Clustering, Systemic Competitiveness and Commodity Chains: How Firms, Business Associations and Government in Santa Catarina / Brazil Respond to Globalization

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Paper Prepared for International Workshop
"Global Production and Local Jobs: New Perspectives on Enterprise Networks, Employment and Local Development Policy"
International Institute for Labour Studies, Geneva, 09-10 March 1998

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1 Introduction

This paper analyzes the response in two industrial clusters in Santa Catarina / Brazil to the move towards an open economy and globalization. Both the ceramic industry (wall and floor tiles) and the textiles industry (fabric, casualwear, home textiles) came under intense competitive pressure since the early 1990s. The concept of systemic competitiveness helps to explain the factors on both the national and the local level which initially stifled and later on stimulated the firms' performance. The commodity chain concept helps to understand how the domestic and the export market both shaped the space of action of firms and provided them with opportunities.

In the first section of the paper I will introduce the concept of systemic competitiveness, and I will investigate how it connects with the commodity chain concept. In the second section I look into the Santa Catarina experience. The argument goes as follows. In the import substitution era, a specific local business model emerged that was mainly based on individual entrepreneurship, a business culture where strong performance gave rise to a high status in the business community, and a strong role of firms in the community. Firms' success was mainly based on intra-firm factors, particularly constant technological upgrading based on investment in latest vintage equipment. Inter-firm cooperation was very limited, supporting institutions played a limited role, and relations between business and government at the state and local level were antagonistic. Based on this model, numerous firms were good enough to excel inside the closed market. Things changed profoundly with the transition to an open economy which started in 1990. Firms all over Brazil started to upgrade to meet international competitive standards, and the established business practice in Santa Catarina was no longer good enough. Local firms reacted in a twofold way. First, they reorganized their internal operations. They did this mainly by streamlining the workforce and introducing new management techniques. Second, they reorganized their external relations. This included both inter-firm relations and interaction with supporting institutions, especially in training and technology. Moreover, business associations started to play a much more active role. The role of the state in enhancing competitiveness and creating locational advantages remained limited, which can be explained by pointing at the traditional political structures prevailing in Santa Catarina.

2 Analyzing Industrial Development: Systemic Competitiveness and Commodity Chains

2.1 The concept of systemic competitiveness

The concept of systemic competitiveness tries to capture both the political and the economic determinants of successful industrial development. It refers to a pattern where state and societal actors are deliberately creating the conditions for successful industrial development as systemic competitiveness. The concept distinguishes between four levels: The microlevel of the firm and inter-firm networks, the mesolevel of specific policies and institutions, the macrolevel of generic economic conditions, and the metalevel of slow variables like socio-cultural structures, the basic order and orientation of the economy, and the capacity of societal actors to formulate strategies (Figure 1).

The key ingredients of successful industrial development are

- at the metalevel: firstly, development-oriented cultural values which are shared by a large part of the society; secondly, a basic consensus on the necessity of industrial development and a competitive integration into the world market; thirdly, the ability of social actors to jointly formulate visions and strategies and to implement policies.
- at the macrolevel: a stable and predictable macroeconomic framework. This should include a realistic exchange-rate policy and general foreign-trade policy that stimulates local industry.
- at the mesolevel: specific policies and institutions to create a competitive advantage. This refers to specific, targeted policies to shape industries and their environment (technology institutes, training centers, export finance, etc.). Moreover, it is the world of local and regional industrial competitiveness initiatives to strengthen the firms' environment. Many of the institutions that act at the mesolevel are typically, or can in principle be, non-government entities, e.g. business associations, non-profit entities, or firms.
- at the microlevel: capable and continuously improving firms, and networks of firms with strong externalities.

We have developed the analytical concept of systemic competitiveness in order to be able to assess, in a systematic and comprehensive way, the factors that contribute to successful industrial development. The concept is meant to lead beyond sterile discussions of the state vs. market type. Successful industrial development was based on strong states and strong markets in the past, and developing countries typically suffer from weak states and weak markets, i.e. both state and market failure. The secret of successful development is to find an appropriate balance between intervention, i.e. formulation and implementation of targeted policies to stimulate and shape industrial development, and market forces.

It is now well understood that the main objective of structural adjustment programs of the 1980s and early 1990s, namely creating a stable macroeconomic framework, is a necessary but not sufficient condition for successful industrial development. It is also obvious that the

specific pattern of state-led industrialization, which was the basis of successful latecomer industrialization in East Asian NICs, is hardly a serious option for today's developing countries. This is so for two reasons. First, most governments have neither the technical competence nor the standing to formulate, let alone implement, grandiose industrialization strategies. Second, the other countries (and in particular those countries that have pursued an import-substitution strategy for decades) do not start from scratch, as South Korea and Taiwan did in the 1950s. Rather, they already have an industrial structure. In the very least this consists of small and medium firms producing consumer non-durables for the domestic market, and medium and large state-owned firms in process industries like petroleum refining, steel, fertilizer, and cement. Any industry-related policy will first aim at restructuring these sectors. Therefore, the experience of East Asian NICs does not provide a blueprint for countries which had followed an import substitution-strategy in the past.

Dynamic industrial development requires deliberate action by both government and societal actors in order to stimulate and support firms in their effort to create competitive advantages. In other words, it is the outcome not only of the invisible hand of the market but also of governance. Regarding the term *governance*, we follow here the World Bank's rather broad definition as *"... the manner in which power is exercised in the management of a country's economic and social resources for development"*.[1] Just like development in other sectors, governance of industrial development today has to be based on a participative model where societal actors interact with the state in defining strategies and policies. This kind of model has emerged spontaneously in the industrialized countries as a reaction to increasing societal complexity and the limited success of state interventionism. It is emerging, though hesitatingly, in the developing world, especially in those countries where democratization processes have opened some scope of action for civil society, and where the limited competence and inactivity of the state has created opportunities for non-governmental organizations.

2.2 Definition and scope of the concept

Definition of competitiveness: At the company level, competitiveness refers to the ability to sustain a market position. This ability requires the simultaneous achievement of several targets. The firm must supply products of adequate quality timely and at competitive prices. Moreover, it must usually be in a position to provide sufficiently diversified products to meet a differentiated demand, and it must respond quickly to changes in demand behavior. Beyond this, success is contingent on a firm's innovative capacity, its ability to build up an effective marketing system, to establish a brand name, and so on.

The concept of systemic competitiveness refers to nations, regions, industrial sectors or subsectors rather than individual companies. It should be noted that the notion of competitiveness applied to such aggregates is not synonymous to the concept of competitiveness of companies, as defined above, although nations (as well as other aggregates) just as corporations do have a more or less sustainable market position. Krugman rightly states

1 World Bank (1992), p. 1.

that the competitiveness of companies has a clearly defined bottom line: *"if a corporation cannot afford to pay its workers, suppliers, and bondholders, it will go out of business. So when we say that a corporation is uncompetitive, ... it will cease to exist. Countries, on the other hand, do not go out of business ... they have no well-defined bottom line"*.[2] Hence the measure for the competitiveness of nations is not sustainability in the market. Empirical evidence tells us that not even the trade balance is a reasonable indicator of a nations competitiveness, since trade surpluses can occur in phases of economic crisis and vice versa.

In the case of nations or regions, a loss of competitiveness does not lead to elimination as in the case of firms, but deteriorating welfare conditions. Therefore, normative parameters including socio-economic and environmental issues are necessary to assess the competitiveness of such aggregates as nations. We define national competitiveness as *the degree to which a nation can, under free and fair market conditions, produce goods and services that meet the test of international markets, while simultaneously maintaining and expanding real incomes of its people over the long term. This long-term perspective implies the need to reduce ecological impacts and resource intensity to a level at least in line with the carrying capacity of the nation's ecosystems.*[3]

Why "systemic"?: By using the term *systemic* we want to point out several factors. First, a firm will generally not become competitive on its own, that is without a supporting environment of suppliers and production-oriented services as well as the competitive pressure of local competitors.[4] Microlevel competitiveness is based on interaction. Learning-by-interacting is a key element in firms' innovation processes, and feedback loops between firms and supporting institutions are crucial in order to establish dynamic competitive advantages.

Second, an environment that sustains competitiveness is rooted in a national system of norms, rules and institutions that defines the incentives that shape the behavior of firms.[5]

Third, we maintain that the state has an important role to play in industrial development and restructuring. However, we take for granted that autocratic, hierarchical modes of governance are becoming obsolete. New forms of governance are emerging that are based on a new kind of interaction between state and societal actors, typically in horizontal networks.[6] Here we find, again, interaction and feedback-loops.

Scope of the concept: With increasing complexity of industrial organization, the systemic nature of competitiveness becomes more important. Especially the most innovative industries

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2 Krugman (1994).

3 This definition is based on the *Report of the US Presidential Commission on Industrial Competitiveness*, which was elaborated in 1985 (quoted from OECD 1992, p. 242), adding the target of ecological sustainability as defined by the World Business Council for Sustainable Development (quoted from Fussler 1994, p. 71).

4 Cf. Porter (1990).

5 Cf. Nelson (1992).

6 Cf. Mayntz (1991).

build upon positive external economies such as the existence of world class suppliers of intermediary goods and machinery, demanding consumers, specialized business services and other factors making up a supporting business environment. Nevertheless, certain industries can operate fairly well without such an environment. The systemic character of competitiveness is not equally important to all industries. Two exceptions are especially important with regard to the industrialization prospects of developing countries:

First, some mature production processes can be transferred to greenfields which lack most elements of a modern supporting business environment. This is obvious in the case of those light industries which are typical of Export Processing Zones (apparel, electronic assembly, toys, etc.). Basic infrastructure consisting of access to international airports and ports, electricity and minimal education of the workforce are sufficient conditions to attract such industries. Recently, even relatively complex state-of-the-art production processes including robots and modern management methods such as *kaizen* have successfully been transplanted to greenfields in developing countries. But it is important to notice that all these examples refer to mature industries which can be built up by transplanting codified knowledge embodied in blueprints, machines and operation manuals. These industries may be called *blueprint industries* since they do not depend on more tacit forms of knowledge that are not codified in blueprint form, and therefore cannot be entirely diffused. These blueprint industries do not carry on substantial R&D and will usually not even produce much incremental technological change.

Second, despite the general trend towards tariff reduction, certain industries oriented towards developing countries domestic markets are not fully exposed to international competition. This is especially true for the low-ends of product markets. Therefore, firms can perform fairly well even if the supporting environment is weak. This is due to the fact that there are entry barriers to the domestic market which trade liberalization does not eliminate. Examples are:

- high transportation costs;
- deficient communication systems;
- a market size too small to be interesting for potential foreign investors;
- underdeveloped marketing systems with large parts of the demand being served by street vendors or on the basis of informal credit arrangements;
- special local consumption patterns.[7]

2.3 The roots of the concept of systemic competitiveness

The concept of systemic competitiveness draws on different strands of the discussion in economics and social science. The contribution of the concept is primarily to address the complementarities of largely unrelated discussions in different disciplines. We do not claim that systemic competitiveness is a theory but rather a heuristic framework to overcome the limitations of isolated disciplinary discourses.

7 Altenburg (1996).

In the field of economics we draw mainly on the contributions of four different schools: innovation economics and evolutionary economics, the post-structuralist school, some elements of institutional economics, and certain contributions from management science.

1. Innovation economists have done extensive research on the functional logic of innovation processes and innovation systems, to a certain degree continuing along lines established by Schumpeter.[8] In this view, innovation is not an event but a process that typically occurs along trajectories. Defining a trajectory implies a decision in favor of one and against other technological options. The decision typically reflects a specific historic constellation, including economic, political, technical, and other factors as well as coincidence. Once a trajectory has been established, the latitude for guiding technological development is limited (path dependence). The innovation process is based on continuous learning in the form of learning-by-doing, learning-by-using, and learning-by-interacting, between firms as well as between firms and research- and technology-institutes. Innovation patterns differ from country to country due to different institutional frameworks and different incentive structures; thus emerge different national systems of innovation. Technological knowledge can never be fully codified, i.e. it is crucial to keep in mind the importance of tacit knowledge, which is not easily transferable and mostly person- and firm-specific. Therefore, in order to use a given technology, a firm has to undertake learning efforts to create the necessary tacit knowledge. Due to path dependence and the tacitness of knowledge, neo-classical views that suppose complete freedom to choose, transfer, and switch between technologies do not provide an adequate understanding. Accordingly, policy recommendations based on neo-classic thinking will often be inadequate.
2. A key issue in the post-structuralist discourse is the redefinition of the role of the state in processes of late industrialization.[9] Traditional structuralism pointed at the central role of the well-informed, powerful development state in guiding the industrialization process. The experience of the East Asian NICs has shown that this concept was not altogether wrong. However, it depended on a number of specific factors which had to be combined in a sophisticated way. Only few societies succeeded in doing so. In other parts of the world, particularly in Latin America, an etatist, market- and competition-unfriendly model of industrial development generated temporarily high growth rates. In the end, however, it led to mutually reinforcing blockade constellations and a deep economic and social crisis. The post-structuralist discussion still maintains that the state has to play an important role. At the same time, the importance of economic incentive structures is emphasized, especially the role of competitive pressure in stimulating technological learning and upgrading.
3. The new institutional economics tries (essentially inside the framework of neoclassical economics) to identify those rules, conventions, norms, and structures which shape the behavior of economic agents, especially firms.[10] Two elements are particularly important in our context. First, institutional economics emphasizes the importance of systems of rules,

8 Dosi et al. (1988); Freeman (1987); OECD (1992).

9 Amsden (1989); Lall (1992); CEPAL (1990); Hillebrand (1991).

10 Important authors are Williamson (1995) and North (1995). For an overview see Reuter (1994).

particularly property rights. Without well-established and enforceable property rights the conditions for entrepreneurship are severely circumscribed. Second, institutional economics points at the importance of transaction costs, i.e. the costs involved in the arrangement, supervision, and enforcement of contracts. High transactions costs, e.g. due to missing or badly-organized information systems (for instance regarding the credit standing of firms), will often lead to suboptimal patterns of organization (e.g. extreme vertical integration as firms prefer not to deal with suppliers and subcontractors due to high transaction costs).

4. In the view of management science there is no question that firms' competitive advantages do not emerge randomly but are created by strategic management. It emphasizes that firms should concentrate on their core competencies and outsource other activities and should also strive for creating competitive advantages along the whole value chain. Apart from intra-firm features, management science has increasingly dealt with aggregates of firms over the last years.[11] Going beyond this perspective, Porter has argued that the distinguishing element between more and less successful economies is the difference in the quality of industrial clusters (and not just individual firms). According to Porter, successful industrial development has to be created through deliberate action. Sustained industrial competitiveness is based on four factors: competent firms with a strategic vision, a demanding domestic market, highly capable supporting industries, and a well-developed environment of specific supporting institutions.

In the field of social science, the concept of systemic competitiveness relates mainly to four strands of discussion: economic sociology, industrial sociology, economic geography, and political science.

