class somebody belongs but much rather whether a person experienced certain negative life-events. Such events could be a divorce, a disruption of a relationship, the death of one's partner, having a child early or late – and with that, experiencing an early or late transition into adulthood -or whether a person has experienced prolonged spells of inactivity on the labor market. Given these three theories, the thesis focused on offering empirical evidence to either shed light on the dynamics and mechanisms of social stratification with regards to the life course or to completely dismiss social stratification and highlight the importance of certain key life events.

Despite having set out with two broad yet clearly defined areas of theory where this thesis aimed to provide a contribution, I ended up with a multitude of insights which I judge as meaningful for other researchers and scholars. Each of them will be discussed in the following sections.

### 7.3.1 The continuing relevance class as a research paradigm

Synthesizing the results that have been presented in the previous section, it can be concluded that the empirical evidence from this research documents the strong and above all the *continuing* relevance of social stratification and class-dynamics for the elderly population up until today. Particularly unskilled workers having either no or only a very limited amount of formal education are found to be discriminated across multiple indicators and with regards to at least two resources: Incomes and mental health measured through depression. Not only does this finding seem robust with regards to different indicators and resources but it also holds true across various observations in time – between 1979, 1994 and 2011 - and for the different birth-cohorts that have been captured with each of the waves of the survey.

Inequality on an overall level actually decreased over the same 30 year period. This is most likely the result of the changing composition of the elderly population with less people having no or little formal education and a significant rise of people with apprenticeships and even more so for people with a type of higher education. Yet, class appears to be a continuously strong predictor for *inequalities*. Differently put: while there might be less people belonging to the lowest class of unskilled workers, the implications of doing so remained stable. Having little or no formal education creates a "scarring" effect that seems to dictate to a large extent the living- and health conditions much later in life, in old-age. It basically shows how the principal trajectory that a person might follow through his or her life is largely determined in the earliest life-stage during which education is acquired. I thus confirm the findings by Levy et al. (1997) who showed considerable evidence for inequalities in Switzerland and I share their conclusion regarding the persisting influence of processes of social stratification reproducing and reinforcing them.

These strong results concerning class-dynamics suggest not only that the general system of social stratification seems to hold true but more specifically, it signifies that the Marxist class-theory applies to todays elderly population living in Switzerland. This provides significant support to social theorists as well as gerontological researchers who refer to such a class-related theory framing, notably scholars associated with the *political economy tradition* and their contemporary regrouping among *critical gerontology*. To put it in Wright's (2005) terms: "Class counts".

### 7.3.2 Increasing complexity in class-relationship

This research has heavily drawn on Wright's interpretation of the class-relation framework. Based on his pivotal concepts of domination and exploitation, the class concept has been operationalized through the simple indicator of education. Furthermore, education was coded according to a three-level logic. Again, this logic followed Wright's argumentation regarding the increased complexity in class-relations. Accordingly, I classified people with a high education as belonging to the "capitalist" class; those with an apprenticeship to the working class; and those with a low-education as well. The two latter categories distinguish each other with the level of assets (skills) they possess. In other words, I have posited that through the increasing complexity the working class can be divided into what Wright calls *strata.*

As has been explained at the very end of section 2.1.5 where this class-measure has been defined and discussed, this introduces an additional level to the traditional Marxist class-logic. In addition to the exploitative relation of the capitalist class over the working class, I also account for the exploitative relation of skilled workers over unskilled workers. As I have further argued, this essentially leads to two class-related hypotheses:

- *Inter-class exploitation:* Are inequalities associated with the class-relation between the capitalist (highly educated people) and working class (skilled workers having an apprenticeship)?

- *Intra-class exploitation:* Are inequalities associated with the class-relation between unskilled (low education, no or only little formal education) and skilled workers (apprenticeship)?

Throughout the analytical chapters, both types of patterns were observed. In poverty both patterns were very strongly present. The same was found for the analysis of income source clusters and health inequalities in 2011. Most interestingly, however, depression is only associated with the measure for intra-class dynamics: The relation between unskilled and skilled workers. In other words, this measure of class yielded in highly interesting and coherent results.

In itself, the coherence and stability of these results can be interpreted as evidence for the relevance of such a division and the increasing importance of the consideration of class-strata and the impact that varying levels of skills have with regards to class.

On a more substantial level, I claim there is evidence that supports the hypothesis of a polarization *within* the working class. The basic idea here would be that while skilled workers might more and more adopt certain functions and class-relations that are associated with the capitalist class – as Wright's logic of “contradictory locations” posits –unskilled workers are the great losers of these processes of complexification and socio-structural changes. They continuously seem to be left behind. As a concrete example we can see this pattern in the chapter on the historical evolution of poverty: While in 1979 logics of both inter- and intra-class differences emerged, this dynamic has transitioned into one where the structural discrimination was situated at the level of unskilled workers versus skilled workers and no discernible difference was to be found between skilled workers and highly educated capitalists (or the “upper” class). Thus, it can be said that based on the results in this thesis, analyses which account for such intra-class variation have to be promoted.

### 7.3.3 Focusing empirical analyses on structural and institutional settings

In the chapter five that focused on poverty and the life course, the analysis has looked at focused on poverty and precarity, and in a second phase has focused on the membership to specific income cluster. As it turns out, some of the most interesting results were found when performing the latter. Such an analysis revealed that there seems to be continuing gender-inequality in the Swiss pension system and that relationship dissolution continues to have an impact on people's financial situation, albeit not directly as measured through poverty but on the likelihood to be relying on social welfare at the age of retirement. On an abstract level, this can also be seen through the lens of political economy of aging and Marxist class-analysis researchers, both of whom emphasize the crucial impact of people's embedding in socio-economic structures.

Accordingly, it can be concluded that the analyses on the income source clusters show the tremendous potential that lies in analyzing people's complex structural and institutional settings.

### 7.3.4 The importance of meso-contexts

One pattern which continued to be present in almost all our analyses – be it poverty, precarity, functional or mental health - and one which has never really been rigorously explored is that of cantonal differences. Although a preliminary attempt was made to shed light on these dynamics (see annex 9.6), no conclusive results were found other than that certain variables seem to have a highly diversified impact depending on what canton we assess. Hence, it can only be concluded that this unit of analysis seems to have a large and unexploited explanatory potential.

On a more abstract level, this finding can be related to the theoretical topic of meso-contexts which not only refers to the cantonal level but to any intermediary social structure that lies somewhere in-between the individual (micro-level) and large social macro-structures. The consideration of such contextual aspects was one of the theoretical principles in the social stratification analysis of Switzerland by Levy and colleagues (1997) and, as was to be expected, their results also support the conclusion of the importance of such inclusion and consideration.

### 7.3.5 Functional health and intersectionality

As has been presented, the analysis of functional health inequalities among the elderly population did not prove as insightful as that into old-age poverty. Health, as it has been stated multiple times, seems to be a highly complex and multi-layered phenomenon. Given that it is a phenomenon that lies at the crossroads of multiple factors of influence, an approach as suggested by intersectionality theory might be interesting. The main idea is to change the approach from focusing on single factors of influence towards a multi-dimensional and holistic perspective. On a methodological level, there exists a whole array of methods that might be adapted for such a purpose. Based on the results in this thesis such an approach might be the solution to overcoming the encountered limitations.

### 7.3.6 The life course: Additional risks

The results in this thesis generally dismiss the idea that the life course has become the most prominent and dominating social dynamic and paradigm for the construction of inequalities, as is suggested by the theories of biographization and individualization. In no analysis was the influence of any specific event or a trajectory able to distort the initial class-relationship. However, there are a number of life course events and isolated trajectories which do seem to have a significant impact on people's resources and inequality in old-age. It can therefore be concluded that in the population that I have studied in this thesis, there are cases were elements related to the life course can signify an *additional* source of risk and negative influence for a person's material, physical and mental well-being in old-age *on top* or *in parallel* of the already strong forces of social stratification and class. Such a conceptualization follows the suggestions of a number of

authors who do not consider social stratification and an event-based framework for the creation of inequality as exclusive. Instead, these scholars regard the two bodies of literature as complementary.

Hence, I once again argue that more holistic theoretical frameworks might be preferable for similar analysis that takes into account both socio-economic and institutional settings as well as individual agency and life-events. Ideally, such encompassing frameworks consider both of these dimensions as well as their articulations. In this respect, I believe that generic and dynamic concepts such as *resilience*, *vulnerability* and *risk (*or even *life-course risks)* hold great potential. One such global approach is given by O'Rand (2006) another is given by Pearlin (2010).

### 7.3.7 Future generations

Finally, a key question to ask is whether or to what extent these findings are universal and applicable to the generations of retired citizens that will be replacing the ones that are studied in this thesis. Given that the analyses in this thesis show the significant impact of social stratification and class -as measured through education-, does this signify that similar forces will be at work among those generations who are about to get retired our who recently have reached their retirement age? And given that there have been certain cases where life course events did have a significant impact on people's resources in old-age, does this mean that such events will no become more important and determining? This question can also be connected to what has been called the “anti-class movement” and the “postmodernist critique” on which the former draws. Clear evidence for this question is missing and there is an ongoing discourse as to whether generations born in 1945 and onwards really do have such radically different lives than their predecessors. Basically, there are two narratives that can be brought forward.

The first is what I would call the modern or postmodern narrative. Theorists who support this hypothesis emphasize that since over the course of the 20$^{th}$ century and particularly since the 1950s, there have been broad social changes that brought with them the dissolution of traditional structures, institutions and dynamics. As a result, people's lives in this period of late capitalism have become strongly de-standardized -there are no “standard” trajectories anymore and there is a high variety of life-paths that people take-; de-institutionalized – meaning that people's lives are no longer closely framed in traditional institutions such as the family, church, or the labor market; and altogether less stable and predictable. In such a deregulated, highly volatile, flexible and fluid world, social stratification and class are no longer believed to be any meaningful forces. According to this first view, generations that follow the ones that are studied here, namely those born after 1950 are believed to feature radically different lives, corresponding to these new postmodern characteristics. And indeed, an assessment by Widmer and Ritschard (2009) did find the most significant shifts in people's life trajectories in generations born after 1947 and most importantly those born around the year 1950.

Opposed to this is the second view which could be called “stationary” and which is strongly in line with a “pure” Marxist and social stratification view. According to this second position the basic dynamics of social stratification and class-reproduction will not fundamentally change but will even be accentuated in the future. Based on this view it can be expected that the observed dynamics that have been described in this thesis will persist well into the next decades.

In conclusion, there is no clear answer to this difficult question as there is an ongoing debate whether or whether not there have really been any meaningful changes in the way people make their way through their lives. However, I claim that it does not necessarily have be one or the other and that the most likely scenario is one that lies in between the two extremes that have been described. Given the continuing relevance of class with regards to inequalities in old-age between 1979 to 2011, I do believe that this dynamic will certainly persist over the coming decades. However, perhaps the overall importance will decrease slightly with the supposed postmodern transformations of society. Parallel to this, the impact of individual life course events and transitions might not only persist but might rise in the context of increased flexibilization, de-standardization, de-institutionalization and generally more unstable lives. In my view these forces are highly complementary and might both have their respective share in shaping people's lives and the outcomes in terms of resources at the age of retirement.

## 7.4 Policy implications

### 7.4.1 The key role of education for the creation of inequalities

The main indicator that served as a proxy for class and that was used throughout this thesis is educational achievement. As has been presented extensively, the latter has an impact on all three measures of inequality: Poverty, functional and mental health. The strongest and most stable impact can be observed for the first measure, poverty. For this reason, the first recommendation for policy-makers must be to continue the efforts that have been made since the second half of the 20$^{th}$ century for a democratization of education. The decrease of overall poverty between 1979 until 2011, for instance, is with any doubt due to the improvements in this area. While there may be a growing discussion on whether the value of “traditional” education with university degrees, PhDs and the like is decreasing, there is no doubt that only having limited or no formal education creates a downward spiral that will lead to life-long negative consequences and most likely will create difficult situations in old-age as well. For this reason, it has to be of the most pressing importance to provide every citizen with a solid form of education, a basic “stock” of social capital with which people can tackle the increasingly difficult demands of modern labor markets. Hence, I believe that addressing the remaining educational differences, which have been shown to be a strong predictor for significant social inequalities in the long-run, will be and *has to be* one of the key challenges for policy-makers today as well as in the long-term.

