

VOCATIONAL SECONDARY EDUCATION

Where diversion and where safety net?

Yossi Shavit

Tel Aviv University

Walter Müller

University of Mannheim

ABSTRACT: Most secondary school systems maintain a distinction between academic and vocational education. Scholars ascribing to human capital theory view vocational education as a safety net, which enhances students' chances of finding gainful employment as skilled workers. Others view it as a mechanism of social reproduction, which diverts working-class students from higher education and the professions. We hypothesize that the extent to which vocational secondary education performs each of these roles - safety net and diversion - can vary by country. Drawing on earlier work, we offer several hypotheses concerning the effects of school systemic characteristics on the role of vocational education in shaping patterns of labour force entry for young men and women. We then test these hypotheses through secondary analysis of data for countries with diverse educational systems. We find that in most countries secondary vocational education reduced the odds of unemployment, and the chances of someone entering the labor force as an unskilled worker. Second, the advantages associated with vocational education are most pronounced in countries where vocational secondary education is specific rather than general. Third, graduates of vocational secondary education attain lower occupational prestige than that attained by graduates of academic tertiary education. This disadvantage of vocational education is most pronounced in countries where vocational education also serves as an effective safety net. This is an important finding because it means that 'diversion' and 'safety net' effects are not mutually exclusive but are the flip side of the same coin.

Key words: education; vocational education; qualifications; labor markets; unemployment; comparative research

Introduction

Most secondary school systems maintain a distinction between academic and vocational education. The specifics may vary from place to place, but in most countries academic education prepares students for college or university while vocational education prepares them for immediate entry into the labor market. Scholars are divided between those who view the phenomenon primarily as a matter of vocational training and labor market preparation, and those who view it as 'tracking', namely the hierarchical differentiation of students into qualitatively distinct groups.

Members of the first group perceive vocational education primarily through the prism of human capital theory which assumes that skills, whether they be vocational or academic in nature, improve one's economic prospects in the labor market (Becker 1975). These authors (e.g. Bishop 1989; Blossfeld 1992; Rumberger & Daymont 1984) assume that vocational education equips students with skills which can enhance their productivity on the job. Therefore, vocationally trained workers are in demand, and their chances of gaining employment and decent wages are enhanced, compared to the chances of untrained workers.

The second group of scholars (e.g. Oakes 1985; Shavit 1984, 1990b) draw on theories of class reproduction (Bowles & Gintis 1976) and social exclusion (e.g. Collins 1979; Parkin 1979), and argue that tracking is a mechanism for the reproduction of social inequality across generations. Studies in several countries have shown that tracking impedes equality of educational and occupational opportunity. Lower-class students are typically placed in lower tracks which, in turn, reduces their chances of attending university, and of subsequently entering the professions, and other high prestige occupations (e.g. Gamoran & Mare 1989; Iannelli 1997; Shavit 1990a).

Vocational tracks inhibit further educational attainment in several ways. First, attending a class alongside highly motivated and academically successful students enhances one's own chances of success (Coleman et al. 1966; Hallinan & Williams 1990). Since vocational tracks are usually attended by academically weaker students they are deprived of the beneficial effect of a more favorable milieu. Second, vocational tracks offer a more restricted curriculum (Gamoran 1987; Oakes 1985) and their students are less likely to take advanced courses. Third, in the less selective tracks, less time is devoted to actual instruction (Oakes 1985), and instruction is conducted at a lower level of intellectual complexity (Metz 1978). Consequently, students in the lower tracks learn less than those in the upper tracks and are less likely to succeed in college admission tests. Fourth, being placed in a lower track or ability group signals to students that they are less worthy, which in turn dampens both their

expectations of what they can achieve and their aspirations for the future (Vanfossen et al. 1987). Thus vocational track placement at the secondary level reduces students' chances of going on to college.

In most of the European countries the separation of general academic and vocational tracks is even more marked than in the US educational system. In particular, in the German-speaking countries which have a long tradition of apprenticeships, children are segregated early in their school career (after four to six years of primary education) into non-overlapping tracks, often even in different schools. Only one of these tracks tends to pave the way for university education later on. The other tracks mainly lead to vocational qualifications from which access to tertiary education is still very difficult and rather rare. Mobility from the lower to the higher tracks is extremely limited (Henz 1997). Similar early track segregation exists in the Netherlands, and the vocational tracks give direct access to only the vocationally oriented institutions of higher education (Dronkers 1993). It is true that in most other European countries, tracking occurs much later and is less marked; also in most of these countries, the vocational tracks formally enable students to be admitted to university and other tertiary education. However, there are huge gaps in transition rates to tertiary education among the graduates from the vocational and academic secondary tracks. There is particularly clear evidence for France that holders of the different types of baccalauréat differ very strongly in their further educational careers (Brauns 1998; also see Breen & Jonsson (1998) for Sweden, and Iannelli (2000) for Italy).

Bowles and Gintis (1976) argued that tracking contributes to the reproduction of class inequality by differentiating the socialization of the different social classes. Students of working-class origins typically attend vocational tracks where they are socialized in accordance with the values that correspond to those which will shape their lives as members of the proletariat. Academic tracks, in contrast, socialize their predominantly middle-class students in accordance with the values of managerial and professional occupations.

Proponents of the critical approach to vocational education tend to downplay the relevance of school knowledge for job performance and argue that occupationally relevant skills are acquired primarily on the job. They often cite the signaling theory (Spence 1974; Thurow 1975) which alleges that schools are simply sorters and signalers, with school performance being an indicator of various characteristics of job applicants. Good students are assumed to be hard-working, disciplined, intelligent and, most importantly, fast learners of new skills. In their attempt to cut training costs, employers hope to recruit fast-learning employees. Vocational qualifications may signal to them that the job applicant has a low

aptitude, or is a troublemaker, for why else would he or she have attended a vocational rather than an academic track?