1. Economic sociology tries to analyze structures and processes, and particularly power relations that shape economic transactions in the real world.[12] It aims at explaining outside the world of economic models why economic agents behave in the way they do. Important insights include the observation of the crucial role of trust and relational contracting. Economic transactions, e.g. between a firm and its most important suppliers, are not anonymous market transactions but embedded in a complex social relationship pattern. This insight arose from observations of such different phenomena like long-term supplier relationships in the Japanese industrial system and dense networks with highly differentiated forms of communication and sanction-mechanisms in Italian industrial districts.
2. Industrial sociology has made important contributions to the understanding of the fundamental changes in firms that have occurred since the 1980s.[13] It identified "new production concepts" which differed profoundly from traditional Taylorist concepts. While management science prescribed new organizational concepts (lean production, flat

11 The work of Porter (1990) has been particularly influential. For an overview see Messner and Meyer-Stamer (1993).

12 Important authors are Granovetter (1992) and Platteau (1994a and b). For an overview see Smelser and Swedberg (1994). On the industrial district discussion, see the overview of Nadvi and Schmitz (1994).

13 Pathbreaking contributions were made by Kern and Schumann (1984). For an overview, see Sauer and Wittke (1994).

hierarchies, teamwork, strongly reduced division of labor inside the firm), industrial sociology also analyzed the obstacles to their quick introduction, particularly the power structures inside firms.

3. Economic geography has received increasing attention as other disciplines began to realize the importance of spatial concentration of firms and supporting institutions[14]. Spatial concentration stimulates formal and informal communication, thus facilitating rapid diffusion of information and collective learning – and these are the factors that decide on success and failure in ever tougher competition which is based on continuous innovation. In this context traditional concepts of regional policy that aimed at dispersing industries have increasingly come under criticism.

4. Political science has moved from optimism to pessimism and back again regarding governability, i.e. actively and deliberately shaping the fate, of industrial societies.[15] The 1970s were, in many industrial countries, marked by attempts to restructure societies in a top-down manner, using hierarchical governance modes. The success of these efforts was limited, not only due to various sources of resistance but also due to the objective problems of governing across different levels of government and across different sectors, which created extremely entangled structures with mutually reinforcing blockades. The result was deep pessimism regarding the governability of industrial societies, which shaped the discussion in the 1980s. Pessimism was theoretically well-founded, but it was at least partially rejected based on the observation of new, network-like governance patterns in fields like research, health, and telecommunication policy. The main finding was that such sectors were no longer governed through hierarchical structures under the guidance of the state. Rather, there were horizontal, heterarchical structures that involved state and non-state actors. Policy-networks in the shadow of hierarchy served to define problems and to find solutions. Involving societal actors, it turned out, mobilized essential know-how and creativity and improved the perspectives for successful implementation. This pattern supplants the traditional pattern of political organization based on division of powers and helps to overcome some of its deficits.

The common denominator of these different strands of theory is the notion of networks. The network feature is crucial for both the political and the economic dimension of systemic competitiveness. Firms that compete on globalized markets are not the atomized agents of textbook microeconomic theory. Rather, they are woven into dense networks that consist of other firms (suppliers, customers, and competitors) and of mesoinstitutions. Likewise, political actors that formulate industrial strategy are not the utility-maximizers of rational choice theory. Instead, they are also woven into networks, in this case policy-networks that consist of agents from different public institutions and representatives of different organizations of the civil society. These policy-networks complement the established, hierarchical governance patterns and democratic institutions. They are the place where joint definitions of problems are sought and concrete measures to solve them are formulated.

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14 One of the most influential authors is Storper (1995).

15 Important authors are Mayntz (1991); Scharpf (1991). For an overview see Messner (1997).

Creating the conditions for systemic competitiveness is profoundly different from the kind of state-led, guided, and interventionist industrial policy of the past. It is a market-friendly approach as it acknowledges that a functioning market is the key prerequisite for industrial dynamism. It is also an approach that can be much less costly than the traditional, subsidy-based industrial policy as it essentially involves stimulation, encouragement, and moderation, plus the creation of specific mesoinstitutions which will not emerge spontaneously due to an initially unfavorable cost-benefit-ratio or problems of free-riding.

2.4 The four levels of systemic competitiveness

Orthodox economics address two levels, namely the macro- and the microlevel. The analysis of successful industrialization processes has shown that a well-functioning mesolevel of specific policies and supporting institutions is a further important dimension. In addition, it is obvious that successful development depends highly on the cultural values, the social composition and the political system in a given country. In trying to understand how competitive industries are being built up it is therefore important to address features at the metalevel.

Macrolevel: Linking Economic Stabilization and Liberalization to the Capacity to Transform

An enabling macroeconomic environment, i.e. well-functioning factor, commodity and capital markets, are crucial to securing the efficient allocation of resources. In view of the experience gathered from the 1970s it is now widely accepted that an unstable and highly biased macroeconomic framework (high inflation, persisting high budget and trade deficits and a distinct anti-export bias in the economy resulting from an overvalued exchange rate as well as high protectionist barriers) considerably reduce the ability of these markets to function properly, with negative effects being particularly on economic growth and exports.

Stabilization of the macroeconomic framework must in particular encompass a reform of fiscal, budgetary, monetary as well as currency and trade policies. The sequencing of such measures depends on the specific circumstances. When formulating and launching these reforms policy makers must, however, take into account that there is a latent field of tension between the goals of creating a stable and unbiased macroeconomic framework and securing the basis for future growth and the capacity to compete on world markets. Therefore, stabilization and liberalization measures for the economy as a whole should be linked as closely as possible to parallel, protracted structural reforms as well as the country's short- and medium-term capacity to transform. In very broad terms, tensions can be reduced if three main elements are taken into consideration:

First, combating inflation mainly through restrictive budgetary policies will often lead not only to restrictions on consumption but also on investment and thus to a reduction of scope for economic growth and more equitable distribution. Therefore, efforts to consolidate the budget deficit should be closely linked to structurally-oriented reforms of budgetary and fiscal policies.

When measures are taken to reduce state expenditures, the politically simplest way of reducing state investments – for example education, health and development of physical infrastructure – must be avoided. In order not to weaken the basis for future growth, consolidating measures have to cut consumptive expenditures, to remove privileges for interest groups and to examine the extent of state activity. What becomes particularly necessary is to reduce military expenditure, to avoid overstaffing in the public sector, to reduce subsidies by introducing fixed-term, degressive subsidies, to concentrate social policies on the poorest groups of the population and to eliminate deficits in state enterprises by making use of the scope available for the privatization and commercialization of state activities. Also, investment expenditure must be subject to careful scrutiny and must be concentrated in those areas which are particularly important for the development of the private sector and for social development. In this context, the potential of innovative extra-budget financing mechanisms such as build-operate-transfer schemes for infrastructure development should also be exploited.

On the income side, a thorough restructuring of the entire system of taxes and dues and a strengthening of the administrative competence of the tax authorities is normally required. The trend must be towards taxing consumption rather than production, to cover and tax progressively all the various kinds of income, to avoid a bias in the taxation of national and international transactions and to raise adequate cost-covering charges for state services.

Second, in order to keep inflation at a tolerable level, a fiscal and budgetary policy geared to stability must not be counteracted by an expansionary monetary policy. Stability-oriented monetary policy does, however, come up against very narrow limits under the conditions of underdeveloped and distorted money and capital markets characterized, among others, by credit rationing, selective credit allocation and arbitrarily set interest rates. In order to guarantee a sufficient availability of loans at tolerable interest rates while maintaining a sufficient monetary stability, the aims must be: first, to consolidate the competencies of the central bank to control the domestic money supply and foreign capital influx; second, to develop an efficient and diversified private financial sector; third, to secure well-functioning competition on the money and capital markets; and fourth, to reduce discretionary state intervention to influence interest rate development.

Third, persistently large balance of payments deficits narrow the scope for growth and destabilize the national economy. They normally signal an anti-export bias within the overall economic policy framework and can only be reduced under changed exchange rate and foreign trade policies.

The exchange rate is the strategic variable which decides whether a national economy is capable of creating the fundamental macroeconomic preconditions necessary for setting up internationally competitive industries. Countries which allow a long-lasting overvaluation of their currency create a double obstacle to the development of an efficient industrial production apparatus in two ways: exports made more expensive through the exchange rate lead to a situation where firms do not see any realistic chance of orientating their production to the world market. At the same time, artificially low import prices imply that firms also forfeit their competitiveness in the domestic market, with the consequence that money is then invested primarily in the area of non-tradable goods or that capital is even exported.

Trade policy must also give clear signals to firms to cause them to gear their strategies to the world market. To ease the transition from an import substitution strategy to a concept of active world market integration the timing and sequencing of policy reforms is important. Generally speaking, the speed of reforms should consider the capacity of firms and institutions to adapt to the new framework conditions. If competitive pressure increases too rapidly they will not be able to adapt to the new environment. On the other hand, policy reforms need to create sufficient pressure and challenge firms and institutions to modernize as fast as possible. For the transition towards a more liberal trade regime, governments have two clearly distinct options available:

The first option, i.e. general import liberalization, aims at a rate of customs which is low and uniform for all types of goods. It puts its trust in the validity of the principle of comparative advantage and accepts that only those industries survive which derive their competitive strength from existing comparative advantages. This option usually involves high friction costs as it does not take into account that different groups of industries need different periods of time for technological learning. Therefore it may provoke deindustrialization in branches which do have the potential to become competitive in the medium term, and it may inhibit technological upgrading. However, countries with little experience in actively shaping economic structures may have no choice other then to follow a policy of non-discretionary import liberalization.

Under the second option, i.e. selective import liberalization, the opening-up of the economy takes place on the basis of a sectorally differentiated timetable founded upon an analysis of the actually foreseeable reaction potential of existing industries and the development requirements of the old and new industrial centers. In more advanced countries, trade policy can therefore become an important part of a policy of actively shaping competitive advantages.

Microlevel: Technological and Organizational Requirements

Firms are faced today with increasing challenges resulting from six different trends: First, globalization of competition in a rising number of product markets; second, an increase in the number of competitors on account of successful late industrialization processes and successful structural adjustment as well as export orientation; third, increasingly differentiated demand patterns; fourth, shortening product innovation cycles; fifth, assertion of radical technological and organizational innovations; and sixth, upheavals in technological systems in which the borderlines between sectors are newly demarcated, for example overlaps between computer technology and telecommunications (telematics) or between mechanics and electronics (mechatronics).

Firms have to optimize four criteria in order to be competitive: cost-efficiency, quality, variety, and responsiveness. The ability to offer a variety of products without sacrificing quality and efficiency is necessary to attend an increasingly differentiated demand. Responsiveness means the ability to react quickly to changes in demand and new opportunities.

In order to meet the new demands, firms must extensively reorganize themselves both internally and in conjunction with their immediate environments. Incremental changes as

envisaged in the 1980s with far-reaching automation and information-technological interlinking (recall the "automation of Taylorism") are simply not enough. In order to increase efficiency, quality, variety, and responsiveness at the same time, profound changes in three areas are needed:

- **Organization of production:** The aims are a reduction of time-to-market and through-put times, for example by replacing traditional conveyor belts and transfer systems by cellular manufacturing in order to be able to respond quickly to customers' demands, and by a reduction of stocks, in order to reduce the costs of current assets. Further aims are improvements in quality and quality costs (defect and rework ratios), which can be achieved by approaches like total quality management.
- **Organization of product development:** The strict division between development, production and marketing has not seldom led to product designs which resulted in too high production costs and/or did not meet customer preferences. Parallel organization of various development stages and reintegration of development, production and marketing (simultaneous engineering) lead to drastically reduced development times and to products which can be more efficiently produced and are easier to market.
- **Organization of the value chain:** Firms reduce vertical integration in order to be able to concentrate on their core competence. They reorganize supply and subcontracting, especially by introducing just-in-time linkages. And they reorganize their supplier pyramids by reducing the number of direct suppliers by upgrading some of them to system suppliers and by integrating them also into the product development process.

In all three areas the key issue is the interaction between organizational, social and technical innovations. Reorganization is often what first creates the conditions for the use of new computerized hardware. Social innovations (reduction of hierarchical levels, a much wider scope for decision-making at the operative level) are prerequisites for the functioning of new organizational concepts.

A separate issue that has to be addressed at the microlevel is that of the structure of industry, and the appropriate framework for analyzing it. A traditional view would be to distinguish consumer non-durables and durables, intermediate goods, and capital goods. Another view, addressing technological issues, is the distinction between supplier-driven, scale-intensive, specialized supplier, and science-based industries.[16] Yet another view, addressing the interaction between profound changes in the macroeconomic framework and adjustment at the microlevel, is the distinction between resource-intensive, qualified labor-intensive, and R&D-intensive industries.[17] These concepts are often helpful in analyzing specific circumstances. It is furthermore important to note that hardly any industry, and any firm, qualifies *a priori* for any of these classifications; the Finnish pulp and paper industry was probably much more R&D intensive than the Brazilian computer industry. It is thus essential not to confuse empirical

16 Cf. Pavitt (1984).

17 Cf. Katz (1996).

concepts (*How do I order a given reality?*) and normative concepts (*Which industry should I try to stimulate because it has a particularly positive impact on welfare?*)

Mesolevel: Supporting the Efforts of Firms

The increasing challenges to firms go hand-in-hand with increasing demands on their support structures. In the world economy therefore, it is no longer only individual firms that compete with each other but industrial clusters, groups of firms organized in networks, whose dynamic development depends on the potential of the particular location. This potential is shaped by continuous and close contact with R&D facilities, technology formation and dissemination institutions, universities, training institutions, finance institutions, export information institutions, and many other entities. Due to increasing global competitive pressure the demands on the local, regional and national level to create and support the business environment are increasing; this applies to demands on business associations and other non-governmental actors as well as to demands on the state at all these levels.

There are two different ways of addressing the mesolevel. First, there are mesoinstitutions which offer specific services to industrial firms. Second, there are mesopolicies, i.e. selective, targeted policies to shape sector-specific regulatory and other conditions and to create mesolevel institutions.

Mesoinstitutions: A well-developed industrial location hosts a broad set of institutions which offer services and support to firms (Figure 2). This set of institutions is usually the outcome of a long learning and upgrading process of individual firms, institutions, and the interaction among them. Porter's differentiation between basic and advanced factors, and generalized and specialized factors, is useful in addressing a typical sequence of development of a set of mesoinstitutions in a given location:

> "*Basic factors* include natural resources, climate, location, unskilled and semiskilled labor, and debt capital. *Advanced factors* include modern digital data communications infrastructure, highly educated personnel such as graduate engineers and computer scientists, and university research institute in sophisticated disciplines. (...) *Generalized* factors include the highway system, a supply of debt capital, or a pool of well motivated employees with college educations. They can be employed in a wide range of industries. *Specialized* factors involve narrowly skilled personnel, infrastructure with specific properties, knowledge bases in particular fields, and other factors with relevance to a limited range or even to just a single industry."[18]

In the early stages industrial development in a given location will be mostly based on basic and generalized factors. Only after a certain period of time advanced and specialized factors will be created, partially through private enterprise (e.g. provision of venture capital or specialized business consultancy), partially through the activities of business associations (e.g. technology

18 Porter (1990), pp. 77 f.

information), and partially through government activities (e.g. university research and education). As a matter of fact, a closer look at the elements mentioned in Figure 2 reveals that most factors at the mesolevel can be provided through the private sector, either by specialized individual firms or by business associations. It is thus important to note that shaping the mesolevel does not necessarily, and not even predominantly, involve government activities.