However, while promoting education might be a meaningful strategy to prevent poverty

and to promote better mental and physical health, it cannot be the only one. An integral part of social policies has to consist of breaking the documented negative dynamics that are associated with having little or no formal education. For old-age poverty there have to be strong and encompassing institutional settings – and an adequate level of redistribution built into them - to assure decent pensions even for people with little education and for those working in less paid professions. However, for mental and physical health the relationship is more complicated given that the causes for the persisting social gradients are still heavily debated. Nevertheless, this should not discourage policy-makers to continue and perhaps even intensify their efforts in understanding and improving health among people with lower education.

### 7.4.2 The 10th AHV revision: Successful at first sight, continuing inequalities underneath

On an absolute level, my results do confirm that the measures introduced in the last revision of the AVS system that aimed notably at eliminating gender-inequalities seem to be working adequately, a finding which is supported with the absence of a significant relationship for civil status, the events of having lost a partner or having experienced a relationship dissolution. In the mid-1990s, widowhood was still important in explaining low levels of incomes among women compared to men (Lalive d'Epinay et al. 2000), but my results based on the VLV survey confirm the analyses by Wanner and Fall (2012), suggesting that the adaptations included in the 10h revision of AVS has been successful. Similarly, 15 or 20 years ago the expected rise of divorce as a civil status in the older generations was seen as a threat, especially for women. However, while marriage dissolution in later life is often associated with significant psychological distress (Höpflinger et al., 2013), my findings suggest it does not necessarily imply a deterioration of economic well-being.

However, an additional analysis which focused on a set of different indicators, namely the reliance of specific sources of income, revealed persisting patterns of inequality that had previously remained undetected. Gender-inequality seems to persist to a certain degree given that women are significantly more susceptible to be relying on social welfare compared to men. Similarly, while the civil status of divorced no longer seems to be associated with poverty and financial hardship in old-age, it does appear to be a key factor for whether people have to rely on social welfare at the age of retirement.

Thus, while the key indicators on a global level suggest that the aforementioned revisions have been successful, a closer look reveals persisting inequalities which have to be addressed in the coming 11th revision of the AVS system.

### 7.4.3 Importance of AVS for financially vulnerable seniors

On a similar note, the analysis of income source clusters in old-age was able to show that there are two common configurations which are strongly associated with old-age poverty: The first is one can be called "social welfare" and mainly regroups people who

are relying on AVS and on a multitude of social welfare contributions (cantonal, institutional, familial). The second contains people who primarily rely on AVS and on their private savings. For both of these clusters, the income provided by AVS represents a crucial part in their financial resources. These results provide clear evidence that it is not appropriate to discuss a decrease of the basic amount of AVS-rent in the process of the 11th revision of the AVS system. Such a scenario would directly impact people situated in these two clusters given that one of their two principal income sources would be compromised.

### 7.4.4 Fixing loop-holes that constitute a risk for poverty

An issue that has recently been discussed in the mainstream media in Switzerland concerns the use of the second pillar,professional pension funds, for either the founding of an independent business or for homeownership. Regarding this issue, the results in this thesis provide two insights: Firstly, that people who do not dispose of a second-pillar (those who are situated in the income clusters of social welfare and “AVS+3rd. Pillar”) do have a significantly increased risk for poverty and precarity in old-age. Secondly, there are significantly more independent workers in the latter cluster as well as significantly more people who are homeowners. While this is not necessarily proof for a pathway to financial difficulties in old-age, it is certainly an issue that needs to be assessed in greater detail. Potentially the results could be interpreted as an indication that this special mechanism might be a cause for financial hardship at the age of retirement.

## 7.5 Recommendations for future research

In light of the presented results and the choice of the research agenda in this thesis, I would like to focus on four areas and topics in which I see particularly promising potential for future research.

Firstly, this thesis has demonstrated how the generations that have primarily been studied (cohorts 1907-1947) are strongly characterized by the forces of social stratification and class. At the same time, the impact of the newly emerging event-based framework, also referred to as the biographization or the individualization framework for inequality, has been limited and has in no analysis been able to mediate or even nullify the initial effects related to class and socioeconomic position. Against this backdrop, I believe the most promising and exciting research concerns the analysis of life courses of younger cohorts and to compare them with those that are studied in this thesis. Younger cohorts, in this context, also include the often-cited “baby-boomer” generations. This could shed light on the large question whether such generations – born after 1950 – truly have biographies that are characterized by de-standardization, de-institutionalization, individualization and more generally, by more instability and a higher level of risk. Based on these findings this would shed light on the ongoing discussion on the relevance of class and the impact of specific life events in a postmodern and highly volatile society. Such insights could then be used to extrapolate the impacts in old-age. This general idea

has been applied in a PhD thesis by Frommert (2014) who has studied people's work trajectories and based on these results has created estimations for old-age pensions. However, this could also be done for other areas and indicators such as functional and mental health.

Secondly, as has been shown in the chapter on economic resources, there is considerable potential for analyses that do not only focus on relatively limited target variables such as poverty, precarity – or any other "static" poverty indicator, for that matter – but to focus on more complex indicators such as income source clusters. In fact, given that financial resources in old-age are constituted from different sources and are altogether the result of life-long contributions to the Swiss pension system, the potential for such an approach is very promising as it represents a way of capturing such complex institutional settings.

Thirdly, in practically all of the analyses that have been performed in this thesis, the variables of sample stratification – sex, age group and canton – have always been included in the models. While the results for these covariates were of secondary importance in this thesis, there lies considerable potential in the analysis of these effects. Above all, there seem to be considerable cantonal patterns that were not explained by any of the other covariates in my analyses. Thus, the exploration of such cantonal differences could yield in important results, especially with regards to policy-makers.

Finally, even though the VLV survey and the two waves of the survey before it featured specific procedures that should enable people with cognitive impairments or other physical difficulties to participate, this population – which in the project terminology was referred to as the "non-apte" population – has been excluded on the grounds that a large block of covariates and target variables were missing. However, the basic information that has been collected for this population might still enable a highly interesting analysis of the underlying dynamics, or in the case of the comparative dataset, on the temporal evolution.

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# 9. Annex

## 9.1 Work trajectory clustering

*Introduction*

This section aims to give an insight into the clustering procedure for people's work trajectories as they are integrated in the analyses in chapter 5. Beyond simply justifying the choice of the number of retained clusters, this part aims to give a brief description into the other clustering options in order to provide an understanding of how the other solutions would have lead to different typologies and how these typologies would have differed from the chosen one.

*Diagnostic plot*

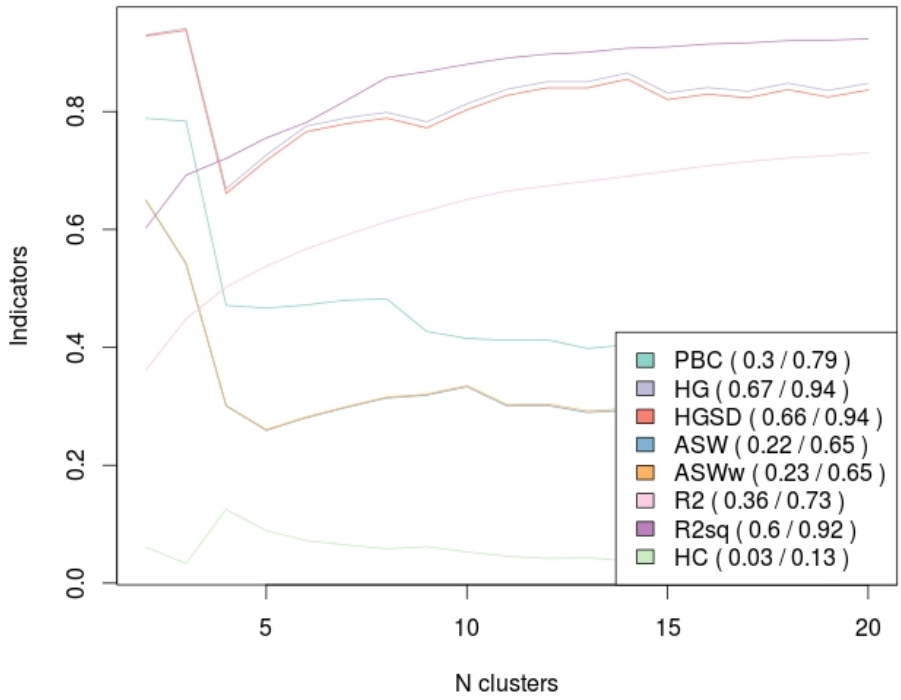


*Figure 22: Clustering diagnostics for work-trajectory clusters*
*Source: Own calculations, COMP dataset*

Figure 22 provides a graphical representation of the various clustering measures as provided by the WeightedCluster package (Studer, 2013b, p. 13). Without going into a detailed description of each of these indicators, they all measure of the quality of the partition whereas each highlights certain qualities and penalizes others. For the interpretation, all except for one, the HC measure, need to be maximized for the best possible partition. Hence, based on this partition an ideal number would be at 3 clusters, with all values being relatively high and the HC measure being low. At 4 most measures drop quite drastically with the HC increasing sharply, indicating that 4 is a less favorable solution. Starting from 5 onwards, the HC measure decreases again with all other measure increasing as well, suggesting that 5 or 6 would once again be preferable solutions.

However, beyond such diagnostics a key element is always the actual signification and the ease of interpretation that can be drawn from each of the clustering solutions. This is why the following section will, for the solutions of 2, 3, 4, 5 and 6 clusters, provide a brief description. This description will then be the basis, along with this brief discussion of the quality measures, for the conclusion of this part.

*Description of alternative partitions*

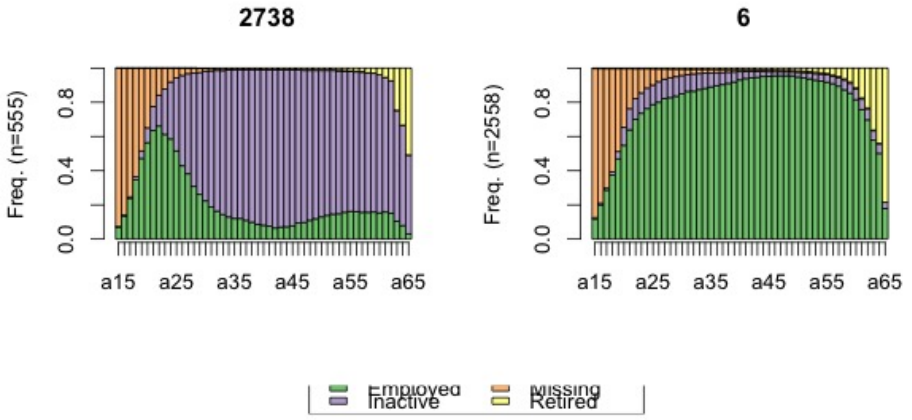


*Figure 23: Clustered work trajectories – 2 cluster solution*
*Source: Own calculations base on VLV, 2011*

A partition based only on 2 clusters is shown in figure 23. As can be seen, the division creates one cluster which is heavily characterized by unemployment whereas the other one regroups people who have experienced very little unemployment in their work-lives and predominantly have been employed for most of their professional lives. Yet, as can be seen in the right panel, there remains a small occurrence of people who are unemployed nevertheless at any given moment.

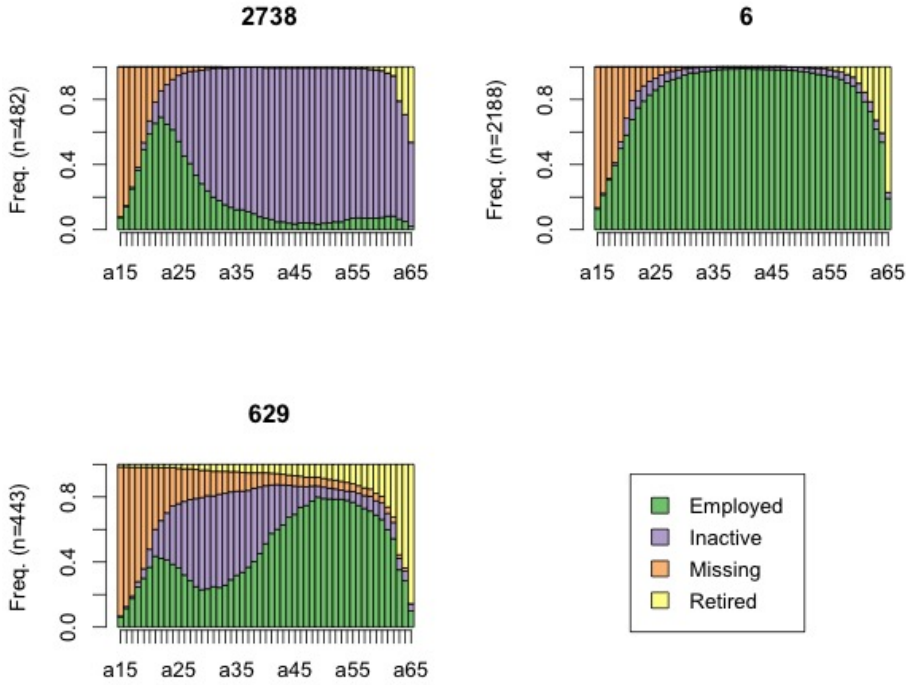


*Figure 24: Clustered work trajectories – 3 cluster solution*
*Source: Own calculations base on VLV, 2011*

In the solution with three clusters - according to the diagnostic plot the preferable solution -some more refined patterns become visible. While the previous solution with two clusters only distinguished between people who predominantly were employed and people who were often unemployed, this solution shows two different patterns of trajectories that are strongly characterized by unemployment. On one hand, there are people who are unemployed more or less all through their work-lives, whereas there is a second group which is so only in the beginning until the end of their work-lives but more often works towards the second half. These two clusters already resemble quite closely the ones that have been described in the final four-cluster solution: The two female trajectories. Furthermore, the third cluster that remains is the one which is predominantly characterized by employment.