It is important to point out that this critique of vocational education is presented from a decidedly middle-class perspective. It evaluates vocational education from the point of view of its effects on university attendance and on the chances of finding prestigious occupations when entering the labor market. However, the effect of vocational education on the opportunities of its students should also be evaluated by the extent to which it serves as a safety net that reduces the probability of unemployment, and of employment in the lowest paying jobs (Arum & Shavit 1995). From the point of view of working-class youth these are real risks, and educational alternatives should be evaluated according to their effectiveness in reducing them.

We hypothesize that the role of education in general, and of vocational education in particular, in the stratification process varies in accordance with its institutional context. Below, we offer several more specific hypotheses regarding the relationship between characteristics of educational systems and the degree to which vocational education is a diversion and/or a safety net.

We would declare vocational education to be a 'diversion' if it can be shown that, *ceteris paribus*, its graduates attain significantly less desirable occupations than those who had embarked on other tracks. Vocational education will be said to provide an effective safety net when, *ceteris paribus*, the unemployment rates of its graduates, and their rates of employment in unskilled work, are lower than those found among graduates of non-vocational tracks at a comparable level of schooling. We will try to show that the safety net and diversion effects of vocational education are not opposites, as they appear in the standard debate among sociologists of education, but rather that they tend to coincide. In order to do so, we first briefly describe effects of vocational education found in earlier research. We discuss various forms in the institutional set-up of vocational education and how we think they affect the impacts of vocational education on labour market outcomes and how they influence the strength of safety net and diversion effects. We then present the measures adopted for safety net and diversion effects and the results we find in a comparative study for our hypotheses.

Institutional variations in vocational education and hypotheses

Several studies evaluated the effects of vocational education on various labor market outcomes early in the career of its graduates, such as employment (versus unemployment), earnings, and occupational prestige.

American studies usually find small but significant and favorable effects (e.g. Arum & Shavit 1995; Bishop 1989; Hotchkiss & Dorsten 1987; Rumberger & Daymont 1984). In a comparative study on France, Germany, Hungary, and the United Kingdom Brauns et al. (1997) found very positive effects for Germany and modest effects in the other countries.

The effects of vocational education on the future attainments of students appear to vary consistently between men and women, with women benefiting more from it than men. Brauns et al. (1997) found that the beneficial effects of vocational education were larger for German women than for men. In their exhaustive review of the empirical literature on vocational education and training in the United States, Boesel and his associates (Boesel et al. 1994: Ch 6) found that vocationally trained women have higher income and better employment chances than both their male counterparts and women who had attained comparable levels of academic education. The advantages are most pronounced for women who had attended vocational education in business, health, and home economics, the traditional fields of training for women. Since these are fields of employment for women, training in them is often relevant to job requirements, and therefore enhances earnings.

Indeed, it seems that for men and women alike, the effectiveness of vocational education is enhanced by its specificity and relevance to employers' requirements. Boesel and his associates (1994: 137) state that 'there is evidence of beneficial employment outcomes whenever students find jobs related to their field of study. The strongest, most consistent finding throughout the literature is that improved earnings do accrue in situations where vocational training is directly related to job tasks.' They also found that 'students who concentrate in a single area of course work have better economic outcomes than those who take courses in a variety of subjects. The effects of course concentration . . . appear to influence outcomes via the link between training and related jobs. That is, taking more courses in a major subject pays off only if work is in a related field' (p. 139). Positive effects on labour market returns of jobs fitting the training are also observed in other contexts (see Steinmann 1999; Szydluk 1996; Witte & Kalleberg 1995 for Germany).

These findings would call into question the view, cited earlier, that vocational education is of little relevance to job performance and is not rewarded in the labor market. In fact, they are consistent with the view that employers prefer workers who have specific vocational skills that are relevant to the requirements of their jobs, presumably because such workers require less on-the-job training, and can be productive soon after they are hired.

However, most sociologists of education accept the premise that the

role of education in the stratification process is conditioned by its institutional context (e.g. Allmendinger 1989; Hannan et al. 1997; Shavit & Müller 1998; for an excellent review see Kerckhoff 1995). The literature suggests several institutional variables that determine whether vocational education would be an effective safety net and/or an effective means of diversion.

First, as noted, is the degree to which vocational education is focused and is occupationally specific rather than general and diffuse. In some systems, vocational education prepares students for very specific occupations and teaches them detailed skills which are known to be needed for effective job performance (Blossfeld 1992; Maurice et al. 1986). In other systems, by contrast, vocational education is rather general and teaches overall principles rather than specifics. Indicators of occupational specificity are the number of occupational specializations taught in vocational programs. Countries vary greatly in this regard. At one end of the spectrum there are countries such as the USA and Israel, where most vocational secondary education is very general, and at the other end are countries where vocational education offers specialized training for hundreds of detailed occupations (e.g. the German-speaking countries and the Netherlands).

Second is the degree to which the educational system is stratified. The term 'stratification' refers to the extent and form of tracking that is pervasive in the educational system. In highly stratified systems (e.g. Germany and Switzerland), students are separated early on into tracks which differ greatly in their curricula, and in the probability of students continuing to the tertiary level. In these countries there is also little or no mobility between tracks. By contrast, in less stratified educational systems tracking begins at a later age, the curricula of the various tracks are less distinct, there is more inter-track mobility, and consequently smaller differences between tracks in the occupations which their graduates enter, and in the probability of continuing to tertiary education.