Mesopolicies: Mesopolicies to create systemic competitiveness consist of three main elements:

- Regulatory policy: Based on the "Washington consensus", one might argue that there should be no mesolevel regulatory policies, i.e. there should be a uniform macrolevel regulatory framework that applies to all industrial branches and sectors. However, there is still a justification for selective regulatory policies. Regarding import policies there is still a case to be made for infant industry protection, albeit on a fixed-term and performance-related basis. Regarding environmental policies, it can be sensible to target different industrial branches in a differentiated way.
- Financial instruments: These are useful in fields like R&D support and export promotion where market failure is likely. Tax incentives and direct subsidies can stimulate intra-firm R&D which would otherwise not take place on the scale that is desirable in a macroeconomic perspective due to external effects and limited appropriability. Export credit and insurance is often provided by state agencies, or reinsured by government, because factors like political risk lead to private underinvolvement in this field.
- Government activities to create and upgrade mesolevel institutions: These are justified in the case of market failure or if collective action by the private sector fails to happen. Market failure is very likely in R&D and training, certain areas of infrastructure (especially provision outside dynamic centers), and environment. In the particular case of less advanced developing countries, it may also happen in finance due to the small size of the market, high risk, and high transaction cost.

It is complicated to strike an adequate balance between supply- and demand-driven measures in creating mesolevel institutions; this is something that SME support and regional policies in advanced countries as well as national development policies in and technical assistance to developing countries are constantly struggling with. Supply-driven measures, i.e. measures that anticipate a potential or future demand of firms for support by mesolevel institutions, are often not successful. This applies especially to early phases of industrial development when firms are small, are showing deficits in most business functions, and have for exact these reasons no obvious receiving structure for support by mesolevel institutions. The work of mesolevel institutions becomes much easier once firms are highly competent and a culture of micro-meso interaction has been established. It is, however, also risky to rely exclusively on demand-driven measures. Mesoinstitutions like technology demonstration centers are by definition supposed to generate changes in behavior rather than waiting for them to happen. One way of resolving this dilemma is to establish close communication between government, business, and other actors active in the area of mesoinstitutions who should be able to articulate existing and anticipate foreseeable demand.

Competitiveness-oriented mesopolicies should not be confused with certain traditional variants of industrial policy. Mesopolicies to create systemic competitiveness are about stimulating competition, and supporting firms to make the best of a highly competitive environment. Traditional industrial policy often was the exact opposite, for instance protecting domestic industries against foreign competitors or even stifling domestic competition by encouraging the emergence of national champions. Regulatory policies (e.g. import and local content regulations or licensing procedures) and financial instruments (e.g. direct subsidies) were main instruments of such traditional industrial policies. Both are still important instruments, but in a different way. A further traditional instrument, state ownership, has currently fallen out of favor as state enterprises tended to show an unsatisfactory performance.

The interrelationship between the regional and the national level: The *locus* of industry-related policy-making is changing. Traditionally, industrial policy, technology policy, and other specific policies that shaped industrial development were prerogatives of central governments. The situation has changed. As firms get under increasing pressure due to globalization, their demands on their local environment increase. Consequently, mesopolicies increasingly have to be formulated at the regional and local level. In some countries, regional or local governments have the responsibility in key mesopolicies anyway, e.g. in education.

One crucial aim of mesopolicies is to create specific locational advantages. These are, by definition, highly localized. Decentralization of mesopolicies is therefore desirable; it does not make sense if central government starts to define dozens, if not hundreds of policies for different regions. A local policy should be formulated by local actors, tailoring it to the strengths and weaknesses of the given region. It will often be easier to mobilize locally the know-how for diagnosing strengths and weaknesses of firms and their environment, and to formulate measures to strengthen strengths and overcome weaknesses.

Yet central government can play an important role in stimulating local and regional policy formulation:

- It should check on subsidies offered by regional and local governments, thus inhibiting subsidy races between regions and stimulating creativity races instead.
- It can introduce creative local strategy formulation as a condition for the allocation of subsidies (like regional development funds), thus introducing a performance incentive in this field.

Apart from that, certain mesolevel tasks remain with the national government. These include, for instance, large-scale technology initiatives and the formulation of an overall long-term strategy.

Metalevel: Governance for Industrial Competitiveness

Demands at the metalevel: At the metalevel, one important aspect concerns the existence of development-oriented cultural values which are shared by a large part of the society. Such values include, i.e., social recognition of economic success, general acceptance of the idea that

predatory behavior and freeriding jeopardize social development, a priority for long-term investment in education and training and a high propensity to save. If such values are not rooted in a society, it is very hard to stimulate them through macro- or mesopolicies. This explains why similar instruments designed to promote for instance entrepreneurship, interfirm cooperation, or savings cooperatives perform very differently across countries.

A second crucial precondition for competitiveness is the existence of a basic consensus on the necessity of industrial development and a competitive integration into the world market. Taking into account the increasing internationalization of the economy, societies cannot choose development paths randomly. The key actors have to accept the world market as a framework. This does not necessarily imply a high export ratio. It rather means that firms should aim to get close to international quality and efficiency standards, since even in their open domestic markets they compete with imported goods. As long as there is fundamental disagreement on these issues, macro- and mesopolicies will be erratic, and firms will develop a defensive posture in order to be able to react quickly to changes in the rules of the game.

The third basic element at the metalevel is the ability of social actors to jointly formulate visions and strategies and to implement policies. This implies a vision shared by a relevant group of social actors about which position should be targeted in the international division of labor, which comparative advantages should be developed in the long run, how profits and costs of market integration should be distributed among social groups, etc. Such a shared vision is important to concentrate resources. Moreover, long and medium-term orientations are important for asserting future interests against current interests and for generating stable expectations. The construction of such a basic consensus is a complex political process and makes high demands on social actors: entrepreneurs, workers and other concerned members of the civil society have to be ready to get involved in institutions and commit themselves to the achievement of common targets.[19] In addition, they must be willing to find a compromise with other interest groups. This makes the difference between democratic and corporatist cultures, because the latter excludes relevant social groups from strategy formulation.

The metalevel in developing countries: Cultural values are obviously very heterogeneous across countries and explain much of their different economic performance. On the other hand, some characteristics of the metalevel are widespread among developing countries. In the following, we will point out some of these common features.

Until recently most developing (as well as socialist) countries were characterized by centralized political decision-making processes and a bureaucratic, inefficient government apparatus. Often this was even overlaid with rentist-corporatist structures which allowed privileged groups effectively to realize their particular interests.[20] These power structures corresponded with forms of social disintegration and fragmentation which were characterized by the exclusion of broad segments of the population as well as by political and social polarization. All this established obstacles to successful industrial development at several levels. Firms did not

19 This willingness has been termed "social capital"; see, for instance, Bazan and Schmitz (1997).

20 Kaufman (1990); Cavarozzi (1992).

cooperate as mistrust and predatory behavior was pervasive. Workers and trade unions resisted modernization efforts. Disparities in income distribution led to low savings rates and accordingly low capital formation. Social unrest and political instability favored stop-and-go policies which compromised firms' efforts to a day-to-day struggle for survival.

The economic crisis of the 1980s showed the limited viability of inward-oriented development patterns and created a growing consensus on the necessity to integrate into the world market. Structural Adjustment Programs strengthened the market mechanism and partly eliminated incentives for rent-seeking behavior and clientelist relationships. Moreover, institutional reforms introduced more transparency in institutional decision-making. On the other hand, Structural Adjustment Programs failed to recognize that in most developing countries, markets are not fully developed and the civil society is weak. Under these circumstances, deregulation and the downsizing of the public administration are obviously not sufficient to create a competitive economy and to guarantee social development. Social disintegration may even be further exacerbated if macroeconomic reforms fail to establish regulatory and governance capacities (government reform, formation of complex linkages between strategic actors) and the requisite social structures.

As systemic competitiveness cannot emerge without social integration, its creation implies a social transformation venture that goes far beyond correcting macroeconomic framework conditions. For one thing, it requires fundamental restructuring of business associations and trade unions, as well as other key organizations of the civil society. The process of restructuring organizations and the creation of new intermediary institutions follow three complementary logics. First, these organizations and institutions need to be restructured internally; second, they must strengthen their ability to represent their interests vis-à-vis government or other societal actors; third, they must shape their own environments through cooperation and networking with public or private institutions.

Major groups in society must learn that safeguarding government from influential, privileged groups may establish a positive-sum game. Only a relatively autonomous government is able to gear its activities toward overall social and economic interests. Transparency and accountability are crucial. Autonomous functional subsystems are based on a clear-cut division of responsibilities between government, industry, and societal actors. They may then be further developed by intrinsic learning processes, flexibility and responsiveness, and by dialogue and efforts to search cooperatively for optimal solutions involving government and societal actors. This may occur on the national as well as at the regional and local levels.

The need for heterarchical governance patterns: Although the dogma that government is obliged to assume a strictly subsidiary role vis-à-vis market processes is inadequate, the neo-liberal critique of the traditional ways of government intervention is basically correct. The idea that government alone, as a kind of central control center of a society, can selectively direct technological and economic processes presupposes that government bureaucrats are more capable and better informed than other actors in society, including firms. This may have been

the case in some latecomer countries, most impressively in East Asia,[21] although even there it is important to note that the pattern also involved strategic action on the side of the private sector, and close interaction between public and private sector. Anyway, as societies get ever more differentiated, and firms as well as other actors undergo learning processes, the ability to formulate and implement joint strategies moves from the public to the private sector. The necessary know-how and the implementation capacities are distributed across a variety of governmental, private, and intermediary agencies. One-dimensional, etatist and centralist patterns of governance are therefore unsuitable for the development and support of complex entrepreneurial networks and specialized institutional landscapes – in OECD countries as well as in industrially advanced developing countries.[22]

Still, the conclusion that the state has no role to play at all is not well founded since this proposition ignores the indisputable fact that new forms of governance have emerged, initially in a number of OECD countries where government policy no longer follows the pattern of a traditional interventionist state. Rather, government acts as a coordinator, moderator and communicator in policy networks with firms and their associations, science, intermediary institutions, and trade unions. It aims at collecting and disseminating relevant information and working out joint medium- and long-term visions that can serve as points of reference for government mesopolicies as well as private initiatives. This makes it possible to relieve the government's burden by shifting decision-making processes into intermediary arenas, to ensure a higher degree of information availability, to heighten the legitimacy of government decisions, and to mobilize the creativity available among societal actors by involving them and their respective problem-solving capacities in a strategic fashion. Policy networks do, however, presuppose on the part of societal actors a capacity to compromise, to perform and learn, and to accept transformation.[23]

Thus, aside from the forms of governance already prevalent in societies organized along the lines of market economies – hierarchic co-ordination and steering in firms and public institutions, market-like co-ordination among firms, and hierarchic governance of society by government – network-like forms of organization are emerging.[24] This is happening in particular at the mesolevel, where the emerging forms are characterized neither by simple market allocation (competition and price) nor by centralist governance mechanisms (hierarchic control and state interventionism).

The predominant discussion in the 1980s of market vs. government overlooked these innovative forms that were involved in the shaping of social structures. They are based on a combination of market, government and a variety of forms of self-coordination, these operating in the shadow of the market, the shadow of hierarchies, and in self-organizing networks. This view of increasingly differentiated forms of social organization and governance

21 Cf. Cumings (1984).

22 Cf. Best (1990).

23 Cf. Scharpf (1991); Mayntz (1991); Héritier (1993); Atkinson and Coleman (1989).

24 Cf. Powell (1990).

surmounts the classical dichotomies of market versus government and of total autonomy of decentral actors (liberalism) versus totally integrated society (socialism).

Successful policy networks are based on six core elements.[25]

- autonomous collective actors capable of internal conflict resolution;
- trust and commitment to fair exchange;
- orientation towards a substantial outcome (problem-solving, beyond minimum consensus);
- joint decision-making based on information-sharing;
- reciprocity, or a just distribution of the costs and benefits of a joint decision (or a given problem solution); and
- voluntary restriction of each actor's freedom of action because it is accepted that each actor has a legitimate claim that his interests be respected.

Policy networks differ from traditional corporatism in that the role of the state has changed: rather than the state's organizing private interest and arbitrating between corporatist groups which hardly interact among each other, representatives of associations interact with each other and with state bureaucrats on an equal basis. Policy networks are also different from the 1970s brand of European neo-corporatism which basically involved the central state government and the peak organizations of capital and labor. Yet it is difficult to find a profound difference between 'mesocorporatism' and policy networks: both terms describe arrangements that used to have a certain level of institutional (albeit often informal) stability and a set of (albeit often tacit) rules that govern the interaction process.

Policy networks tend to be organized on a sectoral basis, dealing with fields like science policy, technology policy, or health policy; and they tend to be embedded in political structures where there is some higher level that may intervene in case a policy network runs astray. The state can, for instance, stimulate the build-up of local or regional policy networks that set out to formulate an industrial strategy. It can make sense to support such efforts financially as long as this support is linked to performance criteria. At other levels, for instance a network for technology policy on the national level, the threat that the state might unilaterally devise measures that run counter to the interests of the parties involved is an important stimulus for the proper functioning of policy networks.

2.5 Global commodity chains

The global commodity chain concept (GCC)[26] addresses the linkages between producing firms, and between producers and traders, both in terms of technical aspects and of power

25 Cf. Mayntz (1991), p. 16.

26 See Gereffi and Korzeniewicz (1994), Gereffi (1996)

relationships. The concept thus introduces a notion into the analysis of economic development which is obviously important but has been neglected in the past.

Theories of international trade treat the world market as the locus of spot transactions between atomistic agents. This idealized view has been critized for quite some time. For instance, 20 years ago the proponents of the "new international division of labour" (NIDL) approach pointed out that a substantial part of transborder economic transactions occur within firms, being the outcome of firms' attempts to utilize low labor cost advantages in developing countries for certain steps of their production process.[27]

However, it has also become obvious over the last 20 years that the NIDL view of the world has severe limitations. It involved predominantly US apparal, footwear, and electronics manufacturers, and it could not account for the larger part of firms' internationalization strategies, namely those activities that were market-oriented. Moreover, it could not grasp a phenomenon that has become increasingly important: the organization of international supply chains, most prominently by firms like Nike, Ikea, The Gap or Otto, which did not involve capital ownership and thus were not reflected in foreign direct investment statistics.

It is here that GCC comes in. It addresses explicitely the fact that international trade consists of three main types of transactions, namely anonymous market transactions, intra-firm trade, and international supply arrangements. It deals most intensively with the last type.

The GCC concept is one of the approaches that address the fact that the boundaries of the firm are increasingly fuzzy. Other approaches have been dealing with this phenomenon on the local / national basis, e.g. the analysis of just-in-time supply arrangements. The GCC concept deals with blurred inter-firm boundaries in international transactions. The most striking examples are the arrangements of firms like Nike, Reebok, and Liz Claiborne which don't own a singly production facility. They focus on design and marketing, and are managing a vast network of suppliers scattered all over the world (although mostly located in Asia and Central America).

Global commodity chains are a prominent and increasingly important feature of the clothing and footwear industry. Both have important low-skilled labour intensive segments which are often located in early industrializing countries in the developing world. The increasing important of GCC in these industries reflects a change in the roles played by industry and trade. Whereas in the past, huge Fordist factories have been dominant players, this role has recently been taken over by increasingly concentrated retail firms which now command the sector; this has been labelled a "buyer-driven commodity chain". This kind of arrangement can be found in other sectors as well; Ikea's GCC would be an example.[28] The analysis of buyer-driven commodity chains adds a crucial dimension to the understanding of industrialization processes, particularly in developing countries.

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27 See Fröbel, Heinrichs and Kreye (1977).

28 See Normann and Ramirez (1993).

GCC adds a missing dimension to the systemic competitiveness concept. In the latter, world market integration and competitive pressure is taken for granted, and the focus is mainly on the producing firms. It is, however, essential to understand both features thoroughly to understand why competitiveness emerges, or why it does not.