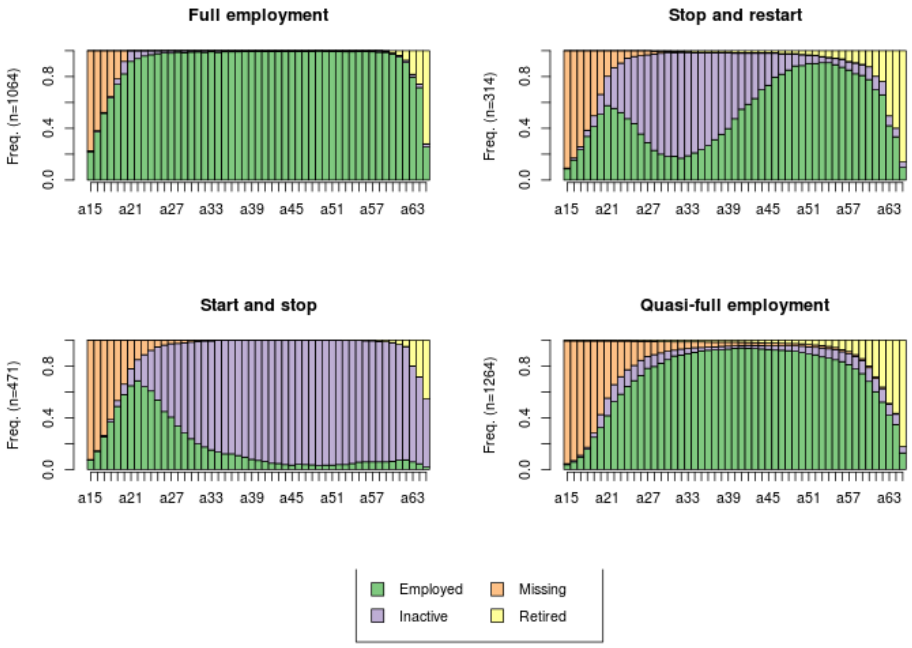


*Figure 25: Clustered work trajectories – 4 cluster solution*
*Source: Own calculations base on VLV, 2011*

The four-cluster solution is the one that has finally been adopted in this thesis. The reason for this are found in the interpretation: Whereas the previous 3-cluster partition showed only one cluster of people who principally were employed all through their work-lives, the solution with four groups shows that there seem two underlying patterns: One that is truly characterized by full-employment all through the life. The second then resembles the latter quite closely but features a slightly increased number of unemployment spells. I opted for this solution because I believe that it best shows the broad spectrum of possible work-trajectories: On one hand, an "privileged" work-trajectory that is characterized by full employment and almost a total absence of unemployment occurrences. Second, a trajectory that is almost the same but still features some minor episodes of unemployment. This cluster also captures the largest number of people. The third and fourth group then capture those trajectories who experience longer and more substantial spells of unemployment. Notably, the trajectories which are marked by unemployment in the first half of the work-life and less for the second. The fourth and final cluster then is characterized by a seemingly complete withdrawal from the formal labor market. The latter cluster being, so to speak, the counterpart on the other end of the spectrum compared to total full-employment.

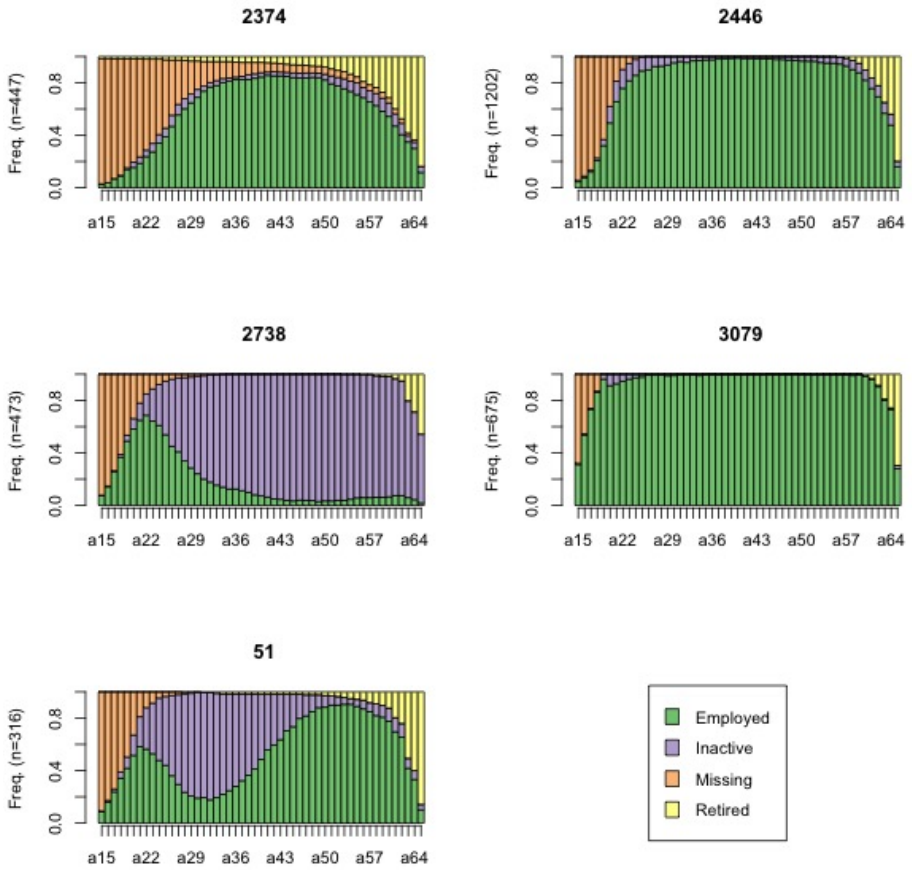


*Figure 26: Clustered work trajectories – 5 cluster solution*
*Source: Own calculations base on VLV, 2011*

The fifth solution is, I argue, offers a less obvious insight into work-trajectories. Notably, it yields in an additional pattern, cluster 2374, which is not very obvious to interpret. The characteristics that seem to set this cluster apart are a higher occurrence of missing data from the beginning of the work-life until about 40 years and secondly, a higher occurrence of early retirement (yellow bars). The remaining clusters then correspond more or less to the patterns that have been described previously: “Full-employment”, “quasi-full-employment”, “start and stop”, and “stop and retake”. I consider this typology to be less striking and obvious as the previous one or the solution that builds on three clusters.

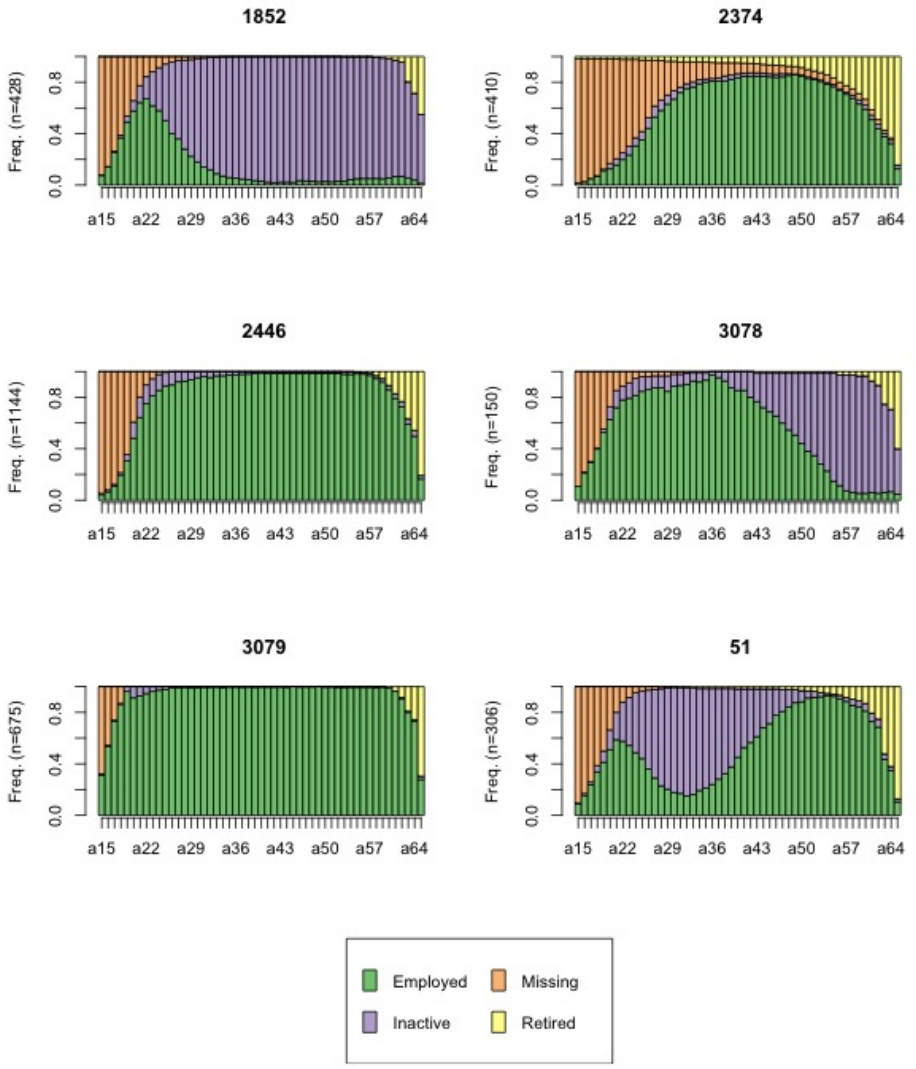


*Figure 27: Clustered work trajectories – 6 cluster solution*
*Source: Own calculations base on VLV, 2011*

Finally, figure 27 shows the partition with six clusters. Again, an additional group seems to crystallize compared to previous solutions. Here 3078 indicates that there is a group of people who tend to be predominantly employed up until the age of roughly 40,from where onwards the number of people who are unemployed rises steadily.

*Conclusion: The ideal number of clusters*

As has been mentioned, the final adopted solution consisted of 4 clusters. The key reason for this choice is the ease of the interpretation of the solution and, as has been discussed, the identification of a “privileged” cluster meaning people who practically never experience any unemployment over the course of their professional lives.

Finally, it must be said that all of these presented solutions have been integrated in the regression model in 5.6 and neither of the alternative solutions has yielded in significant results.