A third important characteristic of vocational education systems is the extent to which they are 'linked' to employers. Linkages can take a variety of forms (see Hannan et al. 1997). In some countries (most notably in Germany, Switzerland, and Austria) training is managed jointly by firms, employers' organizations, and by the state. Since employers participate in determining the curriculum of vocational education, they can trust vocational credentials to represent well-defined clusters of skills and will base their hiring decisions on credentials.¹

1 Another form of linkage between schools and the labor market is the involvement of teachers in the job placement process. In some countries, most notably Japan, schools serve as job placement offices. In a series of papers, Rosenbaum and his various associates (Rosenbaum & Kariya 1991; Rosenbaum et al. 1990) compared the

Clearly, in concrete educational systems, these three dimensions are highly correlated. The stratification of an educational system is closely related to the specificity of its vocational education, because, where vocational education is highly specific, the curricula of the different tracks are very distinct from one another, and as a result inter-track mobility is limited. Similarly, where employers participate in the design and administration of vocational education, it tends to be specific and highly focused on their skill requirements.

Following Maurice et al. (1986), we distinguish between two broad systems of vocational education and work organization. These are labeled qualification spaces and organizational spaces. In that study, the former refers to the German system of vocational training and work organization, while the latter refers to the French system. In Germany, most young workers begin their working life with an apprenticeship where they learn theoretical but especially the practical aspects of the occupation for which they are trained. The apprenticeship system is maintained through co-operation between three kinds of organizations: the state, business organizations (chambers of trade, industry, and commerce), and the trade unions. These organizations jointly design the training programs, negotiate the specific skills which are taught, the standards of instruction, the examination procedures, and attempt to meet the demand for both training opportunities and trained workers (Crouch et al. 1999: Ch 5). This institutional structure leads to highly standardized qualifications in the German workforce. German employers know which skills are taught in the various apprenticeship programs and can rely on vocational qualifications to indicate mastery of these well-defined skills. Consequently, employers can organize work and production in accordance with the availability of skill pools. Maurice and his associates label the German system a qualification space because it is segmented by vocational qualifications. Qualified workers have a clearly defined occupational identity

school-to-work transition process in Japan and in the United States. They demonstrated that in Japan there is a strong institutional linkage between schools and universities on the one hand, and firms on the other. Schools and universities refer students to specific employers. These relationships have important implications for the role of education in job placement. Characteristically, Japanese employers rely on school grades in the same way that employers in other countries rely on letters of recommendation. Schools do not recommend students lightly because they have to maintain their credibility with the employers. Employers will continue the relationship because they value the screening that trusted partner-schools perform for them. In a recent study Rosenbaum (1998) found a similar phenomenon in America. He showed that vocational schoolteachers in the Chicago area maintained very close ties with employers and played an important facilitating role in the job placement of their students, as did the Japanese teachers. And yet it seems that in the United States these schools are more the exception than the rule.

and, as a result, mobility between occupations which require different qualifications is not very common. Yet, due to the standardization of vocational qualifications, qualified workers can move between firms with relative ease. Furthermore, young workers enter the labor force with well-developed occupational skills, and they can contribute to the firm from the start. As a result, they do not suffer a substantial disadvantage when compared with experienced workers and can find employment with relative ease.

By contrast, in organizational spaces, vocational education is given in schools rather than in firms, and is intended for students who do not do well in school.² The major shortcoming of school-based training is that it does not provide students with the same degree of hands-on experience as do apprenticeships. In countries where vocational training is not well developed, firms must train their workers themselves and invest large sums in doing so. Once they have trained workers, they offer them a variety of inducements to remain in the organization lest they lose this large investment. In such firm-internal labor markets young workers find it difficult to enter the qualified jobs, and suffer from higher job instability and unemployment rates than do older workers. However, once they gain entry and are trained at the expense of their employers, they are likely to remain in the organization for some time. Hence the label organizational space.

From the different set-up of vocational education in the ideal types of organizational space and qualification space, hypotheses on the strength of safety net and diversion effects can readily be derived. In countries corresponding to the ideal type of qualification space, vocational education provides a more effective safety net for young workers than in countries which correspond to the organizational space type. With their well-defined and specific vocational qualifications, newcomers to the labor market will have smaller competitive disadvantages compared to insiders in qualification spaces than in organizational spaces.

We also hypothesize that in the former, vocational education has a stronger diversion effect than in the latter. This hypothesis derives from the inherent logic of qualification spaces: where vocational education is specific, workers can reap its benefits only if they remain in the occupation for which they have been trained. Therefore, they are unlikely to seek employment in other occupations even if these are more rewarding in prestige and income. Furthermore, access to top occupations is also highly restricted to those holding appropriate qualifications, namely university

² In the prototypical organizational space, France, there has been, in recent decades, a growing involvement of firms and of employers' organizations in the provision of vocational training and apprenticeships (Crouch et al. 1999: Ch 4; Goux & Maurin, 1998).

graduates. By contrast, in organizational spaces vocational education does not lock a worker into a narrow occupational category. Thus, while it does not greatly reduce the risk of unemployment and of employment in bad jobs, it does not fully block access to employment in white-collar, managerial, or administrative occupations.

Bringing together both these hypotheses leads us to a third expectation. The safety net and diversion effects of vocational education are not opposites, as they appear in the standard debate among sociologists of education, but rather they tend to coincide. Both are stronger in qualification spaces.

For the test of these hypotheses we will compare labor market outcomes in countries with different institutional set-ups of vocational education. The safety net perspective concerns the extent to which workers with vocational qualifications can escape from the least desirable labor market outcomes of unemployment and unskilled work. The strength of the safety net can therefore be best evaluated by comparing labor market outcomes for workers with secondary vocational qualifications with those for workers with an academically oriented secondary qualification at a comparable level.³ The diversion perspective, on the contrary, considers the gains in labor market returns which workers could expect if they were to choose a higher level of qualifications rather than opt for a vocational qualification. To assess the extent of diversion, we will therefore compare the returns attached to secondary vocational qualifications to those attached to a university degree.