One of the initial concerns of the systemic competitiveness concept was to understand what happens in closed economies which have to give up their import substitution strategies. The difference between an import substitution economy and an open economy is fundamental, but not all sectors in an open economy are affected equally by world market integration. Analyzing commodity chains helps identifying important elements of the incentive structure firms in a given industry are facing. This refers both to national commodity chains, i.e. the market structure inside a given economy, and international commodity chains.

Some firms are in a position to control upstream and downstream activities, but most are not. For those firms which are dependently involved in commodity chains, this establishes a crucial determining factor of their competitiveness. It defines the conditions they have to meet, i.e. sets the rules according to which a given firm, or network of firms, in a given location has to define its competitive strategy.

3 A Case Study on Two Industrial Clusters in Santa Catarina

Clustering is one of the salient features of industrial development in SC (the absence of State-owned and large multinational firms being the other two). There are five major industrial clusters (Figure 3):

- The textile cluster with the main products casualwear and home textiles. The main location is the Itajaí Valley in the northeastern part of the state; the largest city there, Blumenau, was founded by German immigrants in 1850. The development of the textile industry, which started in 1880, was initially a chance event due to the arrival of immigrants who were experienced in this trade and sensed a business opportunity.[29]

- The ceramic tile cluster around the cities of Criciúma and Tubarão in the southern part of the state. This also started on the basis of individual entrepreneurship of Italian immigrants in the 1950s.

- The metal engineering and electromechanical cluster. Major products are household appliances, electrical motors, compressors, transport equipment, and car parts. It is located in the coastal region in the northeastern part of the state; the largest city (which is actually the largest city of the state) is Joinville, which was founded, again, by German immigrants in

29 See Hering (1987).

1851. The development of the cluster was initiated by individual entrepreneurs in the 1930s.[30]

- The food processing industry in the western part of the state which specializes in broilers and the processing of chicken, turkey, and pork. It is based on the cooperation between a few large processing firms and a huge number of small farmers who raise the animals. This industry was started in the 1950s, mainly by Italian immigrants.

- The furniture cluster in the northeastern interior region around the city of São Bento do Sul.

This case study will focus on the first two of these clusters as they show the most impressive adjustment effort.

Over the last decades, industrial development in Santa Catarina has been very dynamic even by Brazilian standards. Growth of GDP per capita in SC has been consistently higher than in Brazil as a whole,[31] and manufacturing industry contributed 43 % to SC's GDP in 1993.[32] Export performance has, during the 1980s, been better than Brazilian average (Figure 4). Local actors frequently point out that behind this performance lay a specific configuration, the *modelo catarinense*. Contrary to the experience in other parts of Brazil where industrial development has been stimulated, particularly since the 1950s, by massive State support, direct State intervention, and foreign direct investment,[33] in SC it was mainly the result of local entrepreneurship. This is not to say that the State did not play a role in SC's industrial development. The State government launched a program in the 1970s that contributed significantly to the dynamism in some sectors, particularly capital-intensive sectors like food processing and ceramic tiles; and many firms grew rapidly because they had access to (often subsidized) investment funding from the single most important State agency in industrial development, the National Development Bank (BNDES).[34] Many firms also admit that they benefited from the central government's BEFIEX export subsidy program. Yet it is important to understand that entrepreneurship and entrepreneurial dynamism have played a larger role, and access to State agencies and the capacity to mobilize political support and protection a smaller role, than in other industries in other parts of Brazil. Accordingly, the emphasis on individual achievement is an important element in the local business culture, and is a point industrialists emphasize whenever the opportunity arises.

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30 See Ternes (1986).

31 Santa Catarina's share in Brazil's GDP grew from 2.68 % (1970) to 3.18 % (1980) and 3.33 % (1990) (FIESC 1995, 90).

32 FIESC (1995).

33 For an overview see Moreira (1993). The case studies of Shapiro (1994) and Soto (1993) illustrate the crucial role government guidance has played in the passenger car industry and in the pulp and paper industry, two of the most important and dynamic branches in Brazilian industry.

34 For an overview of the lending practice of BNDES in the import-substitution era see Frischtak and Atiyas (1990).

Looking into management practices of firms in SC, it becomes soon obvious why they have shown an above-average performance in the past, i.e. in the phase of import-substituting industrialization which was the model followed by Brazil until 1990. On the whole, the behavior of Brazilian firms in this era was characterized by limited efforts to increase efficiency, quality, and innovativeness;[35] even leading firms were way behind the international best practice.[36] Yet many firms in SC deliberately chose not to follow this pattern, i.e. not to behave according to the prevailing incentive structure. One indicator is the fact that quite a few firms from SC regularly show up among the best Brazilian firms (Table 1). Another indicator are the performance data of the clothing firms from SC that, compared to the rest of Brazil, did not only display a much higher average productivity but also accounted for 32.8 % of the production but about 90 % of Brazilian casualwear exports.[37] One reason for this behavior was the fact that firm owners maintained contacts with the countries they or their forefathers had emigrated from, and often developed a clear idea of how a 'serious firm' had to look like. Supported by a certain sense of superiority, particularly among the German immigrants, entrepreneurs sought to build firms that more or less matched European counterparts. This meant in practice that firms consistently invested in new equipment, or in the training of their employees, or paid above-averages wages and benefits to develop a stable workforce, or built up R&D departments, or tried to constantly upgrade their management systems following international trends.[38] Some of the well-known examples for outstanding strategic vision are the foundry Tupy in Joinville and the ceramic tile firm Eliane in Criciúma, both of which founded vocational training centers (Escola Técnica Tupy, Colégio Maximiliano Gaidzinski).

We found that, on the whole, firms achieved an above-average performance mainly due to their intra-firm effort and with little interaction with other firms, be they suppliers, subcontractors, customers, or rivals, and with supporting institutions. For instance, medium and large textiles firms tend to be completely integrated except for the fact that they usually do not own cotton plantations. Many metal engineering and electromechanical firms have their own foundry; and one of the electromechanical firms actually has its own forest plantations which supply it with wood for the boxes it uses for shipment, and with the resin which is an important input for its own industrial color plant. Several firms in all branches had their own internal training programs in basic education and vocational training rather than using existing institutions, something that is particularly striking in view of the fact that the Senai system, which is offering most of the vocational training courses and which has schools in all major cities of Santa Catarina, is fully financed by compulsory contributions of industry firms.

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35 See Moreira (1993) and Meyer-Stamer (1997a).

36 See Sequeira (1990).

37 See Romero et al. (1995, 121).

38 For instance, while visiting well-known, competitive Italian spinning and weaving firms in November 1996, the owners and CEOs of some leading textiles firms from Santa Catarina were surprised to see that, unlike their own firms, many of those firms used neither bar-code systems (which are an important element in rationalizing intra-firm logistics) nor last-vintage cutting technology (which can reduce the waste ratio substantially and save time due to CAD and CAM integration).

We found only few exceptions to the rule. There have been isolated examples where firms overcame their anti-cooperative behavioral disposition. For instance, many textiles firms have been under pressure since the 1980s to set up wastewater treatment stations. In this area the logic of collective action due to economies of scale is obvious. In one of the municipalities, Brusque, eleven firms joined forces to set up a common wastewater treatment station. In the other regions, however, all the major firms set up individual stations (which have a price tag of between US$ 4 and 8 million). Literacy programs for workers are another example. In one municipality, Jaraguá do Sul, firms, together with the Association of Commerce and Industry and the local government, set up a joint training program (firms send pupils and contribute funds, and the state provides teachers). But again, in all the other municipalities, firms have at best achieved individual contracts ("convênios") with the local government or pursue this effort in a totally isolated manner.

When we started our research, we knew that there was clustering and that some firms were highly competitive. Therefore we expected to encounter 'superclusters' like the one identified by Schmitz[39] in Sinos Valley in the neighboring state of Rio Grande do Sul. However, while there was clustering, there were no, or only incipient, industrial district-like structures, following the definition provided by Schmitz,[40] who names six distinct features: geographical and sectoral concentration of firms, predominance of small- and medium-sized firms, vertical disintegration (at the firm level), cooperative competition, a sociocultural identity which facilitates trust, and active self-help organization. In other words, despite the fact that firms of the same branch are concentrated in various places, they are 'lonely'[41] in the sense that they tend to be as autosufficient as possible and try to minimize formal and informal transactions with other firms and supporting institutions. In fact, many firms emphasized the disadvantages of clustering, like the easy availability of alternative employment opportunities for workers (which raises employee turnover) or the ease to start a new business (which increases local competition), and neglected those positive clustering effects which are actually present, like the easy availability of special inputs or services like repair and maintenance. To the casual observer (in particular those observers who are aware of the industrial district phenomenon elsewhere) all this would be quite surprising, and in fact quite irrational as the firms forego the advantages that strong cooperative links can provide, like more rapid learning processes and increased competitiveness through concentration on core competence. Yet it should rather be seen as the result of boundedly rational behavior in the context of the past development path, and at the same time as a structure that makes it extremely difficult for firms to adapt to the new conditions.

In the perspective of the systemic competitiveness framework the arrangement of the past is not surprising. Most obviously, certain macroeconomic factors encouraged vertical integration:

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39 See Schmitz (1995a).

40 Ibid., p. 10.

41 It has been pointed out in the discussion on flexible specialization that 'loneliness vs. integrated in networks' may be a more important issue today than large vs. small; Poon (1990).

- Every firm operated in an extremely turbulent environment. There was a lot of upstream and downstream turbulence due to the factors mentioned before, and there was an extremely unstable and unpredictable macroeconomic environment. This was not only due to high inflation, but also and in particular to frequent attempts of the government to deal with this.[42] Economic stabilization plans caused turmoil all across industry as firms tried to understand the new rules of the game; and even minor interventions like changes in price adjustment rules, foreign exchange regulations, or changes in interest rates and credit regulations used to cause a lot of trouble for firms. There was a strong incentive for firms to try to insulate themselves as much as possible from this environment, and vertical integration was one means of doing this.

- The regulatory environment used to be, and actually continues to be, complex, contradictory, and not transparent. It is in fact almost impossible for an entrepreneur to be a law-abiding citizen, respecting all tax, safety, and other regulations that exist.[43] This means that entrepreneurship in Brazil tends to involve a certain degree of clandestinity, that is a firm has various things to hide at any given time. This creates a posture where firm owners and managers are conspicious of any contact that goes beyond arms-length business transactions. Firm owners repeatedly told us that this is one reason why they would not let anybody enter into their firm, or would not enter into any kind of information exchange with other businessmen.

- There was no penalty on a low level of efficiency in the past closed-market environment. Competition was fairly limited in most product markets, and where it existed the main competitive weapon was heavy advertising rather than good quality or low prices. In fact, low-price strategies in final products markets were not feasible in the high-inflation environment that existed until 1994 because customers just would not notice; shops adjusted their prices at different points in time, so that there were vast price differences for a given product between shops anyway, and customers were already quite annoyed with that. Under these circumstances it would have been hard to try to convince customers that a particularly low price for some product was the result of a deliberate low-price strategy rather than just delayed adjustment to inflation.

There were also microlevel factors. In many areas there just were no suppliers, or suppliers were unreliable, or showed predatory behavior. For instance, a constant complaint among downstream metal engineering firms used to be that State-owned steel mills used to deliver their product in the quantity, the quality, and at the moment they found convenient rather than according to the orders of their customers; this has only changed since the privatization of these firms in the early 1990s. It is also important to understand how price formation and placement of orders worked in the high-inflation past. Suppliers used to adjust their prices every three months or more often. So there was a strong incentive for the customer to place his order on day 89, that is on the day before the price adjustment. A typical reaction of

42 In their institutionalist analysis of the Brazilian business environment, Stone, Levy & Paredes (1992, 18) found that in times of crisis around 40 % of orders used to be renegotiated between firms.

43 See Stone, Levy and Paredes (1992).

suppliers to this kind of behavior was to try to cheat on quality or quantity, or to delay delivery, claiming a machine breakdown, a power cut, or some other contingency. All in all, relations between suppliers and customers used to be quite hostile.

There was also a metalevel factor. Many firm-owners pointed out that their firms had been extremely profitable in the closed-market environment, so that the question arose what to do with those massive profits.[44] Here the local culture comes in where status was derived from economic success rather than the demonstration of riches. Firm owners did not lead a frugal lifestyle, but the amount of money they could sensibly spend for consumptive behavior was limited. One option always was to acquire real estate, but apparently not too many firm owners opted for this, at least not big-style. Another option was financial investment, and local hearsay has it that a few firms have opted for this (we could not verify this as firms were extremely unwilling to discuss their financial situation, and published data corroborated this only for a handful of firms). The preferred option was to use the money to integrate vertically. So if a firm suffered, say, from unreliable suppliers of fabric, it would not necessarily make up a sound calculation whether it made sense to invest into this activity but rather decided that it would be a good and sensible thing to take last year's profit and build a weaving mill.

As there was no penalty, firms could pursue idiosyncratic strategies rather than having to converge to some kind of best practice. This did not only apply to vertical integration but also to inter-firm cooperation and interaction with supporting institutions. Inter-firm cooperation always involves some transaction cost, and businesspeople may find that this cost is quite high, not the least because it involves emotional stress in a fairly small community where all the people know each other, and many are in fact related, have a long history of intra-family feud, and find each other thus quite annoying. Moreover, cooperation, in particular in terms of deliveries and subcontracting, will necessarily involve conflicts from time to time. Also endless haggling between firms on price and delivery conditions was not unusual as long as cooperation was no acute necessity. The same problems apply to interaction with supporting institutions, which is exacerbated by the usual problems of interaction between private firms and public institutions with a different logic of action, for instance regarding time-horizons.

Summing up, we can identify a complex interaction between the different levels that favored the emergence of traditional development pattern. Macroeconomic instability militated against inter-firm transactions, and the closed market environment limited competitive pressure so that firms were not forced to deverticalize and cooperate. A cooperation-unfriendly business culture emerged (metalevel) which affected not only relations between firms (microlevel) but also between firms and supporting institutions (micro-/mesolevel).

The relevance of the commodity chain concept in understanding the old *modelo catarinense* is limited. Neither of the two clusters was integrated into global commodity chains in the way

44 Profitability of industry has been high in Brazil all through the 1970s and 1980s (Meyer-Stamer 1997a, 48), largely due to the low level of competitive pressure. Furthermore, due to the necessity to finance investments internally as long-term credit was only available from BNDES the drawbacks of competitive pricing behavior were evident to firms.

described by Schmitz[45] for the footwear cluster in Sinos Valley. The only firms which were intensely integrated into international supply arrangements were some of the home textiles firms. However, their experience was much more similar to that of the 'Fordist giants' from Schmitz's case than to the other part of the Sinos Valley cluster, the small and medium firms. They are large firms, and they are fully vertically integrated. There was a kind of virtuous cycle between their integration into the global commodity chain, though. They exported not only due to the government subsidies but also because exports earned the hard currency they needed to import machinery.[46] Some of the firms are therefore technologically up-to-date, something that puts them in an advantageous position in a situation of radical change to a much more competitive environment.

3.1 Leaving an exhausted development path: Changes in macroeconomic conditions and firm behavior

The 1980s and early 1990s were an extremely turbulent period for firms in Brazil. Looking back, it is quite obvious that the 1980s were the period of the painful transition from the import-substitution strategy to the 'competitive integration into the world market'.[47] However, it took some time until Brazilian actors accepted that behind the crisis was more than external indebtedness, and that growing out of the crisis inside a closed economy was no option. This learning process, which lasted until 1990, was accompanied by a series of macroeconomic stabilization efforts which failed and pushed inflation ever further upward.