9.2 Income sources diagnostic plot

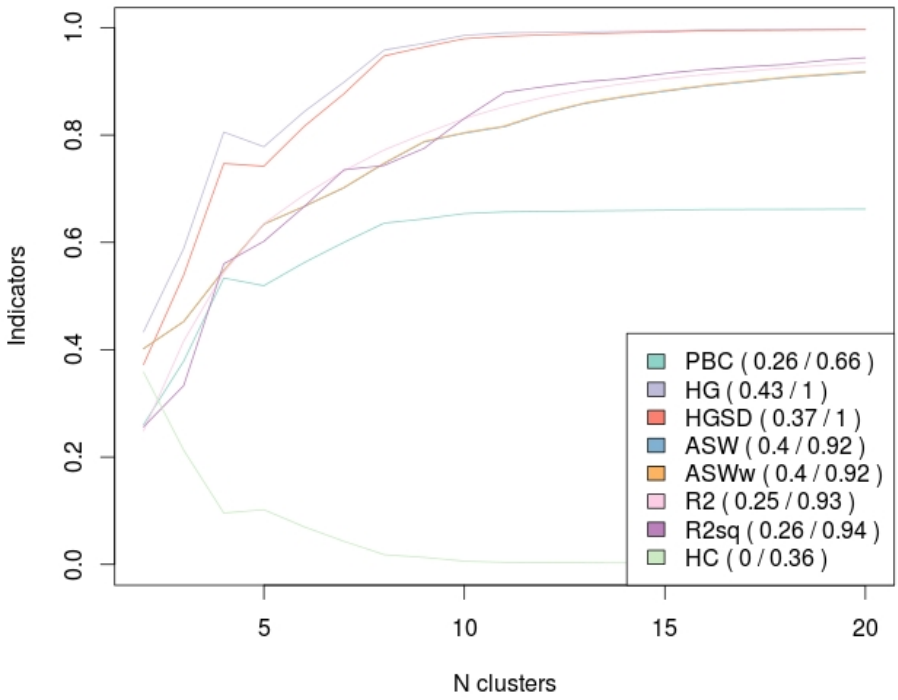


*Figure 28: Cluster diagnostics income source clusters*
*Source: Own calculations based on VLV*

## 9.3 Comparison binomial versus multinomial logit for poverty and precarity

*Introduction*

For the operationalization of the second indicator for economic hardship, precarity, this thesis choses a somewhat particular approach by not employing a multinomial logit model but to to combine people who are precarious with those who are poor and to re-run a second binomial logit model. This approach being, as has argued extensively in both the theory chapter as well as the methodology chapter, a way of not placing too much emphasis on a somewhat debatable threshold which is given by the line of absolute poverty. Hence, the approach that is adopted in this thesis can be considered as being similar to testing for a second poverty threshold, one that is less strict and also includes people who are living at the fringes of poverty. Finally, this approach is also followed with social policies in mind: The question being whether the population that should be targeted with social policy programs changes when a different threshold is chosen.

In this part, the aim is to provide a technical demonstration that the adopted approach is sound and that a multinomial approach would not yield in considerably different insights.

*Question*

Given the described problematic, the questions that should be answered by this demonstration are the following:

- Does the use of two binomial models (one for poverty, one for precarity) provide the same amount of insight into the underlying dynamics as a multinomial logit model?
- What are the differences, if there are any?

*Method*

In order to show the differences or similarities in terms of provided insight, I have used on out of the 100 imputed VLV datasets on which the analyses in chapter 5 are made. This is done in order to have a dataset without missing values and to eliminate the somewhat complicated procedure of running multiple analyses on multiple sets of imputed data and finalizing the findings by pooling the results.

Based on this dataset I will show three different model estimations: First, the binomial logit model for poverty with the standard variables sex, canton, age and education. Secondly, the binomial logit model for precarity (again, precarity meaning that people who are precarious are merged with those who are poor and consequentially tested against those who are in material security or, differently put, non-poor and non-precarious). The third model then shows the alternative method for this setting, which is given by a multinomial logit model that models the effect of the same

covariates on a target variable that I call the “3-level income” variable. Basically, it is the tri-partition of the income-classes based on the thresholds of the absolute poverty line (below that line people are “poor”), the line of precarity (between the poverty line and the latter, people are “precarious”) and finally, people below the line of precarity are considered as “secure”.

I will the compare the insights given by the first two and compare them to the ones that can be gained from the multinomial model.

The binomial logit models were calculated with the “glm” function of the R-software using the “family=”binomial”” setting. The multinomial logit models are estimated by the same software using the “multinom” function from the “nnet” package. All models show odds-ratios. In order to enable the best possible interpretation I have additionally added the effect plots for all models. These were created with the {effects} package by the R software.

*Results*

| | Poverty Binary | Precarity Binary |
|---|---|---|
| | (1) | (2) |
| Women | 1.10 | 1.10 |
| Canton Valais (Ref. Geneva) | 1.80*** | 1.50*** |
| Bern | 1.10 | 0.92 |
| Basel | 0.92 | 0.72*** |
| Ticino | 1.90*** | 1.40*** |
| Age group 70-74 (Ref. 65-69) | 1.20 | 1.20 |
| 75-79 | 1.10 | 1.10 |
| 80-84 | 1.30 | 1.10 |
| 85-89 | 1.40** | 1.20 |
| 90+ | 1.30 | 0.98 |
| Low education (Ref. apprenticeship) | 2.40*** | 2.10*** |
| Higher education | 0.54*** | 0.43*** |
| Constant | 0.18*** | 1.40*** |
| Observations | 3,080 | 3,080 |
| Log Likelihood | -1,519.00 | -1,940.00 |
| Akaike Inf. Crit. | 3,064.00 | 3,905.00 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 92: Binomial logit model for poverty and precarity*
*Source: Own calculations based on VLV, 2011*
*Note: Models displaying odds-ratios*

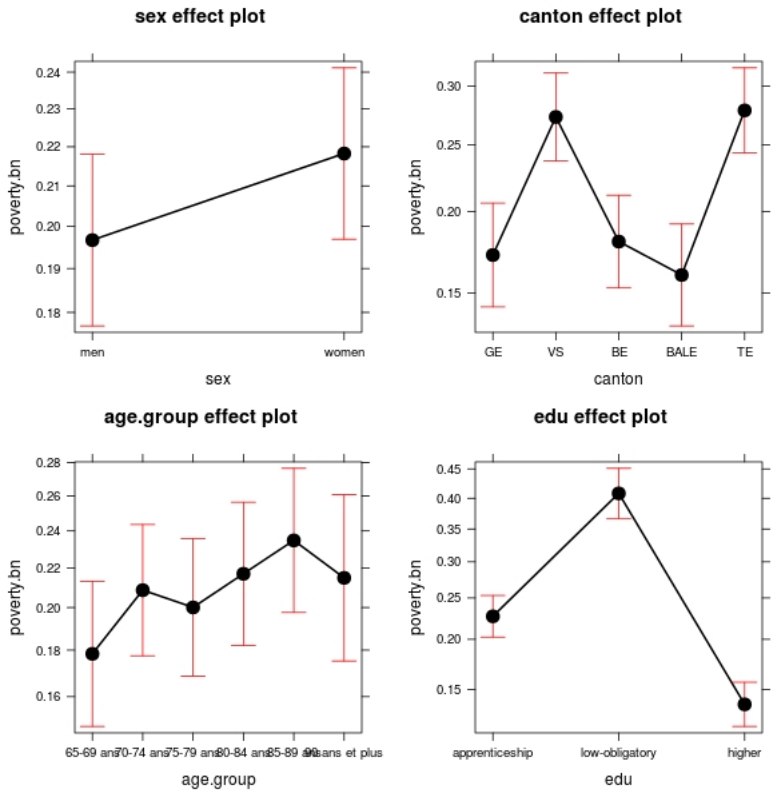


*Figure 29: Effect plot for binomial logit regressions on poverty*
*Source: Own calculations base on VLV, 2011*

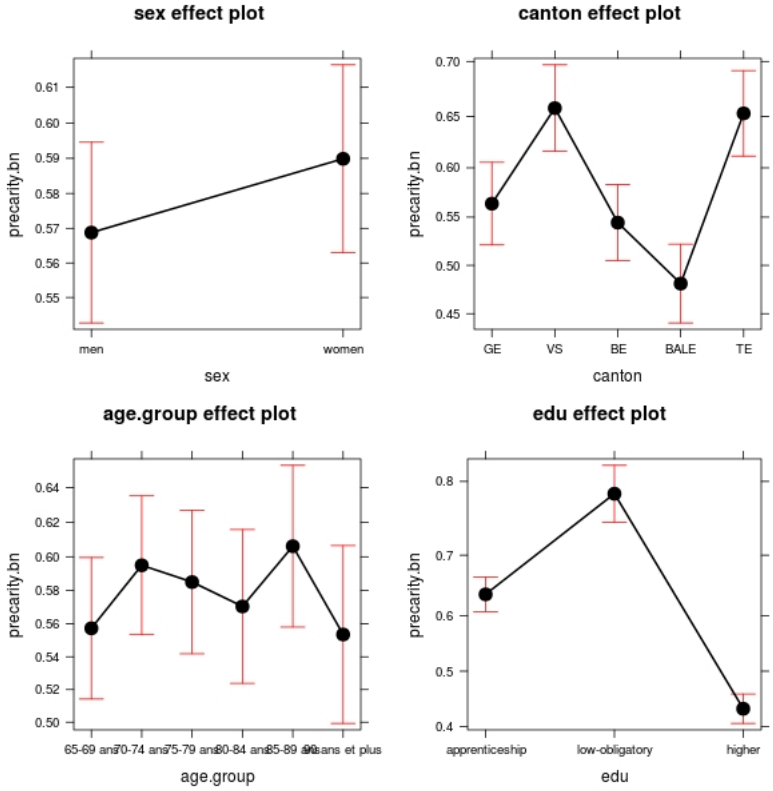


*Figure 30: Effect plot for binomial logit regressions on precarity*
*Source: Own calculations base on VLV, 2011*

The first column of table (table 92) summarizes the model for poverty. It shows that people who live below the poverty line have a relatively distinct profile. Above all, there are important cantonal differences with Valais and Ticino clearly being factors that increase the risk of poverty in old-age by almost a factor two: To be specific, Valais has an odds-ratio of 1.8 suggesting a roughly 80% increase in the risk for poverty; Ticino has an even higher odds-ratio at 1.9, indicating a 90% increase. This cantonal disparity can also be seen very clearly in the effect plot figure 29. It also shows that the other cantons, Geneva (which serves as the reference category), Basel and Bern are situated at a quite comparable level. Furthermore, there is a single age-related effect associated with people aged 85-89. The odds-ratio of 1.4 suggests that this five-year cohort have a roughly 40% increase in the odds for poverty at the age of retirement. Finally, the strongest effects can be found for education. For that covariate it can be seen that people with little or no education have a tremendously higher associated risk for poverty (with an odds-ratio of 2.4) than those with a form of higher education (who have an odds-ratio which is about a fifth of those for the previous group at 0.54.). This strong cleavage between those education groups is even more evident observing the corresponding effect plot.

The second column features the model estimation for people who are living beyond the precarity treshhold (poor and precarious combined). While this table itself might give some interesting insights, the most crucial information can be obtained through the comparison with the previous model for poverty. Hence, the comparison of the corresponding effect plot (figure 30) shows that the key patterns related to canton (Valais and Ticino having higher values) and education remain stable. However, a closer look reveals that the odds-ratios for Valais and Ticino decrease by about 20%: The one for Valais sinks from 1.8 to 1.5, the one for Ticino from 1.9 to 1.4. This shift suggests that the group of precarious people, the ones in-between the line of absolute poverty and the line of precarity, do not feature similarly elevated poverty-risks for these two cantons. Since in this second model the population is larger and the described group does not have similar effects for Valais and Ticino, the odds-ratios decrease. For education, the odds-ratios decrease only marginally, suggesting that the strong educational patterns are valid even when the threshold for financial hardship is set at a much less strict level.

However,there are two particularities that can be observed. Firstly, the weak age-effect that was visible in the previous model becomes insignificant in the precarity model. Given that once the treshhold is set higher there are no longer any age-patterns to be observed suggest that this effect was only weak and exclusive to the group of poor people. Finally, the contrary can be observed for the cantonal differences: Rather than disappearing effects there is a new one that can be observed with Basel showing a significantly lower odds-ratio in this second model. Hence, it can be interpreted that in the group between the poverty-line and the precarity-line, people who are living in precarity, people from Basel are much less exposed to such precarious conditions. In fact, the concentration is high enough that when this group is merged with the poverty group, the effect for Basel still appears.