Data

We meta-analyze data generated recently by our comparative study on educational qualifications and occupational destinations (Shavit and Müller 1998). The objective of that study was to examine a series of hypotheses concerning differences between countries with regard to the way educational qualifications affect occupational attainment and employment. Research teams from thirteen countries participated in the project: Australia, Great Britain, France, Germany, Ireland, Israel, Italy, Japan, the Netherlands, Sweden, Switzerland, Taiwan, and the United States. Each team studied the relationship between educational qualifications and occupational attainment early in the careers of men and

³ This is probably the most demanding test possible, because comparisons at a lower level of education (e.g. comparing workers with vocational qualifications to those who have obtained only the required level of compulsory education) would make it easier to observe a favorable result for the safety net hypothesis.

TABLE 1. The CASMIN educational schema

<i>Qualification</i>	<i>Description</i>
1ab	This is the social minimum of education; namely the minimal level that individuals are expected to have obtained in a society. It generally corresponds to the level of compulsory education.
1c	Basic vocational training above compulsory schooling. In Germany, Switzerland, and similar countries, this category corresponds to short apprenticeships that are taken after compulsory schooling. In most other countries this category does not exist.
2a	This category represents vocational secondary education or, where applicable, apprenticeships for teenagers, which combine firm-based training supplemented by school instruction.
2b	Academic tracks at secondary level. In the American case, this category refers to the general track.
2c	Full matriculation diploma (e.g. the <i>Abitur</i> , Matriculation, Baccalaureate, A-levels). In the American study, this category was assigned to graduates of college preparatory tracks in high school.
3a	Lower level tertiary degrees, generally of shorter duration and with a vocational orientation (e.g. American junior colleges, technical college diplomas, social worker or non-university teaching certificates).
3b	The completion of a traditional, academically oriented college or university education.

women, as well as their labor force participation and unemployment rates. The thirteen studies maintained a common research design, used similar operational definitions of variables, and employed similar datasets and statistical methods. They are therefore quite comparable if not perfectly so. We exclude Japan and Ireland from the meta-analysis because the studies of these countries could not provide information on our key dependent variables.

We measured educational qualifications on the CASMIN (Comparative Analysis of Social Mobility in Industrialized Societies) educational schema (Braun & Müller 1997; Müller et al. 1989). The schema, its categories, and their definitions are shown in Table 1. With some minor adaptations, it is applicable to a wide variety of educational systems. All educational systems are differentiated into primary, secondary, and tertiary levels, and virtually all systems distinguish between vocational and academic, or general, tracks. The CASMIN schema combines these two dimensions. It distinguishes between primary, secondary, and post-secondary education, and it also distinguishes between academic and vocational education within each level. In the present discussion, we focused primarily on the occupational outcomes for persons with vocational secondary qualifications (2a), academic secondary qualifications which do not qualify for university admission (2b), and tertiary academic qualifications (3b).

Labor market outcome was measured in three ways: first, we measured it as the log odds of being employed, rather than unemployed, at the time of the survey; second, as the log odds of entering the labor force as a skilled rather than an unskilled worker, and third, as the occupational prestige of the first regular job held after the completion of schooling.

Operationalizing variables

Dependent variables

Our measure of the degree to which vocational secondary education provides its graduates with a safety net is the difference between holders of secondary vocational (2a) and non-matriculating academic (2b) qualifications in the log odds of being employed rather than unemployed, and in the log odds of having entered the labor force as skilled rather than unskilled blue-collar workers. These effects are estimated in logit equations, which were computed separately for men and for women in each country. In all countries the equations controlled for fathers' education and occupation, and in some, where applicable, also for ethnicity and race.

The reason for choosing 2b (non-matriculating academic secondary education) as the reference category is the following: in all educational systems 2b is more selective in its choice of students than secondary vocational education (2a). Thus, by comparing the effects of 2a to those of 2b, rather than, for example, to those of elementary compulsory education (1ab), we are indirectly controlling for any spurious effects of scholastic achievement, motivation, unmeasured social origins and the like. If 2a were still to have a positive effect on the safety net outcomes, they could hardly be attributed to these spurious factors. Unfortunately, a measure of the educational effects on the employment of men is only available for five out of the eleven countries and for women it is available for only four (see Müller & Shavit (1998) for details). Therefore, we exclude women from the analysis involving the measure of employment. In addition, for Germany and France, data are not available on the effect of 2b on men's employment. Therefore, we contrast the effect of 2a against the effect of 2c (secondary education with matriculation degree) rather than that of 2b. Given that 2c is a more selective qualification than 2b, the substitution renders our test for a safety net effect even more conservative than was planned.

Our measure of the diversion effect is the difference between the mean occupational prestige attained upon labor force entry by those with university degrees and those with vocational secondary qualifications (i.e. 3b-2a). The differences are converted into Z scores in order to remove

national differences in the distribution of occupational prestige. The estimates are taken from separate OLS regressions for men and for women within each country. As before, the regressions control for socio-economic origins.⁴

Independent variables

Four macro-level independent variables are measured. These are the prevalence of occupationally specific secondary vocational education in the country, the degree to which secondary education is stratified, and the degree of linkages between the educational system and the labor market actors. Linkages are understood as the extent to which labor market organizations are involved in the design and administration of vocational secondary education. A fourth variable distinguishes between countries that are clearly qualification spaces and those that are not. The classification of countries by the degree of occupational specificity and stratification is taken from Müller and Shavit (1998), the classification by linkages is based on Shavit and Müller (forthcoming), and their justifications are presented in the footnotes to the table. Qualification spaces are