The Brazilian government abandoned the import-substitution strategy in 1990 and gradually opened the market for imports.[48] However, its attempts to stabilize the macroeconomic framework failed so that firms faced the worst of all worlds: a stagnating economy, high and increasing inflation, and increasing competition which made the traditional way of dealing with instability (namely by marking-up prices) impossible. It was only in 1994 that the government managed to eliminate inflation with the Plano Real stabilization package, thus creating a stable and comparatively predictable macroeconomic framework.

Within the new framework firms which are not good enough are being penalized. In order to be 'good', firms would have to score high on four criteria: productivity, i.e. cost efficiency; quality, i.e. consistently high product quality and low cost of quality control; variety, i.e. the

45 Schmitz (1995a).

46 The home textiles industry is a highly capital- and technology-intensive industry which is supplier-driven according to the definition of Pavitt (1984).

47 This was the title of a strategy document launched by the national development bank, BNDES, one of the key actors in the import-substitution era, in 1988.

48 See Meyer-Stamer (1997a).

ability to cope with differentiated customer demands; and agility, i.e. the ability to react quickly to specific demands.[49]

One option how firms in the clusters could increase their competitiveness would be to use the advantages that clustering can offer, i.e. to de-verticalize and outsource. This reasoning is based on two arguments. First, current wisdom in management science suggests that being good is to a certain degree a function of the ability of a firm to concentrate on its core competence.[50] This view is supported by findings from industrial economics that the density of externalities is a key factor in explaining innovativeness and competitiveness.[51] Moreover, the discussion on clustering and industrial district emphasizes that specialization and close interaction among firms can substantially increase their overall competitiveness, particularly under the conditions of spatial proximity and a reduction of uncertainty and transaction-costs due to trust-based transactions.[52] Therefore, the high degree of vertical integration and the lack of interaction among firms in clusters in SC would appear quite irrational under the new conditions.

Second, there is the empirical argument that not a single of the reasons for non-cooperation mentioned above is valid any longer:

- Some firms have shown that it is perfectly possible to run manufacturing operations with a low level of vertical integration. For instance, there was an Italian manufacturer of equipment for the paper industry who chose Joinville in the mid-1970s as a location for his Brazilian affiliate exactly because of the presence of the metal-engineering cluster, and has ever since operated with a very low level of vertical integration. This medium-sized firm is highly competitive as it dominates the Brazilian market and has an export ratio of about 50%. We observed a number of firms who are actively shaping their supply structure, for instance by persuading employees in areas like machining or maintenance to set up their own small firm and supply their former employer. Moreover, with the end of inflation, inter-firm transactions are much less risky. Complaints about predatory behavior of suppliers were rare (and certainly much less frequent than in another study we conducted in 1991).[53]

- Overall economic turbulence has been much reduced with the stabilization of the economy, even though one cannot fail to notice that the Brazilian central government still has a tendency to interfere in the economy in a very detailed manner and stabilization is far from

49 For an overview of intra- and inter-firm factors that determine competitiveness see the contributions in the World Development special issue on "Industrial Organization and Manufacturing Competitiveness in Developing Countries", Vol. 3, 1995, No. 1.

50 See Prahalad and Hamel (1991).

51 See OECD (1992).

52 On clustering see Porter (1990), on industrial districts Schmitz and Nadvi (1994) and Schmitz (1995b). For the specific case of ceramic tiles see Russo (1985) and Porter (1990, 210 ff). On the knitwear industry see, for instance, Lazerson (1990).

53 See Meyer-Stamer et al. (1991).

complete.[54] But today competition is, in many industrial branches, a much more important issue than turbulence, and competition forces firms to restrict their activities to those areas where their core competencies lie.

- The regulatory environment has improved much less than firms, and also government, would like to see. There can, however, be little doubt that the central government is seriously working on this.[55]

- The profitability of firms has decreased since 1990 (Figure 5, Figure 4), and many find it increasingly complicated to keep their capital stock up-to-date due to lack of funds, something that compromises their competitiveness as a substantial part of the machinery (especially in spinning and weaving) dates from the 1970s and is much less productive than up-to-date equipment. Credit-financed investment is not an attractive option either as real interest rates are consistently in the two-digit-range.

- Today, there clearly is a penalty on limited efficiency. Respondents in some of the highly vertically integrated firms argued that their firms suffer from their integration, and that they had a size-related competitive disadvantage due to high overhead costs and reduced flexibility.

3.2 The case of the ceramic tile industry

The ceramic tile cluster around Criciúma consists of two large and about ten medium-sized tile producers and their suppliers.[56] The large firms possess several factories, the medium-sized producers just one. A typical factory has three or four parallel production lines.

The ceramic tile firms were the first to come under serious pressure. This was initially not due to the opening of the market but because the country was on the verge to hyperinflation in 1989/1990, and the economy stagnated due to macroeconomic stabilization efforts. This led to the collapse of the construction market, and the sales of the firms decreased accordingly (Figure 7). At the same time, real interest rates went up and penalized those firms which had pursued debt-financed expansion and modernization strategies in the years before. The largest firm filed for the Brazilian equivalent of Chapter 11 in 1991 (*concordata*), and some other firms were on the brink of financial collapse. Yet, in the end all survived due to a vigorous adjustment effort.

Today, the firms appear to be close to leading Italian and Spanish competitors in terms of production technology, and they have introduced new management techniques more widely than firms in other branches. Firms are cooperating informally with each other, business

54 See Dornbusch (1997).

55 See Ministério da Fazenda (1997).

56 In 1996, the turnover of each of the large firms was about US$ 125 million, of the medium firms about US$ 25 million.

associations play a very active role, and the industry has been active in shaping its supporting environment.

Firms have developed a strong effort in training at all levels, among other reasons to create the basis for the comprehensive application of quality management techniques like statistical process control. In one large firm, all employees will have completed a primary education program by 1997, which is quite unusual among industrial firms in Brazil, and in one medium firm 98 per cent of the employees have completed secondary education, and 39 per cent have completed or are attending courses in higher education. Common practise is to set up inhouse courses in basic education (to complete *primeiro grau*, i.e. primary education which in Brazil normally lasts eight years), and to support employees in secondary and tertiary training in external institutions (which often takes place after working hours and on weekends), inter alia by arranging transport and reducing the weekly working hours.

There is at least some 'information in the air' of the ceramic tile cluster. There is substantial informal information exchange going on between professionals from tile producers; unlike in other branches, it is perfectly normal for them to visit competitors' factories. Some firms regularly pursue a benchmarking exercise. Three factors lie behind this. First, suppliers of inputs and vendors of equipment stimulate exchange among firms. For instance, if a vendor (typically an Italian firm) has set up a given equipment in one of the firms, he will use this as a showcase for other local firms.

Second, local actors share the notion that local firms should stick together to maintain their position vis-à-vis domestic competitors. Apart from one large firm that is located elsewhere in Santa Catarina, managers in Criciúma point out that their main competitors are located in a cluster in the state of São Paulo (Santa Gertrudes). These firms, they say, are mainly small and medium firms which are lean and agile and thus cause a permanent performance pressure on firms in the Criciúma cluster.

Third, firms' engineers claim that production technology is on the whole standardized so that there is little risk of losing crucial secrets by information exchange between firms. Thus, the competitive pattern plays an important role in explaining cooperation.

Competitive advantages lie rather in original design and in logistics. Regarding design, firms used to copy Italian designs in the past. Some firms have started to develop their own designs recently, inter alia by emulating the Italian experience of the 1970s, i.e. contracting prominent national artists to create a unique tile design.[57]

Regarding logistics, it is important to look at the domestic commodity chain of the tile industry. This commodity chain is essentially supplier-driven. The tile producers operate a number of distribution centers in various parts of the country, and they have their own showrooms in some major cities. Apart from direct sales to final customers, they deal mostly

57 Cecrisa, one of the two largest firms in Criciúma, has pursued this strategy furthest by founding a subsidiary, and building a separate factory, under the name of Portinari, the Brazilian artist who was responsible for some of its designs.

with individual shops and construction firms. Those producers fare well which can deliver a wide variety of products, and do this quickly, without having huge stocks.

Beyond this, firms have come up with various ideas to strengthen their competitive position. One of the large firms has an Internet-based virtual showroom. One of the medium firms has started two-day courses for tilers as a reaction to customer complaints about poor quality; according to the firm, this is not due to the product but the inadequate qualification of tilers. The firm pays the trip and an allowance, and the tilers also receive a box with tools.

Firms themselves admit that vertical integration so far is higher than in Italian industrial districts of the same industry. However, firms are working on this. They have started to persuade suppliers from elsewhere in Brazil and from abroad (Italy, Spain, USA) to set up factories in the Criciúma region, and they have taken care not to create a monopoly on the supply side by trying to attract competing suppliers.

Business associations play a more active role in the ceramic tile industry, and firms from SC do actually maintain close contacts with their associations.[58] First, there is the local *sindicato* of the tile industry, which has been playing a pivotal role in stimulating exchange among firms. It has also been active in the lobbying process for the construction of a link to the pipeline which supplies Brazil with natural gas from Bolivia. The use of natural gas will reduce the energy cost of the ceramic tile producers substantially.

Second, there is Anfacer, the National Association of Tile Manufacturers. Anfacer plays an important role in stimulating technological exchange among firms, inter alia by organizing an annual congress of the industry and by maintaining a separate institute, founded in 1993, the Brazilian Ceramic Center, which is active in training, research, and consumer information. Unlike the other branches, firms from SC play a very active role in Anfacer. Moreover, Anfacer has played an important role in organizing an alliance of business associations which lobby the central government to allocate more funds for housing, something that would stimulate the demand for various branches of the construction materials industry.

Local firms and the *sindicato* also play an important role in shaping the supporting mesolevel environment. They formulate and implement measures to create locational advantages. In this respect the region of Cricúma fared outstandingly by Brazilian standards:

- One of the two largest firms set up its own technical school long ago and opened it for students from competing firms in 1991.

- Firms have pressed the local university to offer a special course for technicians in ceramics technology, and lobbied the state to authorize this course within one year (what is supposed to be much faster than thought possible under the usual bureaucratic requirements).

58 This is not self-evident as we found that in the metal engineering and electromechanical industry firms from SC generally had hardly any links with branch associations although these are quite important in other parts of the country, particularly in the state of São Paulo.

- Together with the state's Federation of Industries (FIESC), in cooperation with the Federal University of SC (UFSC), and with some financial support from the state the firms founded the Center for Ceramics Technology (CTC), modeled after a similar institution in Spain. Getting this venture off the ground involved a lot of tough bargaining by the Criciúma firms, and there was literal collective action: The presidents of the leading firms boarded a business jet to get to the state capital, Florianópolis, and invaded first the office of the President of FIESC and afterwards that of the state governor to press them for firm commitments for support and financing of CTC. An important element of support was the relocation of a specialized laboratory from the Federal University of Santa Catarina (UFSC) in Florianópolis to CTC.

In order to explain this experience, two factors appear to be most important. First, fierce rivalry and non-cooperation has led some firms to the brink of bankruptcy. The two largest firms were involved in a race to become the largest tile producer in the 1980s, investing in new factories and taking over smaller firms, to a large extent based on development bank credits. When sales decreased dramatically after 1989/90, both were extremely vulnerable. Medium-sized firms report that the two large firms have not at all been open to cooperation in the past. Moreover, medium-sized firms may have sought some distance from the two largest as they feared to be taken over as well. All this has changed after the crisis of the late 1980s/early 1990s – out of necessity (i.e. the need to consolidate), due to the interventions of creditors (which forced the family out of the management of one of the large firms), and due to moderation by two persons, the president of the *sindicato* and the president of the local Chamber of Commerce and Industry,[59] who brought the large firms together to settle their dispute.

Second, this industry found a role model in Italy's tile industrial districts in the 1980s. Local firms started to develop close links with firms in Italy, in particular with equipment suppliers and manufacturers of inputs, but also with their Italian competitors. Representatives and technicians of Italian equipment manufacturers and suppliers frequently visit the region, and they behave in the way they are used to, i.e. based on the notion that firms, even competitors, cooperate. Moreover, managers and employees of local firms pay frequent visits to Italy and thus have started to develop a notion of what things are like in industrial districts in Italy.

Global commodity chains are not particularly important in understanding the experience of the ceramic tile cluster. Brazilian tile imports are very limited; they consist mostly of high-end products which are not manufactured locally.[60] Tile exports are substantial; export ratios amount to 10 - 30 % for the leading firms from Criciúma. The large firms have set up sales offices in main export markets to keep close contact with local customers.

59 The president of the *sindicato* is the owner of one of the medium-sized firms. The president of the Chamber of Industry has a background in the metal-engineering industry.

60 BNDES (1995).

3.3 The case of the textiles/clothing industry

The textiles and clothing industry in Santa Catarina produces mainly casualwear and home textiles. There are just a few firms who manufacture woven textiles and garments. Brazilian textiles and clothing firms process mostly, and in the case of Santa Catarina almost exclusively, cotton which may be purchased in the country, in neighbouring countries (Argentina, Paraguay)[61] or elsewhere (e.g. Pakistan). Cotton imports from Argentina grew by 569 % between 1992 and 1996, reaching about US$ 400 million. For Paraguay, cotton is by far the most important export item to Brazil (88 %). There has been a move from national suppliers to imports which was, to a large extent, due to much better financing conditions offered by firms abroad (payment period of 180 to 360 days, compared to a maximum of 30 days in the case of domestic suppliers). Figure 9 gives an overview of the different types of inputs consumed by the textiles and clothing industry in Itajaí valley.

Adjustment in the casualwear industry

The textiles and clothing industry in Santa Catarina consists of two types of firms. On the one hand, there are medium and large casualwear and home textiles firms which are entirely operating in the formal sector. These firms are mostly fully vertically integrated, i.e. all the steps mentioned in Table 3 are conducted inhouse, something that is a very unusual practice in the international textiles and clothing industry. On the other hand, there are micro and small casualwear firms which are at least partially operating in the informal sector; informal means that they are not registered and/or do not pay taxes and/or do not pay social security contributions for their employees and/or sell directly to final consumers, without charging sales tax, or to informal vendors. In the casualwear industry, both segments coexist in a complicated relationship. For the formal sector firms, the informals are important competitors which sell lower quality clothing for much lower prices. They also copy the designs of formal sector firms. There is hardly any direct interaction between firms from the different segments. In fact, the adversary relationship between the two segments does even hinder joint action in the formal segment. An entrepreneur (not a local person but somebody who had moved to Santa Catarina from Rio Grande do Sul) set up a firm to organize fairs in the early 1990s. There was no fair for the local products in the textile cluster before this firm organized the first Expotêxtil in 1994.[62] When the third Expotêxtil came up in 1996, four of the leading large firms did not participate. They argued that the small / informal local firms had used the fair to observe the large firms' designs and had copied them afterwards. These firms did, however, participate again in 1997 – apparently the fair had by then become too important to be ignored, and the loss through copying seemed less important than the loss through absence.