This extensive discussion and interpretation of the results will now be compared with the multinomial logit model.

| | Poverty | Precarity |
|---|---|---|
| Women | 1.20 | 1.00 |
| Canton Valais (Ref. Geneva) | 1.80*** | 1.10 |
| Bern | 0.96 | 0.84 |
| Basel | 0.67* | 0.68*** |
| Ticino | 2.00*** | 1.10 |
| Age group 70-74 (Ref. 65-69) | 1.20 | 1.10 |
| 75-79 | 1.20 | 1.10 |
| 80-84 | 1.20 | 1.00 |
| 85-89 | 1.40* | 1.00 |
| 90+ | 1.30 | 1.10 |
| Low education (Ref. apprenticeship) | 2.90*** | 1.50*** |
| Higher education | 0.39*** | 0.48*** |
| Constant | 0.43*** | 1.20 |
| Akaike Inf. Crit. | 6,239.00 | 6,239.00 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | |

*Table 93: Multinomial logit model for poverty and precarity*
*Source: Own calculations based on VLV, 2011*
*Note: Model displaying odds-ratios*

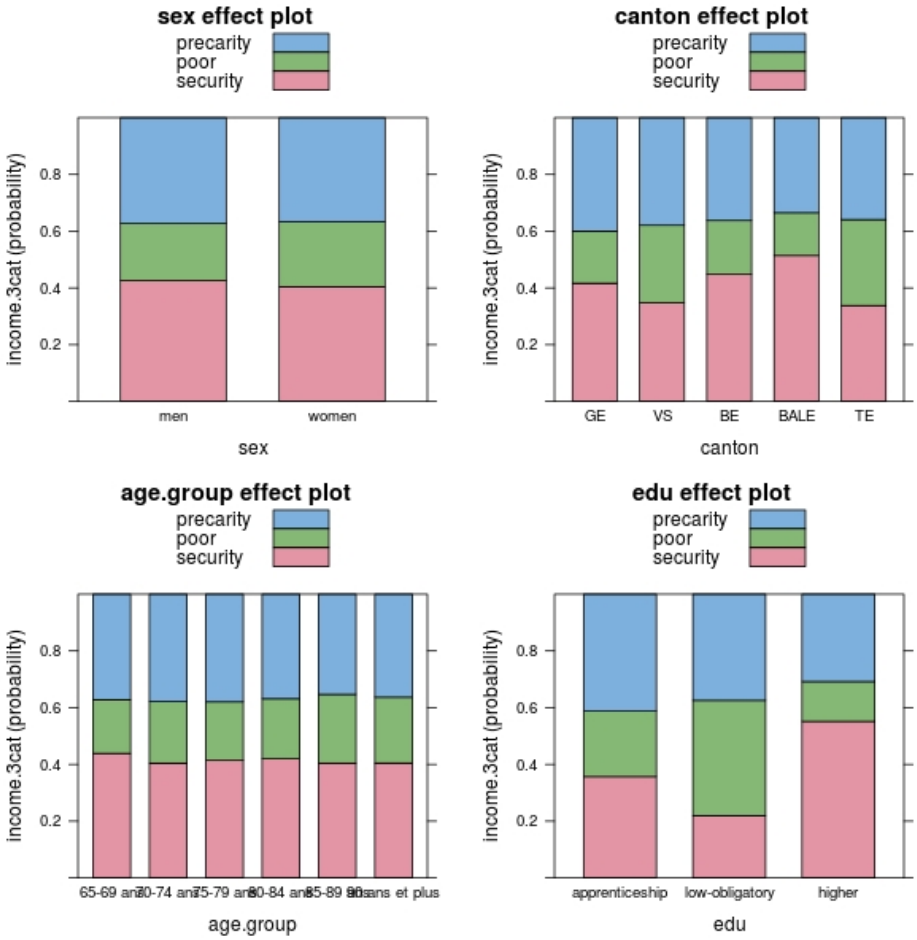


*Figure 31: Lorenz curve* economic resources Geneva & Valais 1979-2011
*Source: Own calculations, COMP dataset*

Figure 93 shows the results for the multinomial logit model. As a reminder, in the multinomial logit there are three groups that have been described in the methods section of this part. The category of “security” has been specified as the reference category. Based on this setting, the model will therefore compared the odds of being in the group “poor” versus those of being in “security” and, in a second step, the odds of being in “precarity” versus those of being in “security”. For this model the effect plot (which is shown in figure 31) is quite important for the interpretation, given that the coefficients or odds-ratios depend on the value and structure of the reference category, which at times can be difficult to interpret.

For the first category of “poverty”, there are strong cantonal effects as well as strong educational effects. As was the case with the previous models, Valais and Ticino have a strongly increased odds-ratio (2.0 for Ticino and 1.8 for Valais).Interestingly, in that group, Basel already shows up as being less associated with an odds-ratio of 0.67. Also, there is a weak age-effect for people aged 85-89 with an odds-ratio of 1.4, the same as in the previous model for poverty. Furthermore, educational patterns for poverty are very strong with low education almost tripping the odds for poverty, and higher education strongly decreasing the risk for poverty.

In the second group, precarity, there are less patterns to be found. Notably, the strong effects for Valais and Ticino disappears. Yet the effect of Basel remains the same, whereas the odds-ratio of 0.68 continues to suggest that people in Basel are financially rather well-off. Finally, the effects for education remain strong, with low education continuing to have a strongly increased odds-ratio of 1.5 and high education remaining similarly low at 0.48.

*Discussion*

As has been demonstrated, the insights that can be gained from both approaches are almost identical. The first approach perhaps requires some more interpretation and the information have to be acquired through comparison rather than through separate coefficients and odds-ratios. However, the actual insights are, as has been said, practically the same.

*Conclusion*

This demonstration aimed to show whether, from a technical point of view, the two aforementioned approaches to the analysis of poverty and precarity produce significantly different results and insights. Based on this demonstration, I claim that the conclusion must point towards the fact, that these approaches are equal. Hence, the choice for the preferred approach has to be based on more conceptual criteria. As has been argued in the chapter on methods and as has been briefly mentioned in the introduction to this part, one of the main criteria that can be brought forward in this regard is that a typology that creates three groups and relies on two thresholds which are are somewhat contested, might be less robust than two binomial approaches.

## 9.4 Direct Standardization of Poverty Rates by Education

### *Introduction*

The aim is to test the hypothesis whether the shifts in the composition of the population in terms of education is responsible for the shift in poverty rates between 1979, 1994 and 2011. This can be assessed via the method of direct standardization. The hypothesis to test here therefore is as follows: How do poverty rates develop in 1994 and 2011 if one supposes the same composition in terms of education as 1979 (which is therefore taken as reference year). This can be done using the method of direct standardization (Naing, 2000; Treiman, 2014, pp. 29–43)

### *Procedure*

The point of departure for the calculations are the observations (in absolute numbers) of poor and non-poor people per year (wave of the survey) and educational level. These numbers result from COMP data that have been weighted to correct for the stratified sampling design.

| | 1979 | | 1994 | | 2011 | |
|---|---|---|---|---|---|---|
| | Not poor | Poor | Not poor | Poor | Not poor | Poor |
| Low | 343 | 535 | 295 | 278 | 135 | 60 |
| Apprenticeship | 90 | 63 | 126 | 69 | 277 | 56 |
| High | 203 | 60 | 353 | 119 | 426 | 110 |
| Column totals | 636 | 658 | 774 | 466 | 838 | 226 |
| Total population | 1294 | | 1240 | | 1064 | |

*Table 94: Observed absolute numbers of poor and non-poor per year and educational level*
*Source: COMP*

Based on table 94 we can now calculate, for each year, the poverty rates for each educational level (by dividing the amount of poor people in one category, for example the 535 people with a low education in 1979 with the absolute number of poor people in 1979 which is 658). The poverty levels for the population are, obviously, calculated using the total number of poor people in each year divided by the total population in that year. The results are summarized in table .

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Low | 0.81 | 0.38 | 0.60 |
| Apprenticeship | 0.10 | 0.16 | 0.15 |
| High | 0.09 | 0.46 | 0.26 |
| Total poverty rate population | 0.51 | 0.38 | 0.21 |

*Table 95: Observed poverty rates per educational level and year*
*Source: COMP*

With these two tables we can now begin with the procedure of standardization. As has been described in the introduction, the main idea is to suppose that the composition of the population in terms of educational level remains stable from 1979 onwards and across the following waves and years. In other words, the absolute number of poor people having a low education always remains at 535, those with an apprenticeship remains stable at 63 and those with a high education remain 60 for the following waves. With this "virtual population" we can now calculate how many people would be poor for each educational level, using the observed poverty rates in each following year that are summarized in table 95. In other words, we are taking a standard population and apply the calculated poverty-dynamics for each educational level to the same standard population in the same level.
The result is a table with the projected amount of people who are poor for each educational level in each year. These results are summarized in table 96.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Low | 535 | 204 | 319 |
| Apprenticeship | 63 | 10 | 9 |
| High | 60 | 27 | 15 |
| Total projected poor | 658 | 242 | 344 |

*Table 96: Projected absolute numbers of poor per educational per year (basis: population in 1979)*
*Source: Own calculations based on COMP*

In a last step, we can now calculate the projected poverty rates, meaning the poverty rates based on the projected amount of poor people in the standard population.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Low | 0.81 | 0.84 | 0.93 |
| Apprenticeship | 0.10 | 0.04 | 0.03 |
| High | 0.09 | 0.11 | 0.04 |
| Projected poverty rate population | 0.51 | 0.19 | 0.32 |

*Table 97: Projected poverty rates according to education level per year (adjusted to population in 1979)*
*Source: Own calculations based on COMP*

Table 97 shows the results for this direct standardization contrasted with the observed values. Since 1979 was the reference year, those numbers do no change. For the following years the observed values are printed without brackets and the projected values (those who were adjusted according to educational levels in 1979) are written in brackets.

| | 1979 | 1994 | 2011 |
|---|---|---|---|
| Low | 0.81 | 0.38 (0.84) | 0.60 (0.93) |
| Apprenticeship | 0.10 | 0.16 (0.04) | 0.15 (0.03) |
| High | 0.09 | 0.46 (0.11) | 0.26 (0.04) |
| Total poverty rate population | 0.51 | 0.38 (0.19) | 0.21 (0.32) |

*Table 98: Projected poverty rates per educational level compared with observed poverty levels*
*Source: Own calculations based on COMP*

*Interpretation*

The key information that can be seen is that the total poverty rate for the population between 1979 and 2011 would actually decrease *less* if the educational levels would remain stable throughout. This confirms the hypothesis that the shifts and improvements in terms of education in the population have caused a decrease of the population. However, it also appears that there has been a decrease of poverty that is unrelated to education. Finally, it can be seen that for people with a very low education, the risk of poverty increases to a staggering 0.93 in 2011 which means that, based on these numbers, having a poor education does radically increase the risk of poverty, more than in years before.

## 9.5 Interaction term models chapter 4

| Ref. Independent | In diff. | Dependent |
|---|---|---|
| Intercept 1979 | 0.06*** | 0.02*** |
| Intercept 1994 | 0.02*** | 0.01*** |
| Intercept 2011 | 0.02*** | 0.01*** |
| Interact. Women/1979 | 1.19 | 0.98 |
| Interact. Women/1994 | 1.37 | 1.23 |
| Interact. Women/2011 | 1.83** | 1.54 |
| Interact. Valais (Ref. Geneva)/1979 | 1.44** | 1.15 |
| Interact. Valais (Ref. Geneva)/1994 | 1.38 | 2.40*** |
| Interact. Valais (Ref. Geneva)/2011 | 1.29 | 1.40 |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.32 | 2.13* |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 1.61 | 1.45 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 0.90 | 2.68 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 1.80** | 1.57 |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 4.25*** | 3.56* |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 3.02** | 1.80 |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 3.23*** | 7.02*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 5.35*** | 10.28*** |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 4.15*** | 1.45 |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 3.91*** | 9.29*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 10.93*** | 20.66*** |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 5.37*** | 7.06** |
| Akaike Inf. Crit. | 3,273.10 | 3,273.10 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 99: Control model for with interactions for functional health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Binomial logit model displaying odds-ratios*

| | 10-Item Wang Score |
|---|---|
| Intercept 1979 | 2.37*** |
| Intercept 1994 | 1.99*** |
| Intercept 2011 | 1.87*** |
| Interact. Women/1979 | 1.32*** |
| Interact. Women/1994 | 1.31*** |
| Interact. Women/2011 | 1.28*** |
| Interact. Valais (Ref. Geneva)/1979 | 1.13*** |
| Interact. Valais (Ref. Geneva)/1994 | 0.98 |
| Interact. Valais (Ref. Geneva)/2011 | 0.93* |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.03 |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 1.04 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 1.01 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 0.96 |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 1.15*** |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 1.21*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 1.08 |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 1.27*** |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 1.31*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 1.09 |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 1.30*** |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 1.28*** |
| Observations | 3,834 |
| Log Likelihood | -7,190.61 |
| Akaike Inf. Crit. | 14,423.21 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | |

*Table 100: Control model with interactions for mental health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Poisson model displaying odds-ratios*

| Ref. Independent | Basic | | Education | |
|---|---|---|---|---|
| | In diff. | Dependent | In diff. | Dependent |
| Intercept 1979 | 0.06*** | 0.02*** | 0.05*** | 0.02*** |
| Intercept 1994 | 0.02*** | 0.01*** | 0.02*** | 0.01*** |
| Intercept 2011 | 0.02*** | 0.01*** | 0.02*** | 0.004*** |
| Interact. Women/1979 | 1.19 | 0.98 | 1.12 | 0.84 |
| Interact. Women/1994 | 1.37 | 1.23 | 1.28 | 1.12 |
| Interact. Women/2011 | 1.83** | 1.54 | 1.70** | 1.55 |
| Interact. Valais (Ref. Geneva)/1979 | 1.44** | 1.15 | 1.32 | 0.93 |
| Interact. Valais (Ref. Geneva)/1994 | 1.38 | 2.40*** | 1.25 | 1.95** |
| Interact. Valais (Ref. Geneva)/2011 | 1.29 | 1.40 | 1.19 | 1.47 |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.32 | 2.13* | 1.33 | 2.16* |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 1.61 | 1.45 | 1.57 | 1.38 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 0.90 | 2.68 | 0.84 | 2.70 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 1.80** | 1.57 | 1.76** | 1.52 |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 4.25*** | 3.56* | 4.06*** | 3.30* |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 3.02** | 1.80 | 2.79** | 1.78 |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 3.23*** | 7.02*** | 3.27*** | 7.45*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 5.35*** | 10.28*** | 5.06*** | 8.92*** |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 4.15*** | 1.45 | 3.85*** | 1.48 |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 3.91*** | 9.29*** | 3.73*** | 8.54*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 10.93*** | 20.66*** | 10.24*** | 18.25*** |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 5.37*** | 7.06** | 4.83*** | 7.05** |
| Interact. Low education (Ref. apprenticeship)/1979 | | | 1.55 | 1.52 |
| Interact. Low education (Ref. apprenticeship)/1994 | | | 1.28 | 0.96 |
| Interact. Low education (Ref. apprenticeship)/2011 | | | 1.49 | 1.18 |
| Interact. High education (Ref. apprenticeship)/1979 | | | 1.10 | 0.32* |
| Interact. High education (Ref. apprenticeship)/1994 | | | 0.85 | 0.27*** |
| Interact. High education (Ref. apprenticeship)/2011 | | | 0.81 | 1.55 |
| Akaike Inf. Crit. | 3,273.10 | 3,273.10 | 3,263.91 | 3,263.91 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 101: Educational model with interactions for functional health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Multinomial logit model displaying odds-ratios*

| | 10-Item Wang Score | |
|---|---|---|
| | Basic | Education |
| Intercept 1979 | 2.37*** | 2.16*** |
| Intercept 1994 | 1.99*** | 1.90*** |
| Intercept 2011 | 1.87*** | 1.90*** |
| Interact. Women/1979 | 1.32*** | 1.30*** |
| Interact. Women/1994 | 1.31*** | 1.27*** |
| Interact. Women/2011 | 1.28*** | 1.26*** |
| Interact. Valais (Ref. Geneva)/1979 | 1.13*** | 1.10*** |
| Interact. Valais (Ref. Geneva)/1994 | 0.98 | 0.95 |
| Interact. Valais (Ref. Geneva)/2011 | 0.93* | 0.92** |
| Interact. Age-group 70-74 (Ref. 65-69)/1979 | 1.03 | 1.03 |
| Interact. Age-group 70-74 (Ref. 65-69)/1994 | 1.04 | 1.03 |
| Interact. Age-group 70-74 (Ref. 65-69)/2011 | 1.01 | 1.00 |
| Interact. Age-group 75-79 (Ref. 65-69)/1979 | 0.96 | 0.95 |
| Interact. Age-group 75-79 (Ref. 65-69)/1994 | 1.15*** | 1.13** |
| Interact. Age-group 75-79 (Ref. 65-69)/2011 | 1.21*** | 1.19*** |
| Interact. Age-group 80-84 (Ref. 65-69)/1979 | 1.08 | 1.08 |
| Interact. Age-group 80-84 (Ref. 65-69)/1994 | 1.27*** | 1.25*** |
| Interact. Age-group 80-84 (Ref. 65-69)/2011 | 1.31*** | 1.29*** |
| Interact. Age-group 85-94 (Ref. 65-69)/1979 | 1.09 | 1.07 |
| Interact. Age-group 85-94 (Ref. 65-69)/1994 | 1.30*** | 1.26*** |
| Interact. Age-group 85-94 (Ref. 65-69)/2011 | 1.28*** | 1.26*** |
| Interact. Low education (Ref. apprenticeship)/1979 | | 1.17*** |
| Interact. Low education (Ref. apprenticeship)/1994 | | 1.17*** |
| Interact. Low education (Ref. apprenticeship)/2011 | | 1.10* |
| Interact. High education (Ref. apprenticeship)/1979 | | 1.06 |
| Interact. High education (Ref. apprenticeship)/1994 | | 1.03 |
| Interact. High education (Ref. apprenticeship)/2011 | | 0.98 |
| Observations | 3,834 | 3,834 |
| Log Likelihood | -7,190.61 | -7,174.51 |
| Akaike Inf. Crit. | 14,423.21 | 14,403.02 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 102: Educational model with interactions for mental health in old-age 1979-2011*
*Source: Own calculations based on COMP dataset*
*Note: Poisson model displaying odds-ratios*

## 9.6 Exploration of cantonal differences through stratified analyses

*Introduction*

Since the datasets, on which this thesis bases its analyses, have been collected in select cantons instead of a random sample based on all of the Swiss territory, canton is also a control variable that is included in each regression model in order to control for the effect or "voluntary bias" that the sampling design creates. However, particularly in the case of economic resources (as treated in chapter 5) the cantonal differences seem particularly striking. To some extent they have been shown to be associated with differences in educational levels, as summarized in the following table that has also been shown in chapter 3.

| | Low | Apprenticeship | High |
|---|---|---|---|
| Geneva | 14.9 | 29.8 | 55.3 |
| Valais | 23.2 | 33.6 | 43.2 |
| Ticino | 27.9 | 36.3 | 35.8 |
| Bern | 13.9 | 43.2 | 42.9 |
| Basel | 12.4 | 37.6 | 49.9 |

*Table 103: Education per canton*
*Source: Own calculations based on VLV, 2011*
*Note: Weighted data*

The table summarizes quite drastic differences in the composition of the population in the included cantons. However, even when controlling for these educational differences there remains a large degree of variation that is not explained. The aim of this part is to shed light on these specific cantonal differences that go beyond educational differences. In fact, conceptually I assume the hypothesis that even though there might be differences in the population composition. This does not necessarily have to signify that the underlying dynamics in the cantons should be different. By running a certain number of basic models on the two "outlier" cantons, Valais and Ticino as well as on the "reference canton" of Geneva separately in order to gain a deeper understanding of the underlying cantonal and regional dynamics.

*Method*

In this part the four first models from the analytical part of the fifth chapter are re-run on the Valais sub-sample, another time they are run for the Ticino sub-sample and in a third time on the Geneva sub-sample. These models are: The basic sociodemographic overview, the first social stratification model focusing on education and Swiss-origin, the second social stratification model focusing on various measures of CSP and finally, the associated factors model that contains numerous contextual variables such as the degree of urbanization, homeownership or people's living situation. In order to facilitate the comparison, the results for the complete VLV dataset are featured in the beginning.

### 9.6.1 Results Poverty and basic sociodemographic data

| | Poverty |
|---|---|
| Akaike Inf. Crit. | 3242 |
| Bayesian Inf. Crit. | 3308.3 |
| Intercept | 0.14*** |
| Women | 1.43*** |
| Canton Valais (Ref. Geneva) | 2.01*** |
| Bern | 1.11 |
| Basel | 0.87 |
| Ticino | 2.43*** |
| Age group 70-74 (Ref. 65-69) | 1.28 |
| 75-79 | 1.22 |
| 80-84 | 1.34 |
| 85-89 | 1.52* |
| 90+ | 1.44* |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | |

*Table 104: Control-model for poverty in old-age for VLV*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

As has been discussed in chapter 5, the basic patterns for the global VLV sample related to poverty show strong gender and age-effects. Also shown in this table are the strong cantonal differences which we would like to explain in this section.

| | Poverty |
|---|---|
| AIC | 530.5 |
| BIC | 561.1 |
| Intercept | 0.09*** |
| Women | 1.82* |
| Age group 70-74 (Ref. 65-69) | 1.83 |
| 75-79 | 1.16 |
| 80-84 | 2.01 |
| 85-89 | 2.31 |
| 90+ | 1.62 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | |

*Table 105: Control model for poverty in old-age for Geneva*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The analysis for the population of Geneva indicates that in this canton there are no such age-related patterns. The gender-effect is present but is slightly elevated at an odds-ratio of 1.82.

| | Poverty |
|---|---|
| AIC | 702.9 |
| BIC | 733.4 |
| Intercept | 0.24*** |
| Women | 1.74** |
| Age group 70-74 (Ref. 65-69) | 1.43 |
| 75-79 | 1.35 |
| 80-84 | 1.36 |
| 85-89 | 1.25 |
| 90+ | 2.08 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | |

*Table 106: Control model for poverty in old-age for Valais*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The same model applied to the population of the canton of Valais shows a slightly stronger gender-effect than the overall sample with an odds-ratio of 1.74 compared to 1.43 for all of the VLV sample. This is also at a similar level as was the case of Geneva. Furthermore, the age-effect which has been observed in the previous VLV model is absent, confirming findings for Geneva as well.

| | Poverty |
|---|---|
| AIC | 782.5 |
| BIC | 813.3 |
| Intercept | 0.31*** |
| Women | 1.43 |
| Age group 70-74 (Ref. 65-69) | 1.26 |
| 75-79 | 1.25 |
| 80-84 | 1.41 |
| 85-89 | 2.17* |
| 90+ | 1.69 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | |

*Table 107: Control model for poverty in old-age for Ticino*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Table 107 shows the results for the same model, composed of basic sociodemographic covariates, for the population of Ticino. The strong gender effect is not significant in this canton, representing a strong contrast to Geneva and Valais were a relatively important gender effect has been shown. The age-effect is only visible for the cohort 85-89 albeit in a considerably higher magnitude with an odds-ratio of 2.17 compared to 1.52 in the overall model.

This very basic assessment based on the most basic variables already shows a high degree of variation across these three cantons and compared with the overall results for the whole VLV sample. Gender effects are very visible in the overall sample, they are also strong in Geneva and Valais but they are totally absent in Ticino. Age-effects are relatively coherent in the overall sample with the older cohorts, those aged 85-89 and those aged 90+ having a significantly increased odds-ratio for poverty. Yet, this pattern was totally absent in Geneva and Valais and only the cohort 85-89 was somewhat more likely to be poor in Ticino.

In order to analyze these differences even further the following model offers two indicators of the socio-structural composition of the population with educational levels and Swiss-origin.

### 9.6.2 Poverty and basic social stratification

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Akaike Inf. Crit. | 3242 | 3100.4 | 3212.5 | 3070 |
| Bayesian Inf. Crit. | 3308.3 | 3178.8 | 3284.9 | 3154.5 |
| Intercept | 0.14*** | 0.19*** | 0.11*** | 0.16*** |
| Women | 1.43*** | 1.2 | 1.4*** | 1.19 |
| Canton Valais (Ref. Geneva) | 2.01*** | 1.76*** | 2.38*** | 2.12*** |
| Bern | 1.11 | 1.05 | 1.33 | 1.26 |
| Basel | 0.87 | 0.89 | 0.97 | 1 |
| Ticino | 2.43*** | 2*** | 2.58*** | 2.12*** |
| Age group 70-74 (Ref. 65-69) | 1.28 | 1.21 | 1.22 | 1.16 |
| 75-79 | 1.22 | 1.11 | 1.17 | 1.08 |
| 80-84 | 1.34 | 1.2 | 1.36 | 1.22 |
| 85-89 | 1.52* | 1.28 | 1.53* | 1.31 |
| 90+ | 1.44* | 1.26 | 1.46* | 1.29 |
| Low education (Ref. Apprenticeship) | | 2.13*** | | 2.01*** |
| Higher education | | 0.53*** | | 0.49*** |
| Not Swiss Origin | | | 1.84*** | 1.91*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | |

*Table 108: Educational model for poverty in old-age for VLV*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The model for all of the VLV sample shows, as has been described in the corresponding chapter, strong educational effects but even more importantly, a considerable shift in the odds-ratios for gender and age. Differently put, the addition of educational levels entirely captures the variations that are due to age and gender. Furthermore, the variable Swiss origin shows that people who are not of Swiss origin have a significantly increased risk of poverty.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| AIC | 530.5 | 513.7 | 530.8 | 514.2 |
| BIC | 561.1 | 552.9 | 565.6 | 557.8 |
| Intercept | 0.09*** | 0.12*** | 0.09*** | 0.11*** |
| Women | 1.82* | 1.67* | 1.8* | 1.65 |
| Age group 70-74 (Ref. 65-69) | 1.83 | 1.62 | 1.8 | 1.59 |
| 75-79 | 1.16 | 1.06 | 1.16 | 1.07 |
| 80-84 | 2.01 | 1.72 | 2.02 | 1.73 |
| 85-89 | 2.31 | 1.89 | 2.39* | 1.98 |
| 90+ | 1.62 | 1.55 | 1.66 | 1.59 |
| Low education (Ref. Apprenticeship) | | 2.1* | | 2.02* |
| Higher education | | 0.57 | | 0.56 |
| Not Swiss Origin | | | 1.34 | 1.3 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | |

*Table 109: Educational model for poverty in old-age for Geneva*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

As a strong contrast the model for Geneva does not show the same impact for education. Whereas in the overall model both levels of this covariate, higher and lower education, show an effect, for this canton only the lower end seems to be significant with an odds-ratio of 2.1 for people with little or no formal education. Here, it should be remembered that Geneva is also the canton with the highest concentration of elderly people with a higher education. Another highly interesting insight is that the gender-effect which was entirely captured by education in the overall sample does not disappear for the model in Geneva, hence representing a stark contrast with the previous model. Finally and quite surprising as well, is the absence of any significant effect for the variable Swiss origin. In fact, as a border-canton Geneva has a much higher concentration of people with a non-Swiss origin (foreign-born). Yet, these people do not seem discriminated with regards to being poor in old-age.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| AIC | 702.9 | 677.1 | 691.9 | 656.7 |
| BIC | 733.4 | 716.3 | 726.8 | 700.3 |
| Intercept | 0.24*** | 0.32*** | 0.21*** | 0.29*** |
| Women | 1.74** | 1.55* | 1.66* | 1.45 |
| Age group 70-74 (Ref. 65-69) | 1.43 | 1.28 | 1.47 | 1.29 |
| 75-79 | 1.35 | 1.15 | 1.29 | 1.05 |
| 80-84 | 1.36 | 1.22 | 1.45 | 1.31 |
| -89 | 1.25 | 0.97 | 1.3 | 0.97 |
| 90+ | 2.08 | 1.79 | 2.27* | 1.99 |
| Low education (Ref. Apprenticeship) | | 1.73* | | 1.86* |
| Higher education | | 0.49** | | 0.41*** |
| Not Swiss Origin | | | 2.77** | 4.21*** |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | |

*Table 110: Educational model for poverty in old-age for Valais*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

In the model for Valais it can be observed that education does have an effect for both lower and higher education, whereas the impact of a lower education with an odds-ratio of 1.73 is considerably lower than for the overall sample in which this value was at 2.13 or for Geneva where it was a 2.1. Furthermore, education does only marginally capture gender-effects. The coefficient remains significant but the addition of education provokes a drop in the odds-ratio from 1.74 to 1.55. Finally, not being of Swiss origin has a tremendously strong impact in the canton of Valais with an odds-ratio of 2.77. This is a very strong contrast to Geneva where this effect was completely absent but also compared with the model for the complete VLV sample where the effect was significant but much weaker at 1.91.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| AIC | 782.5 | 742.3 | 756.4 | 723.4 |
| BIC | 813.3 | 782 | 791.7 | 767.4 |
| Intercept | 0.31*** | 0.34*** | 0.25*** | 0.3*** |
| Women | 1.43 | 1.16 | 1.38 | 1.16 |
| Age group 70-74 (Ref. 65-69) | 1.26 | 1.22 | 1.03 | 1.03 |
| 75-79 | 1.25 | 1.21 | 1.08 | 1.07 |
| 80-84 | 1.41 | 1.2 | 1.45 | 1.27 |
| 85-89 | 2.17* | 1.81 | 2.13* | 1.83 |
| 90+ | 1.69 | 1.37 | 1.55 | 1.32 |
| Low education (Ref. Apprenticeship) | | 2.41*** | | 1.99** |
| Higher education | | 0.56* | | 0.5* |
| Not Swiss Origin | | | 2.77*** | 2.53*** |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | |

*Table 111: Educational model for poverty in old-age for Ticino*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

For the second "outlier" canton, Ticino, the results show relatively different patterns once again. Education has a strongly significant impact in roughly the same order as in the overall sample. Also, controlling for education does capture the age-effect for 85-89 year olds which appears in the basic control model which is nested in the educational model. Despite also being a border canton just as Geneva the impact of being foreign-born is exactly the same as for the canton of Valais at 2.77. This indicates that people with a non-Swiss origin are considerable discriminated against in terms of economic resources in old-age.

This second comparison of the models across these three key cantons shows an even clearer picture of the relatively strong variation in terms of cantonal dynamics and patterns. It indicates a non-negligible importance of the social and cultural setting of some variables, their "contextuality", as is emphasized by such sociologists as René Levy (1997). Accordingly, being of non-Swiss origin has been shown to have a very different impact in Valais and Ticino, where it is a factor that strongly increases the chances to be poor in old-age, compared to Geneva where it does not seem to have any detectable impact.

The following model features the results for the variables first job, last job and the household dominance CSP (see the methodological chapter for a discussion on these variables). They offer an even more refined insight into the differing impact of social position in function of the canton where people live.

### 9.6.3 Poverty and basic social stratification

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Akaike Inf. Crit. | 3242 | 3100.4 | 3153.2 | 3114.1 | 3109.9 |
| Bayesian Inf. Crit. | 3308.3 | 3178.8 | 3249.7 | 3210.7 | 3206.4 |
| Intercept | 0.14*** | 0.19*** | 0.13*** | 0.16*** | 0.19*** |
| Women | 1.43*** | 1.2 | 1.48*** | 1.36** | 1.3* |
| Canton Valais (Ref. Geneva) | 2.01*** | 1.76*** | 1.79*** | 1.78*** | 1.75*** |
| Bern | 1.11 | 1.05 | 0.99 | 1.03 | 0.99 |
| Basel | 0.87 | 0.89 | 0.86 | 0.89 | 0.86 |
| Ticino | 2.43*** | 2*** | 2.19*** | 2.21*** | 2.16*** |
| Age group 70-74 (Ref. 65-69) | 1.28 | 1.21 | 1.27 | 1.33 | 1.33 |
| 75-79 | 1.22 | 1.11 | 1.17 | 1.19 | 1.15 |
| 80-84 | 1.34 | 1.2 | 1.28 | 1.3 | 1.19 |
| 85-89 | 1.52* | 1.28 | 1.42* | 1.45* | 1.34 |
| 90+ | 1.44* | 1.26 | 1.37 | 1.43 | 1.3 |
| Low education (Ref. Apprenticeship) | | 2.13*** | | | |
| Higher education | | 0.53*** | | | |
| CSP Upper / manag. (Ref. White coll.) | | | 0.48*** | 0.48*** | 0.48*** |
| Self-employed | | | 3.15*** | 2.11*** | 3.15*** |
| Intermediary | | | 0.71 | 0.49*** | 0.71 |
| Blue collar | | | 1.62*** | 1.72*** | 1.62*** |
| Inactive | | | 1.8 | 0.97 | 1.8 |
| *Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$* | | | | | |

*Table 112: Social stratification model for poverty in old-age for VLV*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Again, as has been discussed in chapter 5, table 112 confirms the hypotheses of class with traditional upper class having a clearly decreased risk of poverty at an odds-ratio of 0.48. Further, blue collar professions have a considerable higher risk of poverty with odds-ratios around 1.62 (for first job and household dominance CSP) and 1.72 (for last job). Interestingly, people who are self-employed show an even higher association with old-age poverty, as expressed by odds-ratios that are elevated by a factor two for people's last job, and even a factor three for people's first job and for the household dominance model.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 530.5 | 513.7 | 520.7 | 511.1 | 512.4 |
| BIC | 561.1 | 552.9 | 573 | 563.4 | 564.7 |
| Intercept | 0.09*** | 0.12*** | 0.08*** | 0.08*** | 0.14*** |
| Women | 1.82* | 1.67* | 2.15** | 1.98* | 1.76* |
| Age group 70-74 (Ref. 65-69) | 1.83 | 1.62 | 1.83 | 2.16 | 1.83 |
| 75-79 | 1.16 | 1.06 | 1.06 | 1.13 | 0.95 |
| 80-84 | 2.01 | 1.72 | 1.9 | 1.76 | 1.45 |
| 85-89 | 2.31 | 1.89 | 2.23 | 2.39 | 1.93 |
| 90+ | 1.62 | 1.55 | 1.47 | 1.77 | 1.33 |
| Low education (Ref. Apprenticeship) | | 2.1* | | | |
| Higher education | | 0.57 | | | |
| CSP (First, last, household): Upper class (Ref. White collar) | | | 0.64 | 0.53 | 0.64 |
| Self-employed | | | 2.51 | 3.27* | 2.51 |
| Intermediary | | | 0.49 | 0.55 | 0.49 |
| Blue collar | | | 2.02* | 1.96 | 2.02* |
| Inactive | | | 1.78 | 1.55 | 1.78 |
| *Note:* *p<0.1; **p<0.05; ***p<0.01 | | | | | |

*Table 113: Social stratification model for poverty in old-age for Geneva*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

For the canton of Geneva the effects related to CSP measures are much less pronounced as they are for the total sample. For people's first job only the category of blue-collar workers is significant, albeit at a somewhat higher level. For the variable last job, the covariate where in the overall model the strongest effects can be observed, there is only one significant impact, namely that of self-employment. As far as the other covariates are concerned, there are no noticeable shifts due to the addition of these variables.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 702.9 | 677.1 | 701.7 | 696.5 | 695.3 |
| BIC | 733.4 | 716.3 | 754 | 748.8 | 747.6 |
| Intercept | 0.24*** | 0.32*** | 0.25*** | 0.29*** | 0.36*** |
| Women | 1.74** | 1.55* | 1.67* | 1.64* | 1.6* |
| Age group 70-74 (Ref. 65-69) | 1.43 | 1.28 | 1.39 | 1.39 | 1.39 |
| 75-79 | 1.35 | 1.15 | 1.36 | 1.33 | 1.33 |
| 80-84 | 1.36 | 1.22 | 1.31 | 1.37 | 1.24 |
| 85-89 | 1.25 | 0.97 | 1.21 | 1.2 | 1.07 |
| 90+ | 2.08 | 1.79 | 2.32* | 2.18 | 1.95 |
| Low education (Ref. Apprenticeship) | | 1.73* | | | |
| Higher education | | 0.49** | | | |
| CSP (First, last, household): Upper class (Ref. White collar) | | | 0.47 | 0.48* | 0.47 |
| Self-employed | | | 0.96 | 1.21 | 0.96 |
| Intermediary | | | 0.67 | 0.53 | 0.67 |
| Blue collar | | | 1.24 | 1.26 | 1.24 |
| Inactive | | | 1.43 | 0.74 | 1.43 |

*Note:* $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

*Table 114: Social stratification model for poverty in old-age for Valais*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

For Valais, the patterns related to CSP are even weaker. First job and the household dominance model yield in no significant results, nor do these models provoke any shifts in the basic control model that is nested within. However, the only significant factor that can be observed is that of upper class professions which, as in the overall sample, have about half the risk of being poor in old-age compared with white-collar workers. In a much broader context, this result is highly interesting given that Geneva and Valais also represent the opposition of rural versus urban areas. It seems that in rural areas the impact of social position seems to be less pronounced than in urban areas.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| AIC | 782.5 | 742.3 | 753.2 | 740.3 | 727 |
| BIC | 813.3 | 782 | 806.1 | 793.2 | 779.9 |
| Intercept | 0.31*** | 0.34*** | 0.26*** | 0.38** | 0.49* |
| Women | 1.43 | 1.16 | 1.39 | 1.3 | 1.22 |
| Age group 70-74 (Ref. 65-69) | 1.26 | 1.22 | 1.27 | 1.33 | 1.4 |
| 75-79 | 1.25 | 1.21 | 1.21 | 1.18 | 1.07 |
| 80-84 | 1.41 | 1.2 | 1.41 | 1.46 | 1.3 |
| 85-89 | 2.17* | 1.81 | 1.96 | 1.98 | 1.76 |
| 90+ | 1.69 | 1.37 | 1.55 | 1.66 | 1.39 |
| Low education (Ref. Apprenticeship) | | 2.41*** | | | |
| Higher education | | 0.56* | | | |
| CSP (First, last, household): Upper class (Ref. White collar) | | | 0.29* | 0.31** | 0.29* |
| Self-employed | | | 3.08 | 1.37 | 3.08 |
| Intermediary | | | 0.91 | 0.38* | 0.91 |
| Blue collar | | | 1.89** | 1.77* | 1.89** |
| Inactive | | | 2.52 | 0.73 | 2.52 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 115: Social stratification model for poverty in old-age for Ticino*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Finally, in the canton of Ticino the results for this block of models suggests a strong lower-class effect with blue-collar workers being significantly more prone to old-age poverty, regardless of the used CSP measure. The effect of upper-class professions is even more pronounced in this canton compared to the previous two with an odds-ratio of around 0.3. Intermediary professions also show a considerably reduced poverty-risk, but only when measured through people's last job. The results for the canton of Ticino suggest that it is a canton where social position has a much greater impact on people's economic situation in old-age than the previous two.