4 This measure could be critiqued as follows: some proportion of vocational track students ultimately manage to obtain university or college degrees and an ideal measure would have corrected for this proportion. Unfortunately, we are not able to measure it in our data. And yet, as we shall see, the occupational prestige gap between 3b and 2a tends to be large in countries where inter-track mobility is small (e.g. Germany and Switzerland), and small where mobility is known to be large (e.g. the USA). Therefore, our measure probably correlates positively with the ideal one. Another critique of the measure for diversion used could point to the relative character of the measure. The measure used is the difference between attainment of those with university degrees and those with vocational secondary qualifications. This difference measure is high when either the prestige returns to university degrees are high or when the prestige returns to vocational secondary qualifications are low. The processes leading to high diversion effects are probably different in these two cases, and the interpretation is unclear unless we can specify which of the processes is responsible for the effects. High return to university degrees may occur in a country with low proportions of university graduates. Their jobs may be more exclusive than in a country with large proportions of university graduates. Low proportions of university graduates can be a result of a system of secondary vocational qualifications which attracts many students and nevertheless provides them with relatively good returns on the labor market. This would be the logic of qualification spaces which at the same time provide a decent safety net and strong diversion effects. In this case we should find a positive correlation between the safety net effects and the diversion effects. If, on the contrary, high diversion effects occur because the returns to vocational secondary qualifications are low, we should expect no correlation between the safety net effects and diversion effects or even a negative correlation. Thus one possibility to decide between the two interpretations is to observe the correlation between safety net and diversion effects. As we show below, it is positive and quite large.

TABLE 2. Summary of national institutional contexts

<i>Countries</i>	<i>Occupational specificity of secondary education¹</i> (1)	<i>Stratification of secondary education²</i> (2)	<i>Linkages between schools and firms³</i> (3)	<i>Qualification Spaces</i>
1 Australia	1	0	1	0
2 Britain	1	0	1	0
3 France	1	1	0	0
4 Germany	2	2	2	1
5 Israel	1	1	0	0
6 Italy	1	1	0	0
7 Netherlands	2	2	2	2
8 Sweden	1	0	?	0
9 Switzerland	2	2	2	1
10 Taiwan	1	1	0	0
11 USA	0	0	0	0

Notes:

- 1 '2' indicates that a large proportion of secondary qualified workers enter the labor force with occupationally specific skills. This code is assigned to countries with well-developed apprenticeship programs and/or school-based training in detailed occupations (Germany, Switzerland, Netherlands). '0' is assigned to countries in which very few students complete the formal educational system with specific vocational skills. These are countries where vocational programs are either very small or in which the curriculum is predominantly of a general nature (the USA). In the remaining countries (France, Israel, Italy, Sweden, and Taiwan) large cohort proportions attend vocational tracks at the secondary level but the programs are not very specific. For example, in the late 1980s in Israel, over 60 per cent of all twelfth graders in secondary vocational programs were concentrated in vocational subjects (CBS 1988: 626). Thus vocational programs are defined at a general rather than specific level. We also assign Australia and Britain to this category. In both countries, most vocational qualifications are now obtained in post-school apprenticeship and vocational courses rather than in schools. Their specificity is of an intermediate nature.
- 2 Stratification of secondary education is coded as follows: '0' represents prevalence of comprehensive schools that may or may not practice curricular and/or ability-based tracking. '1' represents a prevalence of between-school tracking such that those on the academic route usually attend separate schools from those on the lower or vocational route. Finally, '2' represents an extreme form of stratification with very early differentiation among a plurality of programs.
- 3 In assigning scores to countries we followed the classification suggested by Hannan et al. (1997). Countries with well-developed apprenticeship systems are assigned a '2'. English-speaking countries (except the USA) are assigned an intermediate score, whereas the USA, Italy, and Israel are assigned the lowest score because institutionalized linkages between the formal educational system and the workplace are very uncommon in those countries.

defined as those countries whose educational systems score high on both occupational specificity and stratification. The classification of countries by these variables is presented in Table 2.

TABLE 3. 'Diversion' and 'safety net' effects for men and for women in eleven countries

Country	<i>Effects of 2a, relative to 2b, on the log odds of being employed rather than unemployed</i>		<i>Effects of 2a, relative to 2b, on the log odds of entering the labor force as a skilled rather than unskilled worker</i>		<i>Effects of 3b, relative to 2a on occupational prestige of first job (standardized)</i>	
	Men	Women	Men	Women	Men	Women
Australia	-0.54	2.57	0.28	1.56	1.38	
Britain	-0.14	0.62	0.63	1.00	0.70	
France	0.32	0.45	1.92	1.69	1.16	
Germany	0.40	n.a.	3.08	1.87	1.67	
Israel	0.20	1.00	0.55	1.43	1.17	
Italy	n.a.	0.22	0.08	1.13	0.59	
Netherlands	1.27	1.10	-.06	1.69	1.39	
Sweden	n.a.	0.52	0.53	1.72	1.55	
Switzerland	n.a.	0.32	1.87	1.77	1.92	
Taiwan	n.a.	-.26	-.13	1.30	0.80	
USA	-0.62	0.20	-.29	1.07	0.80	

Result

As seen in Table 3, in five out of the seven countries for which we were able to contrast the effects of vocational and academic secondary education on employment, they are positive; namely that in most countries holders of vocational qualifications stand a better chance of being employed than graduates of academic secondary education who are not eligible for university admission. The two exceptions are the USA, where high school graduates who had attended the vocational track are at a disadvantage compared with graduates of the general track and, to a lesser extent, the UK.

The second indicator for the safety net effect shows a similar result: in nine out of the ten countries for which data are available, men with 2a (secondary vocational) qualifications are more likely than those with 2b (secondary academic) qualifications to enter the labor force as skilled rather than unskilled workers. In other words, vocational secondary education reduces the risk not just of unemployment but also of employment in the worst jobs. A similar pattern holds for women in eight out of the eleven countries for which data are available. The exceptions are Taiwan, and, for women, the USA and the Netherlands. In the latter, the difference between the two qualifications is very slight.