In the casualwear industry, competitive pressure started to increase substantially in 1994/95. The gradual opening-up of the market after 1990 did not have much of an imediate impact on

61 Gorini and Gomes de Siqueira (1997), p. 145 f.

62 There were, however, two fairs in Blumenau which catered to the local textile and clothing industry as customers, one for textile machinery and the other for chemical inputs.

consumer non-durables like clothing. Things changed in 1993 at the end of the gradual reduction of tariff protection, and most notable after the government launched the Plano Real stabilization program in July 1994, which successfully fought inflation. One of the results was a boom in consumption, partly fueled by increased confidence, partly by the reintroduction of consumer credits, and partly by the increased income of the lower and lower middle class. The local industry did not have the capacity to meet the increased demand, and moreover Brazil all of a sudden looked like a very interesting market for foreign suppliers.

> "As a result, the number of clothing items produced in Brazil increased by almost 10 % in 1995 to reach an all-time record of 4.1 bn pieces. This compares with 3.8 bn items in 1994 and 3.0 bn in 1992 and in 1993. At the same time, Brazil's clothing imports rose even more dramatically, increasing from 18,500 tons in 1994 to an estimated 77,000 tons in 1995. This compares with a modest 7,700 tons in 1993."[63]

Things changed again in at the end of 1994 and in 1995 when the government decided that the economy was overheated, and when the Mexico crisis hit. Curbs on consumer credit and higher interest rates had a cooling effect on demand. However, commercial links with foreign, mainly East Asian suppliers were established by now and did not crumble overnight. The result was a much increased competition, basically on prices, on the local market.

Reacting to the crisis, a few textiles and clothing firms have initiated a profound change, starting to leave the established development path. These are large firms which are located at the center of the textiles cluster, i.e. in the municipality of Blumenau, and they are mostly casualwear producers. Reacting to the increased competitive pressure, they sought ways to reduce costs, and they found subcontracting. This offers large firms substantial savings for reasons explained below. Some firms employ existing small shops as subcontractors, other firms combined downsizing with programs to encourage employees to set up subcontracting firms. The barriers to entry for subcontracting firms in sewing, and to a lesser extent in embroidery, are low as factory space, machines, and qualified workers are easily available, something that is to be expected in the context of an industrial cluster. Apart from this, FGTS (Fundo de Garantia por Tempo de Serviço) plays an important role. When they leave a firm workers receive a severance pay which amounts to about one monthly wage per year of employment with the firm. This often serves as the starting capital for a microenterprise. In other words, the barriers to deverticalization and stronger networking are not necessarily high in terms of measurable costs, in this case of subcontractor development. Increased subcontracting mainly presupposes a change in the mindset of the management of large firms.

Subcontracting implies downgrading of labour conditions, especially in terms of social benefits; but it does this in a subtle way.[64] A typical case would go like this. A middle-manager from one large firm in Blumenau is outplaced and starts his own firm, initially with 20 employees, mainly

63 Knight (1996), p. 41 f.

64 This includes the physical labour conditions as we did not find, and also did not hear about, the kind of sweatshop that has been documented in other countries.

for sewing and packaging but also with a bit of embroidery. He hires seamstresses who also have left the large firm and are well qualified. He pays them the usual local wage, i.e. about US$ 400. However, he pays social charges and compensations neither on this real wage nor on the local minimum wage for the textiles industry (US$ 250) but only on the legal minimum wage (about US$ 120). As charges and compensations amount to about 100 % of the net wage,[65] the gross wage is about US$ 520 which is significantly lower than the US$ 800 the same seamstress would cost the large firm which goes by the book, i.e. pays all the contributions which are mandated by law. The seamstresses acquire lower retirement and other entitlements, but it is likely that they will tolerate this as they do not trust their country's social security system anyway. Another, and perfectly legal, way of economizing on social contributions is by organizing cooperatives of seamstresses. The largest firm in Blumenau has pursued this path, and apparently both the firm and the members of the cooperative are satisfied with this arrangement so far. However, it is obvious that with this kind of arrangement the risks are even more unevenly divided between large and small firms than in the case of conventional subcontracting. In the case of conventional subcontracting, the workers are, theoretically at least, entitled to certain benefits in case their employer gets into trouble. In the case of cooperatives, the perspectives may be bleak in case they do not receive orders due to an economic downturn.

It is important to note that the externalization strategy is limited to large firms in Blumenau. Medium firms in Blumenau and medium and large firms in other municipalities, including neighboring ones, do not follow this way but rather their traditional development path. They are maintaining the self-sufficiency strategy or even try to increase their vertical integration, i.e. try to intensify the way they behaved within the traditional development path. Asked to comment on the strategy of the large firms in Blumenau, they will point out that they have been doing fine with their self-sufficiency strategy so far and do not see any immediate reason to leave this path. Rather than asking themselves fundamental questions about the way they do business, firms take it for granted that with some incremental adaptation to new conditions they will do fine. For them, adaptation mostly means cutting costs.

When they came under competitive pressure, the first thing firms in the textiles and clothing industry used to note was that foreign competitors sold their products at lower prices. By cutting their own costs, something that they try to achieve first and foremost by investing in new, more productive equipment and cuts in personnel, firms hope to catch up with their competitors and thus regain a strong market position. They mostly fail to notice that competitors are often much more agile, flexible, and customer-oriented. Figure 10 presents the results of a benchmarking exercise that involved seven textiles and clothing firms from Itajaí valley. It shows that the participating firms, which are supposed to be among the most competitive inside the cluster, are not on par with European firms from the same industry.[66] Closing the gap to best practice firms would imply a radical change in the way local firms do

65 See World Bank (1996), p. 32 ff.

66 The benchmarking exercise was based on the methodology developed by the International Institute for Management Development (IMD) in Lausanne. Researchers in Santa Catarina had access to IMD's database of European firms which had been investigated using the same methodology.

business – a move from passive to active adjustment. Based on reengineering, they would have to introduce new patterns of internal organization (flat hierarchies, employee empowerment, customer-driven organization) and external relations (deverticalization, concentration on core competencies, introducing just-in-time delivery and cooperation with suppliers in engineering). This is one of the preconditions to move up-market which is unavoidable as local production costs are just too high to compete with low-price imports from East Asia.[67] Moving up-market means to concentrate on the high-quality, fashion segment of the casualwear industry.

Further conditions for improved competitiveness are a bigger effort in fashion design and changes in sales channels. Regarding the latter point, Figure 8 gives an overview of the different ideal types of arrangements in the Brazilian textile and clothing domestic commodity chain; the figure excludes the raw material inputs mentioned before. The type 1 commodity chain is the traditional model used by most of the medium and large firms. They sell mainly to individual shops and sales chains. Table 4 shows that both sales channels displayed a decreasing share in the late 1980s and early 1990s, and that sales chains play a minor role; large firms in the casualwear industry report that their largest customer represents no more than 3 % of the sales, a ratio that can be slightly higher in the home textiles segment. The producers have therefore huge numbers of sales representatives who deal with individual shops; and the performance of a firm to an important extent depends on the success of its sales representatives.

Table 4 moreover shows that door-to-door-sales and fairs, and 'other', play an increasingly important role. This refers to type 3 and 4, consisting of formal sector SMEs and informal sector micro and small firms. Type 3 firms sell, on the one hand, to individual shops; they also have sales representatives to attend them. They also sell via outlet centers which grew fast in some places in Santa Catarina in the early 1990s. An outlet center is a kind of shopping center which hosts between 20 and 100 small clothing shops, all of which sell more or less the same kind of product. The outlet center is a response to the *sacoleira* phenomenon. *Sacoleiras* are individuals who drive to a given location where a sufficient number of directly-selling small producers is located. *Sacoleiras* then buy a certain number and variety of clothing items which they then sell door-to-door in their home community.[68] This phenomenon grew in the 1980s, and in the early 1990s it was reinforced in Santa Catarina by the influx of Argentinian tourists who benefited from the overvaluation of their own vis-à-vis the Brazilian currency. Initially sacoleiras went to places like *Rua Azambuja* in the city center of Brusque, the second largest city of the Itajaí valley cluster where small shops sprang up in neighbouring houses. As the boom went on, investors erected outlet centers which offered space for much more such shops. The boom probably has come to a halt in 1995/96 as supply outgrew demand, due to both the investment in new outlet centers (some of which remained vacant) and the decrease in the number of tourists from Argentina (due to the appreciation of the Brazilian currency and a high rise in prices for non-tradeables in the post-Plano Real-era).

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67 A seamstress in Blumenau will typically earn about US$ 380 - 450 per month. The effective cost to the firm is twice that amount due to social charges and other indirect labor costs (World Bank 1996).

68 After shopping the *sacoleiras* walk away with a huge number of plastic bags full of merchandise. The Brazilian term for these bags, *sacolinha*, inspired the term for the shoppers.

Two well-performing firms from the formal sector have improved their performance by reorganizing their commodity chain towards type 2. One of them is one of the largest firms which used to be fully integrated but is one of the subcontracting pioneers. The other is a new firm which never went through the type 1 phase; it was founded in 1986 as a microenterprise. Both of them develop their franchise system along the lines of the Benetton model, i.e. with a high proportion of subcontracting, advanced informatics systems for data collection and evaluation to be able to spot trends in consumer behavior early on, a brand strategy with a strong advertising effort, and a differentiated product line to address different types of customers.

The relevance of global commodity chains

The relevance of global commodity chains for textiles and clothing firms in Santa Catarina has changed in the 1990s. Both medium and large casualwear and home textiles producers were prominent exporters during the 1980s. In the case of the casualwear producers, the main export item were T-shirts. Due to the phasing-out of export subsidies after 1990, the macroeconomic turbulences, the appreciation of the Brazilian currency after 1994, and low-cost competition of firms in other parts of Brazil (especially from highly subsidized locations in the Northeast), exporting T-shirts from Santa Catarina became unfeasible in the 1990s.

Today, the large firms in the home textiles sector remain integrated into global commodity chains. In this sector, where most of the leading firms are located in Santa Catarina, one third of production is being exported.[69] Apparently the number of worldwide locations where firms can supply high-quality cotton-based home textiles is limited. The competitive advantage of home textiles firms from Santa Catarina is mainly based on two elements:

- good quality, based on the mastery of complex technology, especially in the finishing stage;
- compliance with ecological requirements, regarding both products, which have to be free of hazardous residuals, and processes, which have to be "clean"; the first step was to invest in wastewater treatment, and more recently firms have started to prepare for ISO 14000 certification.

Though prices are important, they are rather a restraining factor as firms find it difficult to compete on prices since this is a capital-intensive industry, and interests have been high in Brazil, especially in the post-Plano Real-era. Figure 11 illustrates this point: Brazilian firms suffer a cost disadvantage, in this case in spinning which is highly capital intensive, mainly due to high cost of credit. They also seem to suffer from a certain weakness on the marketing side of their business: As their competitive advantage used to be based on production, firms emphasized technological upgrading rather than innovative arrangements on the sales side.

69 Gorini and Gomes de Siqueira (1997), p.153.

Home textiles producers sell mainly to large department stores and mail-order firms in Europe. Some U.S. trading companies are present in Itajaí valley but seem to play a limited role; they certainly have not shaped the industry in the way they did in the footwear industry in Sinos valley.

Efforts to create locational advantages

It was only in late 1996, after two years of crisis, that adjustment efforts among formal-sector textile and clothing firms started to go beyond the activities described before. This was mainly due to the commitment of the president of the largest and oldest firm in Blumenau, a firm that in several respects has always played a pivotal role, e.g. when it came to introducing new types of equipment or new management techniques. The president took the initiative of organizing a visit of local owners and managers of textile firms to Italian industrial districts in order to learn about best practice, particularly in terms of inter-firm relationship and a highly developed supporting environment that creates 'specialized factors'.[70] This visit gave rise to an ongoing dialogue among a number of medium and large firms on measures to create collective efficiency, especially by improving information flows among firms (e.g. on credit standing of customers and prices of key supplies), by stimulating the emergence of new training courses at the vocational schools, by creating a quality brand for products from the region, and by studying the feasibility of setting-up a technology center. To a certain extent, these activities got formalized in that this person was elected president of the Chamber of Commerce and Industry in Blumenau.

The interaction between the business sector and the political sphere has, so far, followed the traditional pattern: The textiles industry bargained for, and in the end received, fiscal incentives at the state level.[71] This reflects the current practice in Brazil: Locational strategies at the state and local level rarely amount to more than fiscal incentives, particularly for new investors, and provision of real estate. Creative policies that try, for instance, to shape the mesolevel, i.e. create and amplify institutions that support the firms, are so far rare exceptions.[72] Firms and business associations have only very recently started to articulate their demand in this respect vis-à-vis state and local governments.

Accordingly, the structures at the mesolevel do not cover more than the most immediate needs of the firms so far:

- SENAI maintains secondary-level vocational training centres in Blumenau and Brusque. Their output is reasonably good in qualitative, but insufficient in quantitative terms. Tertiary training mainly takes place at the CETIQT technical school in Rio de Janeiro. The local

70 See Porter (1990)

71 Weiss (1996).

72 See Meyer-Stamer (1997b).

university in Blumenau (FURB) does not offer specific courses that cater for the textile and clothing industry.

- The *Fundação Blumenauense* is a cotton testing laboratory which has been founded by six textiles firms in 1960. It still works mainly for those firms and is little known in the rest of the industry.

- The most recent addition is a small unit inside FURB which is maintained jointly with *Institut Hohenstein*, a German certification organization. Before 1996, samples of products for export to Europe had to be sent to Hohenstein to be certified according to ecological product regulations. As this was both costly and caused delays, the local association of the textiles industry and FURB initiated a joint venture with *Institut Hohenstein* to found a certification unit in Blumenau.

3.4 The changing role of business associations: embarking on a new path

The role of business associations has started to change profoundly over the last years, with some of them trying seriously to provide various services to their members and to support the emergence of competitiveness.

For the firms, membership in the industry association (*sindicato patronal*) is mandatory. They are organized by branch at the municipal level. The main role of the industry associations consists in collective bargaining. Yet some of them have recently started to broaden their profile. For instance, the textiles industry *sindicato* in Blumenau has explored sourcing alternatives abroad, e.g. in Argentina; the cooperation with *Institut Hohenstein* was already mentioned. It also has adopted an active role as a political lobbyist for the industry. The ceramics industry *sindicato* in Criciúma has played an important role in lobbying for the construction of a pipeline to provide the local industry with natural gas.

The Federation of Industries of Santa Catarina (FIESC) is the umbrella organization of the *sindicatos*. Owing to the initiative of a new president who entered office in 1992, i.e. basically due to an individual initiative, FIESC has played an active role in the last years in preparing firms for globalization and increased competition. It organized journeys of groups of local businesspeople to international exhibitions, e.g. the Hannover fair. It has invested in publicity campaigns for the state of SC abroad. It has set up a very well equipped center for foreign trade information. It plays an important role in informing local firms about the necessities implied by the introduction of the ISO 14000 systems of eco-audit norms. It has organized the creation of a venture capital fund. All this, however, has only to a limited extent been accompanied by organizational development, in particular a professionalization of an entity which has always tended to be quite politicized, so that FIESC's future performance will again depend on the initiative and effort of the future president.