As in the previous two comparisons, the results in this section show that dynamics in each canton are quite different from each other. The impact of social position seems to be varying quite strongly depending on the context – at least with regards to poverty in old-age as was assessed here.

### 9.6.4 Poverty and basic associated factors

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 3096.8 | 3100.9 | 3093 | 3096.9 | 3096.5 | 3099.1 |
| BIC | 3175.2 | 3197.4 | 3189.5 | 3181.3 | 3193 | 3237.9 |
| Intercept | 0.19*** | 0.19*** | 0.19*** | 0.2*** | 0.18*** | 0.18*** |
| Women | 1.21 | 1.16 | 1.21 | 1.2 | 1.21 | 1.18 |
| Canton Valais (Ref. Geneva) | 1.77*** | 1.79*** | 1.76*** | 1.88*** | 1.58* | 1.63* |
| Bern | 1.05 | 1.06 | 1.04 | 1.08 | 1 | 1.01 |
| Basel | 0.91 | 0.92 | 0.91 | 0.93 | 0.88 | 0.9 |
| Ticino | 2.01*** | 2.03*** | 1.97*** | 2.09*** | 1.81** | 1.83** |
| Age group 70-74 (Ref. 65-69) | 1.2 | 1.18 | 1.2 | 1.19 | 1.2 | 1.19 |
| 75-79 | 1.09 | 1.07 | 1.09 | 1.08 | 1.1 | 1.08 |
| 80-84 | 1.16 | 1.13 | 1.15 | 1.15 | 1.16 | 1.12 |
| 85-89 | 1.23 | 1.19 | 1.21 | 1.21 | 1.24 | 1.17 |
| 90+ | 1.22 | 1.15 | 1.21 | 1.18 | 1.2 | 1.14 |
| Low education (Ref. Apprenticeship) | 2.13*** | 2.13*** | 2.12*** | 2.12*** | 2.13*** | 2.11*** |
| Higher education | 0.53*** | 0.53*** | 0.53*** | 0.54*** | 0.53*** | 0.54*** |
| Single (Ref. Married) | | 1.02 | | | | 0.99 |
| Widow | | 1.13 | | | | 1.09 |
| Separated/Divorced | | 1.12 | | | | 1.05 |
| Living situation: Home ass. (Ref.Home) | | | 1.07 | | | 1.02 |
| Institutionalized | | | 1.03 | | | 0.99 |
| Living with other people | | | 2.21** | | | 2.06* |
| Homeowner | | | | 0.88 | | 0.94 |
| Region: Intermed. populated (Ref. Dense) | | | | | 1.25 | 1.23 |
| Out of Switzerland | | | | | 1.51 | 1.51 |
| Thinly populated | | | | | 1.14 | 1.12 |

*Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$*

*Table 116: Associated factors model for poverty in old-age for VLV*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The final model in this comparison is the associated factors model. In the results for the overall VLV sample it can be seen that neither civil status, nor homeownership or the urban density have an impact on poverty in old-age or any of the baseline effects related to gender, age or canton -the latter obviously being the focus of this comparison. The only detectable impact can be found for living situation, notably the characteristic of living with other people which is highly significant and shows a roughly 2.2 fold increase in the risk for poverty.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 513.7 | 518.7 | 510.4 | 515.4 | 517.6 | 521 |
| BIC | 552.9 | 571 | 562.8 | 559 | 570 | 603.8 |
| Intercept | 0.12*** | 0.12*** | 0.11*** | 0.13*** | 0.12*** | 0.11*** |
| Women | 1.67* | 1.72* | 1.67* | 1.67* | 1.69* | 1.8* |
| Age group 70-74 (Ref. 65-69) | 1.62 | 1.64 | 1.67 | 1.62 | 1.64 | 1.7 |
| 75-79 | 1.06 | 1.09 | 1.04 | 1.05 | 1.1 | 1.14 |
| 80-84 | 1.72 | 1.76 | 1.65 | 1.72 | 1.75 | 1.75 |
| 85-89 | 1.89 | 1.93 | 1.6 | 1.88 | 1.96 | 1.69 |
| 90+ | 1.55 | 1.65 | 1.02 | 1.54 | 1.54 | 1.1 |
| Low education (Ref. Apprenticeship) | 2.1* | 2.12* | 2.26* | 2.08* | 2.13* | 2.33* |
| Higher education | 0.57 | 0.56 | 0.63 | 0.58 | 0.57 | 0.61 |
| Single (Ref. Married) | | 1.11 | | | | 1 |
| Widow | | 0.87 | | | | 0.79 |
| Separated/Divorced | | 0.91 | | | | 0.8 |
| Living situation: Home assisted (Ref.Home) | | | 1.98 | | | 2.07 |
| Institutionalized | | | 3.98 | | | 4.22 |
| Living with other people | | | 2.89 | | | 3.28 |
| Homeowner | | | | 0.93 | | 1.05 |
| Region: Intermediary populated (Ref. Dense) | | | | | 1.27 | 1.22 |
| Out of Switzerland | | | | | 0.64 | 0.73 |
| Thinly populated | | | | | 0.99 | 0.9 |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

*Table 117: Associated factors model for poverty in old-age for Geneva*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

The same model applied for the elderly population of the canton of Geneva reveals no significant effects at all for any of the aforementioned factors. Particularly the absence of any effect for living situation stands in strong contrast with the previous model.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 677.1 | 672.8 | 680.6 | 678 | 679.3 | 679.5 |
| BIC | 716.3 | 725.1 | 732.8 | 721.6 | 731.6 | 762.2 |
| Intercept | 0.32*** | 0.3*** | 0.32*** | 0.39** | 0.46 | 0.53 |
| Women | 1.55* | 1.31 | 1.55* | 1.54* | 1.64* | 1.38 |
| Age group 70-74 (Ref. 65-69) | 1.28 | 1.19 | 1.27 | 1.26 | 1.27 | 1.18 |
| 75-79 | 1.15 | 1.15 | 1.15 | 1.14 | 1.17 | 1.15 |
| 80-84 | 1.22 | 1.1 | 1.23 | 1.17 | 1.19 | 1.04 |
| 85-89 | 0.97 | 0.88 | 0.95 | 0.92 | 0.89 | 0.76 |
| 90+ | 1.79 | 1.57 | 1.77 | 1.69 | 1.65 | 1.38 |
| Low education (Ref. Apprenticeship) | 1.73* | 1.73* | 1.72* | 1.76* | 1.75* | 1.78* |
| Higher education | 0.49** | 0.48** | 0.49** | 0.5** | 0.5** | 0.49** |
| Single (Ref. Married) | | 1.29 | | | | 1.26 |
| Widow | | 1.63 | | | | 1.66 |
| Separated/Divorced | | 2.6** | | | | 2.61** |
| Living situation: Home assisted (Ref.Home) | | | 0 | | | 0 |
| Institutionalized | | | 1.13 | | | 0.87 |
| Living with other people | | | 1.3 | | | 0.84 |
| Homeowner | | | | 0.81 | | 0.83 |
| Region: Intermediary populated (Ref. Dense) | | | | | 0.72 | 0.67 |
| Out of Switzerland | | | | | 1.07 | 1.1 |
| Thinly populated | | | | | 0.56 | 0.51 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

*Table 118: Associated factors model for poverty in old-age for Valais*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Interestingly, the same model for Valais shows different patterns, yet again. The only factor that revealed itself as significant is that of civil status, namely being divorced. This is quite a surprising result given that in the overall model this effect is not only absent, but it has been discussed that it *should* be absent as a result from wide-reaching adjustments in the institutional settings regarding old-age pensions and social policies in general. The absence of such effects for the overall population was previously taken as evidence for the success of such adjustment and major reforms. However, the result for the canton of Valais suggests that the picture is not as clear as previously assumed.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| AIC | 742.3 | 736.6 | 741.8 | 736.4 | 746.5 | 738 |
| BIC | 782 | 789.5 | 794.7 | 780.4 | 799.3 | 821.7 |
| Intercept | 0.34*** | 0.36*** | 0.34*** | 0.49* | 0.33** | 0.46 |
| Women | 1.16 | 0.97 | 1.15 | 1.12 | 1.17 | 1 |
| Age group 70-74 (Ref. 65-69) | 1.22 | 1.15 | 1.25 | 1.19 | 1.22 | 1.14 |
| 75-79 | 1.21 | 1.08 | 1.2 | 1.21 | 1.22 | 1.11 |
| 80-84 | 1.2 | 1 | 1.16 | 1.16 | 1.18 | 0.95 |
| 85-89 | 1.81 | 1.39 | 1.69 | 1.67 | 1.82 | 1.31 |
| 90+ | 1.37 | 0.97 | 1.22 | 1.2 | 1.35 | 0.84 |
| Low education (Ref. Apprenticeship) | 2.41*** | 2.49*** | 2.35*** | 2.33*** | 2.42*** | 2.38*** |
| Higher education | 0.56* | 0.58* | 0.56* | 0.56* | 0.56* | 0.58* |
| Single (Ref. Married) | | 1.5 | | | | 1.38 |
| Widow | | 1.8* | | | | 1.6 |
| Separated/Divorced | | 0.54 | | | | 0.44 |
| Living situation: Home assisted (Ref.Home) | | | 3.22 | | | 2.33 |
| Institutionalized | | | 1.73 | | | 1.27 |
| Living with other people | | | 1.96 | | | 1.47 |
| Homeowner | | | | 0.6* | | 0.64 |
| Region: Intermediary populated (Ref. Dense) | | | | | 1.02 | 1.01 |
| Out of Switzerland | | | | | 0.91 | 0.96 |
| Thinly populated | | | | | 1.14 | 1.22 |
| *Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 | | | | | | |

*Table 119: Associated factors model for poverty in old-age for Ticino*
*Source: Own calculations based on VLV, 2011*
*Note: Binomial logit model displaying odds-ratios*

Contrasting all previous models, yet again, the canton of Ticino also shows a highly distinct pattern. Unlike all previous models, the covariates that seem to have a considerable impact in this canton are civil status – being widow- and homeownership. In the case of widowhood, there is a roughly 80% increase in the odds of being poor in old-age compared to people who are married. Again, as has been discussed for the result of divorce in Valais, this unexpected result can be taken as contradicting the hypothesis of general success of gender-equality measures that have been pursued by policy makers in recent decades. Furthermore, the second variable that shows a strong impact is that of homeownership. The result suggests that owning one's home is a factor that is associated with a lesser risk for poverty in old-age as shown with an odds-ratio of 0.6.

### 9.6.5 Discussion and conclusion

*Discussion*

The aim of this section was to take a closer look at the cantonal differences that are, above all, very striking for the case of old-age poverty. This was done by running some basic models separately for the cantons of Geneva (which in the models in chapter five is usually taken as a reference category for the variable canton) and the two atypical "outlier" cantons Ticino and Valais.

The results have documented strong canton-related patterns with many of the basic socio-economic and socio-structural variables. In other words, the result suggest that these variables are indeed quite context depending. More specifically, it is difficult to determine clear patterns and dynamics that can be associated with each canton as the results very quite strongly from indicator to indicator. The results for CSP measure, for example, would point towards the conclusion that Valais for whom there are very little such effects seems to be a social structure that is less socially stratified. However, the results for the impact of education which is quite pronounced in Valais once again, contradicts such a conclusion. Two highly atypical findings are related to civil status. As has been discussed in chapter 5, these differences indicate that the social policy and pension reforms of recent decades might not have been as successful as has been concluded based on overall data.

*Conclusion*

The existence of patterns and dynamics that are strongly related to canton suggest that further analyses that focus on this particularly offer great potential. However, the additional analyses that have been performed in this part were not able to create any typology of the cantons – by identifying cantons that are less or more socially stratified, for example. Hence, it can only be concluded that more research on this issue is needed. This could perhaps be operationalized by referring to canton-specific models as has been demonstrated in this part.