The diversion effects are shown in the last two columns of Table 3. As one would expect, in all countries and for both men and women, the mean occupational prestige attained by university graduates is much higher than

TABLE 4. Spearman correlations between variables

<i>Variables</i>	<i>Vocational specificity</i>	<i>Stratification</i>	<i>Linkages</i>	<i>Diversion: men</i>	<i>Diversion: women</i>	<i>2a/2b effect on skilled work: men</i>
Stratification	0.84					
Linkages	0.84	0.54				
Diversion:						
• Men	0.73	0.59	0.61			
• Women	0.69	0.47	0.74	0.92		
<i>Safety net: men</i>						
2b/2a effect on unemployment	0.69	0.43	0.72	0.76	0.88	0.82
2a/2b effect on skilled work	0.35	-.08	0.53	0.25	0.41	
<i>Safety net: women</i>						
2a/2b effect on skilled work	0.43	0.29	0.32	0.54	0.42	0.18

that attained by holders of secondary vocational qualifications. The differences are larger among men than among women and vary greatly between countries. In the USA, for example, the means are separated by about a standard deviation for men and 0.8 of a standard deviation for women, while in Germany the differences are nearly double in size.

In Table 4 we present Spearman correlations between occupational specificity, stratification, and linkages, and the measures of 'safety net' and 'diversion'. Several results are noteworthy: first, the three institutional variables are strongly inter-correlated. As noted, where employers and unions are involved in the management of vocational education, it tends to be specific, and, where the curricula of the different tracks are very distinct from one another, inter-track mobility is limited. Second, it is reassuring to find that the two safety net measures for men are highly correlated. This lends them some credibility. Third, as we hypothesized, the magnitudes of the 'diversion' and 'safety net' effects are positively correlated, and some of these correlation coefficients are quite high. This is evidence that the two roles of vocational education/tracking are not alternatives but rather tend to coincide. Fourth, both safety net and diversion tend to be strong in countries where vocational education is specific and where it is linked to labor market organizations. The relationship with stratification is more ambiguous: it is positively related to the measures of diversion and to two of the measures of safety net, but is unrelated to the effect of secondary vocational qualifications on men's odds of employment as skilled workers.

As a last step in the analysis we compare the magnitudes of the safety net

TABLE 5. Means of diversion and safety net effects for qualification spaces and other countries

<i>Variables</i>	<i>Qualification spaces</i>	<i>Other</i>
<i>Diversion</i>	1.8	1.4
Men		
Women	1.7	1.0
<i>Safety Net</i>		
Men		
2b/2a Effect on Unemployment	0.8	-.2
2a/2b Effect on Skilled Work*	0.7	0.7
		(0.3)
Women		
2a/2b Effect on Skilled Work	1.6	0.5

Note: * The numbers in parentheses exclude Australia.

and diversion effects in countries that correspond to the ideal type of qualification spaces - Germany, Switzerland, and the Netherlands - with those in other countries (Table 5). The results show that the diversion effect is substantially higher in the first groups than in the other countries. Two of the three measures of safety net are also much larger in the qualification spaces, but the third measure is the same in both groups.⁵

Summary and discussion

This study is concerned with one of the more persistent debates in the sociology of education: what is the role of vocational education in the process of occupational attainment? Many scholars subscribe to the position that the skills taught in most vocational tracks are of little value to employers and employees, and that vocational education is simply a diversion of working-class students from the road leading to higher education and the professions. These scholars consider vocational secondary education as an organizational aspect of education which serves to reproduce social inequality between generations. Human capital theorists, on the other hand, argue that vocational education can teach students skills that might be valuable to employers and can enhance employability and the attainment of both earnings and desirable occupations.

We began with the assumption that the role of vocational secondary education in the stratification process - safety net or diversion - varies between countries in ways that are consistently related to the way these

⁵ When Australia is deleted from the analysis the third measure of the safety net effect is much larger in the group of qualification spaces.

countries organize their educational systems. American studies have shown that the effects of vocational secondary education on labor market outcomes are generally small, especially for men, but that they vary in interesting ways. Vocational secondary education appears to be effective when it is well focused, occupationally specific, and relevant to the requirements of jobs. Our comparative analysis of data from eleven countries is consistent with these results. We found that in most countries secondary vocational education reduced the odds of unemployment and the chances of a worker entering the labor force as an unskilled worker. Second, the advantages associated with vocational education are most pronounced in countries where vocational secondary education is specific rather than general. Third, as one would expect, graduates of vocational secondary education attain lower occupational prestige than that attained by graduates of academic tertiary education. This disadvantage of vocational education is most pronounced in countries where vocational education also serves as an effective safety net. This is an important finding: vocational education and tracking can provide a safety net and restrict the range of occupational opportunities at the same time.

Two notes of caution are in order. First, labor market outcomes in this paper are studied for a very early stage in individual careers, in fact in terms of prestige in the first job or a point very close to the first job. Thus results may be specific to such initial employment, in particular the finding that safety net effects of vocational qualifications are stronger in qualification spaces than in organizational spaces. A general characteristic of internal labor markets is that they provide more opportunities for upward moves in the early career than occupational labor markets, and vocational qualifications may also pay off in better promotion prospects in organizational spaces than in qualification spaces. While this hypothesis must be postponed for further study we would like to stress that the smoother integration of vocationally trained youth into the labor market still remains a considerable asset of qualification spaces.

Second, in this paper we have focused on labor market linkages of educational institutions and on labor market outcomes of the qualifications they provide. We have not really studied the social groups who obtain vocational rather than general and academic qualifications and how the socially selective choice of these options affects the extent of inter-generational social reproduction. However, there is ample evidence in the literature that working-class children are much more likely to go for vocational qualifications while those from a middle-class background prefer to embark on the trajectory leading to university degrees. We do not yet know from systematic comparisons whether the size of the class differentials in these choices is consistently larger in countries where the safety net and diversion effects of vocational qualifications are also greater.