Apart from the *sindicatos*, there also exist Associations of Commerce and Industry (ACI) with voluntary membership at the municipal level; there is also an umbrella organization (Federation of ACIs, FACISC) which is, however, only influential if its president is an important person

with well-established links to politicians. Traditionally, they were something like clubs of local businesspeople.[73] Their basic tasks were to administrate the register of firms and to provide their members with legal advice. Many of them had no professional staff at all, and even the largest ones employed just a handful of people. In the northeastern part of the state the impetus for change came through a German technical cooperation project which established a partnership between around initially three ACIs (in 1991; by 1996 the number had grown to 17) and the Chamber of Craft and Trade of Munich. Essentially, it was the result of a broader German government initiative to get German private business more actively involved in development cooperation by stimulating and financing twinning arrangements with business associations in various developing countries. As the northeastern part of the state had been an area of German colonization local actors liked the idea of this partnership although they did not see the profoundness of the change it would induce. In fact, the visits to their German partner provoked a serious shock among representatives of the ACIs as they noted the impressive size, the large number of employees, and the broad spectrum of services provided by the Chamber in Munich. After these experiences, the presidents of ACIs were much more open-minded about the changes proposed by the project staff. These changes, which took about five years to materialize, resulted essentially in three things. First, and most importantly, the role definition of the ACIs changed as they increasingly developed services geared to the demands of the members, tried to attract new members, especially among small and medium firms, and became more active in lobbying vis-à-vis local government. Second, there was an increase in the number of employees as ACIs started to employ consultants to take care of the needs of their members. Third, sectoral working groups were formed in the ACIs which united business owners and managers from one sector or were organized around a given problem, e.g. environmental protection. In many cases, the sectoral working groups established for the first time a forum for exchange of business-related issues between local firms, thus playing an important role in challenging 'path dependence'[74] and overcoming traditional behavior.

3.5 The role of local government

Locational policies at the municipal level do hardly exist in SC. Only in the largest municipalities certain initiatives exist which can be classified as elements of a locational policy. This refers, first of all, to initiatives in Joinville and Blumenau to attract a car assembly factory (*montadora*). It certainly is not unfair to state that industrial and locational policy in Brazil has suffered from a montadora syndrom for the last years. The car industry was the only industrial sector where an explicit industrial policy has existed during the 1990s. In 1992, the agreement in the sectoral chamber of the car industry to reduce substantially the prices for small cars (*carro popular*) had a strong stimulating effect on demand, leading to expansion plans in this segment. With the stabilization of the economy after the *Plano Real*, the passenger car as a whole market took off, leading to the announcement of a number of investment projects both by incumbents and other international firms. This again led to a contest between states and

73 See Müller-Glodde (1993).

74 The term is borrowed from Arthur (1994).

between municipalities to attract new car plants. Joinville held a promising position in the contest for the Renault factory which in the end was won by Curitiba. Blumenau never really had a chance, but this did not deter local politicians from investing all their effort regarding locational policy into this area.

Apart from trying to attract *montadoras*, the only local initiatives in locational policy worth mentioning regarded the software industry where Florianópolis, Blumenau, and Joinville set up business incubators. They were only to a small extent financed locally, but local government lobbied at lot at the state and federal level to raise funds.

To understand the limited activities at the local level, two aspects of the polity have to be pointed out. First, it is important to remember that any kind of industrial policy has always been a central government activity, i.e. there is no tradition of decentralized locational policy. Accordingly, local policy makers often do not perceive that locational policy should be part of their activities but rather be left to firms and business associations.

Second, political turbulence at the local level is not smaller than that on other, more visible government levels. It is quite rare that a ruling party or coalition remains in office for more than one term. And even during its term, there will be frequent changes in office. Thus, it is quite remarkable if a municipal secretary for economic development stays in office for more than, say, two years. Accordingly, the pattern of action is mostly ad-hoc rather than pursuing a longer-term strategy (which in the form of a written document usually does not exist anyway).

It is important to note that with changes in the ACIs a change in political practice at the municipal level occured in some places. This typically took two forms. First, ACIs started to define more clearly what they expected from their local government, for instance in terms of local infrastructure provision, public transport, local environmental issues, or education. Second, key ACI actors started to play a more active role in political life, i.e. by taking up jobs as secretaries for economic development or even as mayors. What was new about this was the fact that this did not so much indicate personal ambitions to make a political career. Instead, it represented the willingness to transport the dedication and professionality of a key group of civil society into the public service.

3.6 The role of the state government

Santa Catarina used to be famous for two things: its beautiful beaches and the annual *Oktoberfest* in Blumenau. Recently, it has also become infamous because the current state government is involved in the *precatórios* scandal, i.e. illegal practices around specific government bonds. The fact that Santa Catarina became involved in that scandal is more than a mere coincidence. To be involved in the *precatórios* scandal is a synonym for having serious financial problems; and the source of these financial problems are usually traditional political practices, especially clientelism.

Brazil's political system is to a large extent based on clientelism.[75] As parties are weak each politician has to make sure that he makes a certain number of people happy in order to become (re-)elected.[76] Elections are less the act of a sovereign people to determine its representatives to serve the common good than an implicit deal between citizens and politicians where votes are traded for material or other benefits.

One of the effects of this political model is its limited ability to pursue strategies, i.e. to stick consistently to a certain line of action for a certain period of time. Long-term strategies like that which led to a far-above average of quality of life in Curitiba are exceptions which are only possible if a party or coalition stays in power for more than one term and is not overly divided internally. Under the prevailing conditions, political action typically amounts to realizing a variety of projects – in the sense of undertakings which are clearly located and limited in time, like constructing a new road or a new school (what is called *obras* in Brazil). It is not by chance that substantial amounts of the state's income on all levels use to be earmarked; this is seen as the only way to assure that certain tasks are fulfilled over time.

In the context of locational policy the project- and *obra*-orientation is not altogether bad news. It is good news in the sense that it can help funding the creation of a new institution (like the technology center CTC in the case of the ceramics cluster). In fact, the last state administration in SC (Governor Kleinübing, 1991-1994) did have a locational policy in this sense. More precisely, it delegated industrial policy-making to FIESC, which then suggested a number of projects to be funded by the state government. Apart from CTC, this included an information technology center (CTAI) in the state capital Florianópolis and an environmental testing laboratory in Blumenau. Apart from that, the state government supported the creation of technology incubators in Florianópolis and Blumenau.

On the other side, *obra*-orientation and delegating industrial policy-making to FIESC had its limitations. First, the problem of financing the recurrent cost remained unsolved. Second, industrial policy-making did not amount to much beyond the projects mentioned before. Before 1991, industrial policy-making, if it took place, occurred at the state planning secretariat. The Kleinübing administration delegated this activity to FIESC. However, FIESC was utterly unprepared to take over this activity. Its president[77] had a clear vision of the challenges the firms from SC had to confront due to the opening-up of the market and globalization. But FIESC had virtually no dedicated staff for this activity, and neither people with much experience in this field. Preparation and execution of the projects mentioned above was delegated to SENAI, the vocational training system that is part of the FIESC system. For industrial policy activities, the Instituto Euvaldo Lodi (IEL) was revitalized – a branch of FIESC that had been in charge of brokering internships in firms. By late 1995 there were four professionals working at IEL. As this necessarily took its time, FIESC contracted a private

75 See Avelino (1994).

76 See Avritzer (1995), Mainwearing (1992).

77 Osvaldo Moreira Douat, dominating figure in a family from Joinville that owns a medium-sized metal-engineering and a synthetic fibre firm.

consulting firm to prepare a diagnosis of the competitiveness of SC firms and to suggest an industrial policy. The consulting firm started its work in 1992 and presented its report in 1993. By this time the revitalization of IEL was underway, and IEL's director did his best to sabotage the consulting firm's activities (whose report was in fact never published, and its main suggestion, the creation of a Fórum Santa Catarina, consisting of leading businesspeople and political agents, was never even seriously considered).

The current state government (Governor Paulo Afonso Vieira, since 1995) has been even less active in the field of industrial policy. It tried to reconstruct the planning secretariat but did not get very far with this, mainly because it allocated only a handful of people to this activity, and the secretary soon became involved in a public scandal because of fraud in one of his former offices. Industrial policy mainly consisted in reformulating a fiscal incentive program for new investment. This program actually existed, without much effect, since 1988, offering tax credits to new investors. The reformulation meant that also new investment and amplification investment of incumbent firms qualified for a tax credit. However, in our field research in February – April 1996 we did not find a single firm that was aware of this modification. Possible explanations are lacking communication between the administration and the private sector or technical details which made it impossible for local firms to benefit from this programme. It was only in late 1996 and in early 1997 that two special lines were created in this programme that deliberately aimed at stimulating increasing competitiveness in two local industries, namely food processing and textiles. Since then, the *precatórios* scandal (specifically: avoiding the impeachment of the governor) has absorbed most attention of the state government, and sectoral policies like industrial policy are completely marginalized.

4 Conclusion

The systemic competitiveness concept helps to understand the causal relationships between different trends, and why change may or may not happen. It also helps understand what can be done to improve firms' competitiveness, and what can not realistically be expected, at least not in the short term.

In the case of Santa Catarina, factors at the different levels interacted to create an industrial structure which performed well in the closed economy and was even competitive, in terms of both quality and prices but to a certain extent due to export subsidies, at the international level. The good performance of many firms was mainly due to inhouse efforts. It was rational for firms to act in an isolated manner due to both microlevel and macrolevel factors (absence of qualified suppliers, predatory behavior of suppliers, macroeconomic instability). Adverse macroeconomic conditions were due to metalevel factors (no clear development strategy, especially after the crisis of the early 1980s, orientation towards national self-sufficiency rather than competitiveness). At the metalevel, disarticulation between public and private sector prevailed, thus reinforcing isolationism at the firm level which also shaped interrelationships between micro- and mesolevel. Mesolevel policies hardly existed, the mesospace was not well-developed, and interaction between firms and existing mesolevel institutions was limited.

The profound changes which redefined the rules of the game for the firms started at the national-level metalevel. Citizens were deeply dissatisfied with the economic situation and the traditional political elite responsible for it. Thus an outsider with a dubious reputation and a questionable program could emerge as the winner from the 1989 presidential elections. He did not succeed in stabilizing the macroeconomy; in fact, he made things worse. He also did no succeed in modernizing the political-administrative system but rather installed a system that was more corrupt than anything known before.[78] But he initiated the transition from a closed to an open economy, a transition that was sustained despite opposition from important groups in the society.[79] This transition, which changed an important part of the macroeconomic framework, was the first main factor affecting the microlevel. The second was the abolition of inflation in 1994. Together, these factors created a reasonably stable, predictable macroeconomic framework with functioning competition in many industries, including competition through imports.

Changes in the macrolevel conditions that resulted from policy-switches at the national level enforced microlevel adaptation at the regional level. Many firms in Santa Catarina were more competitive than firms elsewhere in Brazil, but they were not up to the demands posed by an open economy. Adaptation initially meant inhouse efforts to enhance efficiency, and initially it was (most notably in the textiles and clothing industry) path dependent, i.e. firms tried to intensify their traditional behavior rather than trying something new. Under mounting pressure of crises firms started to change their behavior, initially at the microlevel by increasing cooperation, both via commercial arrangements like subcontracting and informal cooperation like benchmarking. They then started to interact more intensively with mesolevel institutions, and they started to reform business associations and use them more intensively. These changes had repercussions at the regional metalevel as the business culture started to change from isolationism to a culture of cooperation and collective action. These changes have so far remained largely confined to the business sector. They spill over into the political sector to the extent that firms and business associations formulate more specifical demands at political actors, and become involved in political affairs in a way that goes beyond traditional clientelist patterns. This may in the medium term induce a profound change in the polity. However, given the resilience of traditional political structures in Brazil it is impossible to say how long the medium term will last.

The Santa Catarina experience suggests that clustering at the same time hinders and supports adjustment to dramatically changing framework conditions. More precisely, it hinders adjustment initially as it favors path dependent behavior. Path dependence means that firms try to pursue a well-established behavioral pattern, but in a more intensive way, rather than take the risk of trying something completely different early on. During the first phase of adjustment this behavior is reinforced by clustering as firms cannot fail to observe each other, and even in an environment where little information is in the air some kind of local consensus will emerge regarding what is the most appropriate strategy in trying to adjust.

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78 See Fleischer (1997).

79 Meyer-Stamer (1997a), pp. 263 ff.

Clustering makes adjustment easier later on, as soon as key actors have understood the limitations of path dependent behavior. In this phase, the key challenge is to move from passive to active advantages of clustering.[80] Passive advantages of clustering include the availability of specialized suppliers, business service firms, and skilled labor. These elements are present even in those regions where interaction between firms is very low. Active advantages include the strengthening of core competencies through outsourcing and subcontracting to specialized suppliers plus a systematic effort to upgrade them, the learning-by-interacting benefits of close inter-firm cooperation and a dense flow of information, and the creation of specific supporting institutions.

The analysis of commodity chains, currently especially domestic commodity chains, is useful to understand the latitude and limitations firms have. In fact, latitude seems to be relative large in both the ceramic tile and the textiles and clothing industry. In the ceramic tile industry the producers appear to be the main actors in the chain, shaping both the supply side and the demand side (attracting competing suppliers, setting up showrooms, starting political iniatives to stimulate demand for construction materials).

In the textile and clothing sector the potentially strong position of producers reflects a process of structural change that proceeds faster in the producing industry than at the commercialization stage. As "modern" sales channels, like chain stores, make only slow inroads, there is an opportunity for firms to shape commercialization in a way that benefits them directly, namely by introducing franchise systems. It is possible that a constellation emerges where large firms coordinate a network of subcontractors and franchises, concentrating their inhouse activities on design, finishing (which is intensive in both capital and tacit knowledge), and maybe cutting.

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80 This distinction has been suggested by Nadvi (1997).

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6 Tables

Table 1: Best performing firms from Santa Catarina (a)			
Firm	**Main product**	**Category**	**Turnover (b)**
Malwee	casualwear	best garments firm 1987 and 1992	156 mn US-$
Marisol	casualwear	best garments firm in 1996	145 mn US-$
Döhler	home textiles	best textiles firm 1994	130 mn US-$
Consul (Multibrás)	refrigerators	best electrical and electronics firm 1982, 1984, 1985, 1987, 1988, and 1992	1.810 mn US-$ (c)
Embraco	compressors for refrigerators	best machinery firm 1992 and 1994	412 mn US-$
WEG Motores	electrical motors	best machinery firm 1981, 1984, 1985, 1995	239 mn US-$
Rudnick	furniture	best wood and furniture firm 1993	27 mn US-$
Tigre	plastic tubes	best plastic and rubber firm 1988 and 1989	378 mn US-$
(a) The Brazilian business magazine Exame each year publishes the Brazilian equivalent to the Fortune 500. Using a set of performance indicators, it also names the best firms for each industrial branch. A number of firms from SC have thus been brought into prominence. – All firms were included in our sample with the exception of Rudnick and Tigre. (b) Source: Gazeta Mercantil, Balanço Anual 1997 (c) Turnover of the Multibrás concern, not just the Joinville branch.			

Table 2: Textiles imports and exports in Brazil					
	1991	1992	1993	1994	1995 (1 - 11)
Imports	569.78	535.83	1,175.63	1,322.97	2,144.38
Exports	1,179.40	1,490.78	1,382.58	1,403.52	1,441.49
Million US-$. Source: Abit-SP					

Table 3: Production process in the knitwear and home textiles industry	
necessary	*optional*
spinning (various steps)	
	treatment of the filament (various steps)
	dyeing of the filement (various steps)
weaving	
treatment of the fabric (various steps)	
	dyeing of the fabric (various steps)
	printing of the fabric (various steps)
cutting	
	embroidery
sewing	

Table 4: Shifts in Brazilian Clothing Distribution Channels			
	1987	*1990*	*1993*
Door-to-door and fairs	**18**	**21**	**27**
Dept. stores and supermarkets	**11**	**9**	**7**
Specialty stores	**52**	**52**	**36**
Other	**19**	**18**	**30**
Source: IBOPE, quoted from Savitzky-Ruh (1996).			