At least the case of Germany appears to confirm such a hypothesis. Of all the countries studied in the CASMIN project, sons of skilled workers in Germany were more likely to opt for vocational qualifications than sons from this background in other countries (Müller & Karle 1993).

Finally, the hypothesis of high intergenerational social reproduction in countries with pronounced safety net and diversion effects is also consistent with Breen and Goldthorpe's (1997: 283-5) formal rational action explanation of educational differentials. Families in different social classes have identical *relative* risk aversion. They aim to avoid, on behalf of their children, any position in life that is worse than their own. Families from the skilled working classes should be particularly attracted by the safety net promise of vocational qualifications, while middle-class families must invest the more in academic qualifications for their children the more vocational training diverts these children from middle-class jobs. Working-class families require a trajectory that can both minimize risk and yield a qualification that would secure a decent job. From the standpoint of such students, vocational education of the qualification space variety is a valuable option. To them, it matters little that vocational education also diverts students away from the professions since those are not realistically part of their realm of possibilities.

Acknowledgments

This paper is a much extended version of our chapter in the forthcoming *Handbook of Sociology of Education* (ed. Maureen T. Hallinan) and draws heavily on the introduction to our edited volume *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*. Earlier versions were presented at the 1998 Meeting of SASE, Vienna, and the 1999 World Congress of ISA, Montreal. We thank Richard Arum, Hanna Ayalon, Adam Gamoran, Alan Kerckhoff, Noah Lewin-Epstein, Susanne Steinmann, Markus Gangl, and Abraham Yogev for their helpful comments on an earlier draft. Please address correspondence to Yossi Shavit, e-mail: yshavit@spirit.tau.ac.il or to Walter Müller, e-mail: wmueller@sowi.uni-mannheim.de.

References

- Allmendinger, Jutta (1989) 'Educational systems and labor market outcomes', *European Sociological Review* 5: 231-50.
- Arum, Richard and Shavit, Yossi (1995) 'Secondary vocational education and the transition from school to work', *Sociology of Education* 68: 187-204.

- Becker, Gary (1975) *Human Capital*, New York: Columbia University Press.
- Bishop, John (1989) 'Occupational training in high schools: when does it pay off?', *Economics of Education Review* 8: 1-15.
- Blossfeld, Hans-Peter (1992) 'Is the German dual system a model for a modern vocational training system? A cross-national comparison of how different systems of vocational training deal with the changing occupational structure', *International Journal of Comparative Sociology* 23: 168-81.
- Boesel, David, Hudson, Lisa, Deich, Sharon and Masten, Charles (1994) *National Assessment of Vocational Education, Vol. 2: Participation in and Quality of Vocational Education*, Washington, DC: US Department of Education.
- Bowles, Samuel and Gintis, Herbert (1976) *Schooling in Capitalist America*, New York: Basic Books.
- Braun, Michael and Müller, Walter (1997) 'Measurement of education in comparative research', *Comparative Social Research* 16: 163-201.
- Brauns, Hildegard (1998) *Bildung in Frankreich. Eine Studie zum Wandel herkunfts- und geschlechtsspezifischen Bildungsverhaltens*, Opladen: Leske & Budrich.
- Brauns, Hildegard, Müller, Walter and Steinmann, Susanne (1997) 'Educational expansion and returns to education. A comparative study on Germany, France, the UK, and Hungary', Paper presented at the Dublin Workshop of the European Research Network of Transitions in Youth, Dublin.
- Breen, Richard and Jonsson, Jan O. (1998) 'A multinomial transition model for analysing educational career', Paper presented at the World Congress of the International Sociological Association, Montreal.
- Breen, Richard and Goldthorpe, John H. (1997) 'Explaining educational differentials: towards a formal rational action theory', *Rationality and Society* 9(3): 275-305.
- Central Bureau of Statistics (1988) *Statistical Abstracts of Israel 1988*, Jerusalem: CBS.
- Coleman, James Samuel, Ernst, Q., Hobson, Carol J., McPartland, James, Mood, Alexander M., Weinfeld, Frederick D. and York, Robert L. (1966) *Equality of Educational Opportunity*, Washington DC: United States Government Printing Office.
- Collins, Randall (1979) *The Credential Society: A Historical Sociology of Education and Stratification*, New York: Academic Press.
- Crouch, Colin, Finegold, David and Sako, Mari (1999) *Are Skills the Answer? The Political Economy of Skill Creation in Advanced Industrial Countries*, Oxford: Oxford University Press.
- Dronkers, Jap (1993) 'The precarious balance between general and vocational education in the Netherlands', *European Journal of Education* 28 (2): 197-207.
- Gamoran, Adam (1987) 'The stratification of high school learning opportunities', *Sociology of Education* 60: 135-55.
- Gamoran, Adam and Mare, Robert (1989) 'Secondary school tracking and educational inequality: compensation, reinforcement, or neutrality', *American Journal of Sociology* 94: 1146-83.
- Goux, Dominique and Maurin, Eric (1998) 'From education to first job: the French case', Chapter 4 in Yossi Shavit and Walter Müller (eds), *From School to*

- Work: A Comparative Study of Educational Qualifications and Occupational Destinations*, Oxford: Clarendon Press.
- Henz, Ursula (1997) 'Der nachgeholte Erwerb allgemeinbildender Schulabschlüsse', *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 49: 223-41.
- Hallinan, Maureen and Williams, Richard A. (1990) 'Students' characteristics and the peer-influence process', *Sociology of Education* 63: 122-33.
- Hannan, Damian, Raffae, David and Smyth, Emer (1997) 'Cross-national research on school to work transitions: an analytic framework', in Patrick Wequin, Richard Breen and Jordi Planas (eds), *Youth Transitions in Europe: Theories Evidence*, Cereq, Document 120.
- Hotchkiss, Lawrence and Dorsten, Linda (1987) 'Curriculum effects on early post-high school outcomes', *Research in the Sociology of Education and Socialization* 7: 191-219.
- Iannelli, Christina (1997) 'Tracking and its consequences in Italy', Paper presented at the meeting of the Research Committee on Stratification, Tel Aviv, May.
- ÐÐ (2000) 'Individual educational decisions: a study of the low levels of educational attainment in Italy', Ph.D. thesis, Florence: European University Institute.
- Kerckhoff, Alan C. (1995) 'Institutional arrangements and stratification processes in industrial societies', *Annual Review of Sociology* 15: 323-47.
- Maurice, Marc, Sellier, François and Silvestre, Jean-Jacques (1986) *The Social Foundations of Industrial Power: A Comparison of France and Germany*, Cambridge, MA: MIT Press.
- Metz, Mary H. (1978) *Classrooms and Corridors: The Crisis of Authority in Desegregated Secondary School*, Berkeley: University of California Press.
- Müller, Walter and Karle, Wolfgang (1993) 'Social selection in educational systems in Europe', *European Sociological Review* 9: 1-22.
- Müller, Walter and Shavit, Yossi (1998) 'The institutional embeddedness of the stratification process: a comparative study of qualifications and occupations in thirteen countries', in Yossi Shavit and Walter Müller (eds), *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*, Oxford: Clarendon Press.
- Müller, Walter, Luettinger, Paul, Koenig, Wolfgang and Karle, Wolfgang (1989) 'Class and education in industrialized nations', *International Journal of Sociology* 19: 3-39.
- Oakes, Jeannie (1985) *Keeping Track: How Schools Structure Inequality*, New Haven, CT: Yale University Press.
- Parkin, Frank (1979) *Marx's Theory of History: A Bourgeois Critique*, New York: Columbia University Press.
- Rosenbaum, James E. (1998) 'Vocational teachers' linkages with employers: improving a work-entry infrastructure for low-achieving students', Paper presented at the Fourteenth World Congress of Sociology, Montreal.
- Rosenbaum, James E. and Kariya, Takehiko (1991) 'Do school achievements affect the early jobs of high school graduates in the United States and Japan', *Sociology of Education* 64(2): 78-95.

- Rosenbaum, James E., Kariya, Takehiko, Settersten, Rick and Maier, Tony (1990) 'Market and network theories of the transition from high school to work: their application to industrialized societies', *Annual Review of Sociology* 16: 263-99.
- Rumberger, Russell and Daymont, Thomas (1984) 'The economic value of academic and vocational training acquired in high school', Chapter 6 in M. E. Borus (ed.), *Youth and the Labor Market: Analysis of the National Longitudinal Survey*, Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Shavit, Yossi (1984) 'Tracking and ethnicity in Israeli secondary education', *American Sociological Review* 49: 210-20.
- Ð Ð (1990a) 'Tracking and the persistence of ethnic occupational inequalities in Israel', *International Perspectives on Education and Society: Volume 2*, Greenwich, CT: JAI Press.
- Ð Ð (1990b) 'Segregation, tracking and the educational attainment of minorities: Arabs and Oriental Jews in Israel', *American Sociological Review* 55(1): 115-26.
- Shavit, Yossi and Müller, Walter (eds) (1998) *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*, Oxford: Clarendon Press.
- Ð Ð (forthcoming) 'Vocational secondary education, tracking and occupational attainment in a comparative perspective', in Maureen T. Hallinan (ed.), *Handbook on Sociology of Education*, Plenum Publishing Co.
- Spence, Michael A. (1974) *Market Signaling*, Cambridge, MA: Harvard University Press.
- Steinmann, Susanne (1999) 'Bildung, Berufsausbildung und Arbeitsmarktchancen. Eine empirische Untersuchung zum Wandel der Übergänge von der Schule in das Erwerbsleben in Deutschland', Ph.D. thesis, Mannheim: University of Mannheim.
- Szydlík, Marc (1996) 'Zur Übereinstimmung von Ausbildung und Arbeitsplatzanforderungen in der Bundesrepublik Deutschland', *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung* 29: 295-306.
- Thurow, Lester C. (1975) *Generating Inequality: Mechanisms of Distribution in the US Economy*, London: Macmillan.
- Vanfossen, Beth, Jones, James and Spade, Joan (1987) 'Curriculum tracking and status maintenance', *Sociology of Education* 60: 104-22.
- Witte, James C. and Kalleberg, Arne L. (1995) 'Matching training and jobs: the fit between vocational education and employment in the German labour market', *European Sociological Review* 11: 293-317.

Yossi Shavit teaches sociology, and is Director of the David Horowitz Research Institute on Society and Economy at Tel Aviv University. Between 1993 and 1997 he was Professor of Sociology at the European University Institute in Florence. He has recently published, with Walter Müller, an edited volume entitled *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations* (Clarendon Press, 1998). Currently, he is studying the consequences

of reforms in the matriculation examinations, and of the privatization of higher education on social stratification in Israel.

Walter Müller is Professor of Sociology at the Faculty of Social Sciences, University of Mannheim and Head of the Research Department 'The European Societies and their Integration' of the Mannheim Center of European Social Research. His research interests focus on social stratification in modern societies, and one of his recent publications is 'Class cleavages in party preferences in Germany: old and new', in: Geoffrey Evans (ed.), *The End of Class Politics? Class Voting in Comparative Context*, Oxford: Oxford University Press, 1999, pp. 137- 80.

Yossi Shavit is Professor in the Department of Sociology and Anthropology, Tel Aviv University, Israel. **Walter Müller** is Professor in the Mannheim Center for European Research, University of Mannheim, Germany.

Address for correspondence: Professor Yossi Shavit, Department of Sociology and Anthropology, Tel Aviv University, PO Box 39040, Tel Aviv 69978, Israel