7 Figures

Figure 1

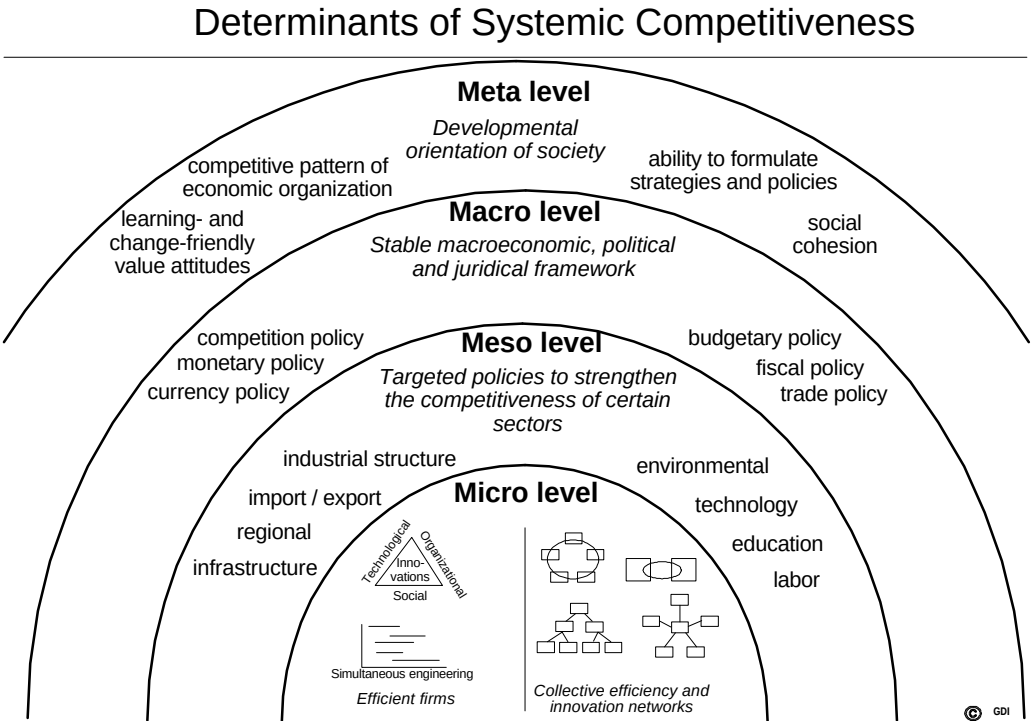
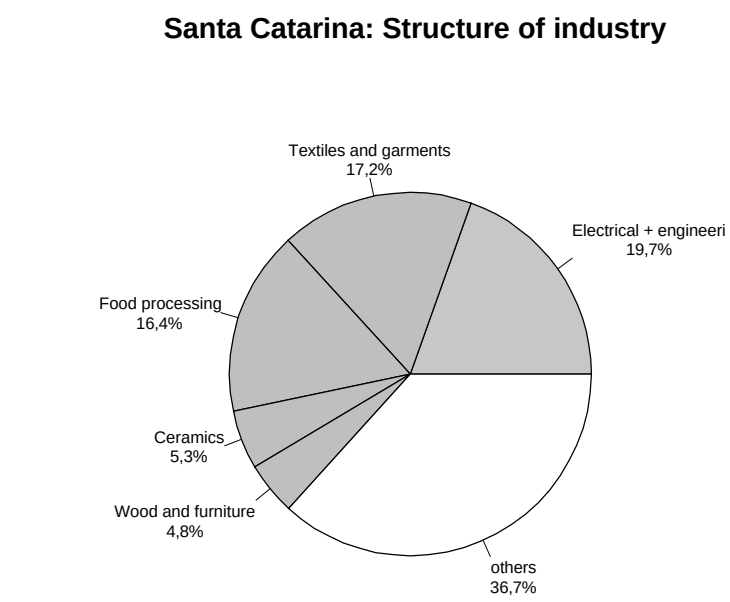


Figure 2

Figure 3:



According to VAT contribution, 1994. Source: FIESC

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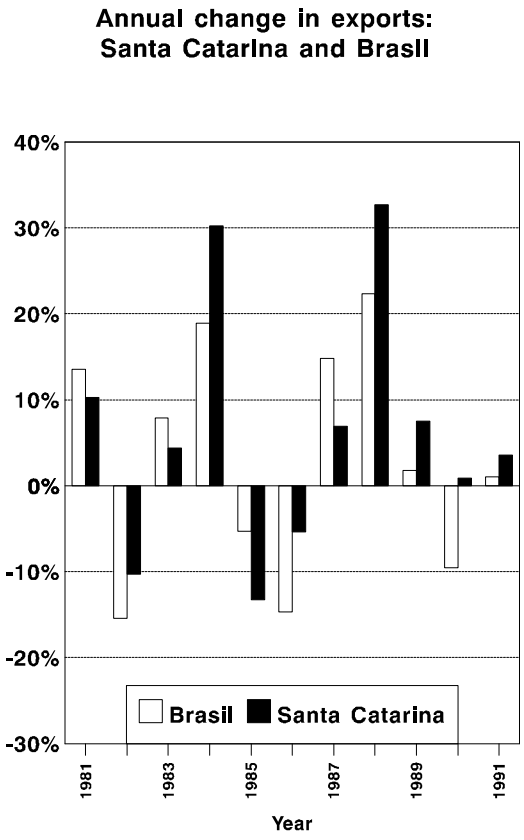
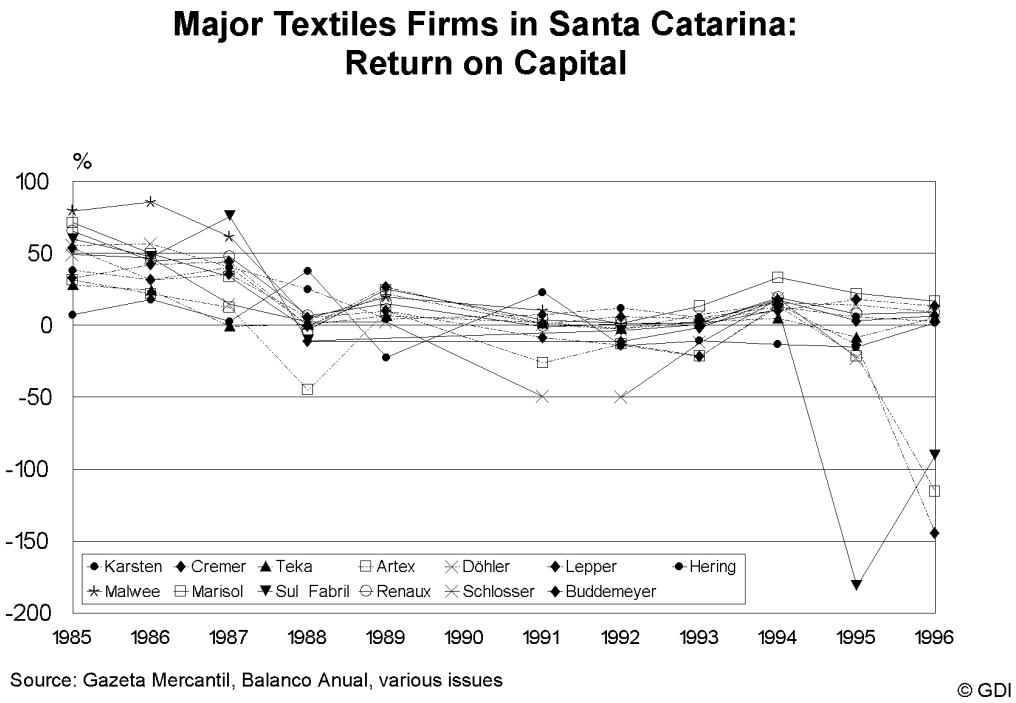
Figure 4



Source: DECEX.

GDI

Figure 5 (a)



The Balanço Anual did not provide data on all the firms for all the years. The year 1990 is excluded because it was extremely turbulent even by Brazilian standards (*Plano Collor I* stabilization program) and caused extreme deviations in performance data in many firms.

Figure 6

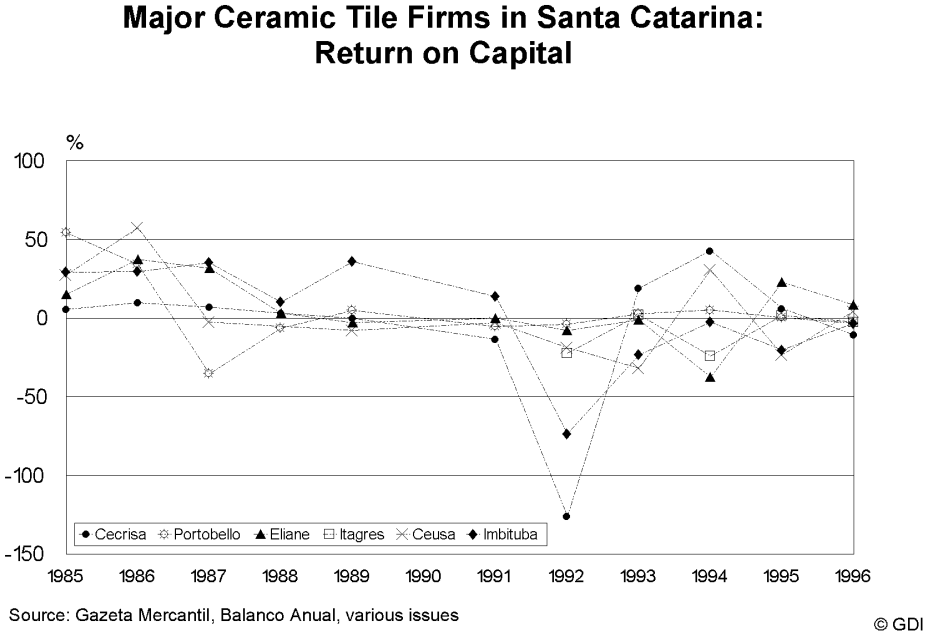
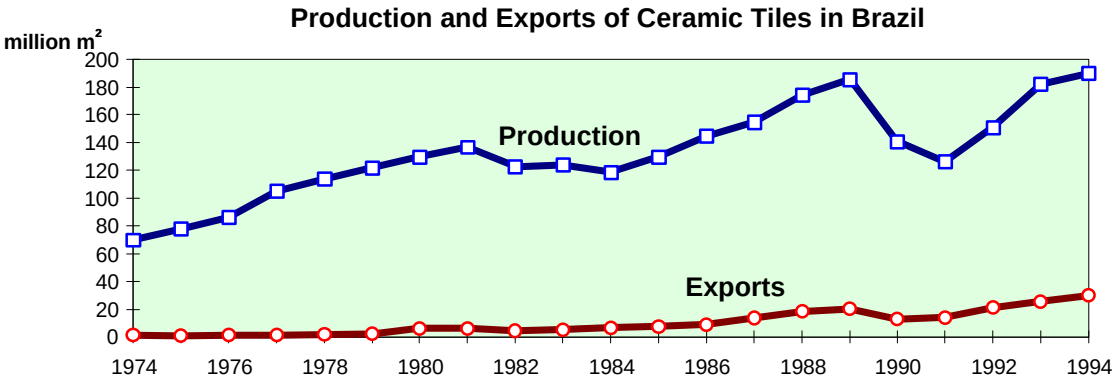


Figure 7:



Source: BNDES, Informe Setorial, No. 7, 15/09/95

Figure 8

The Commodity Chain of the Knitwear Industry in Santa Catarina /

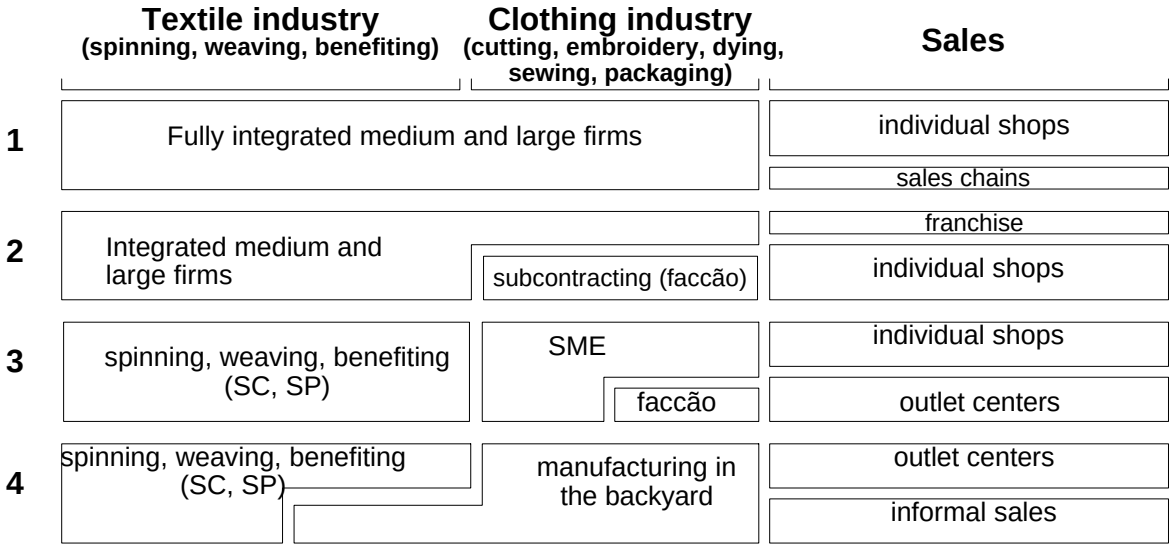


Figure 9

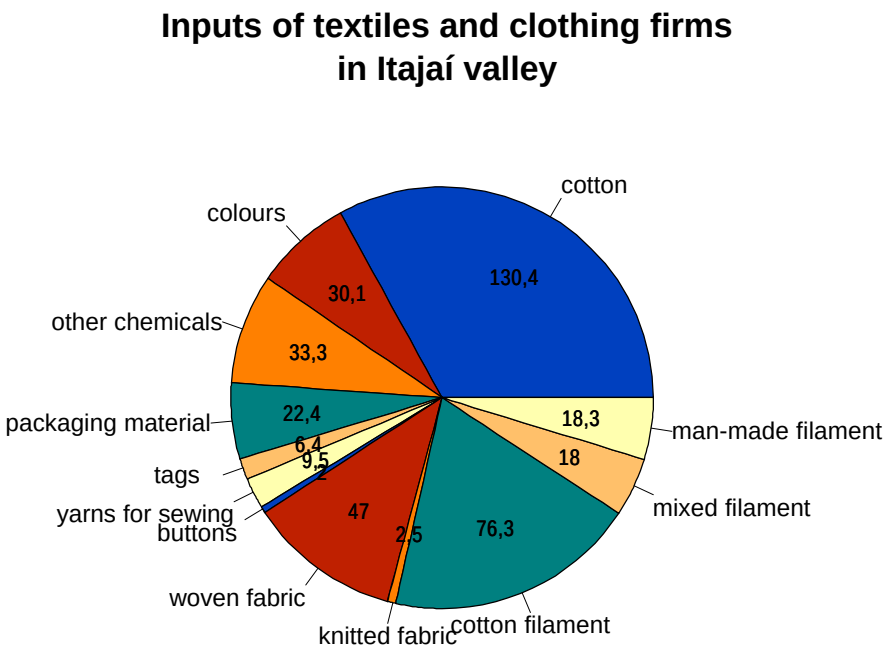
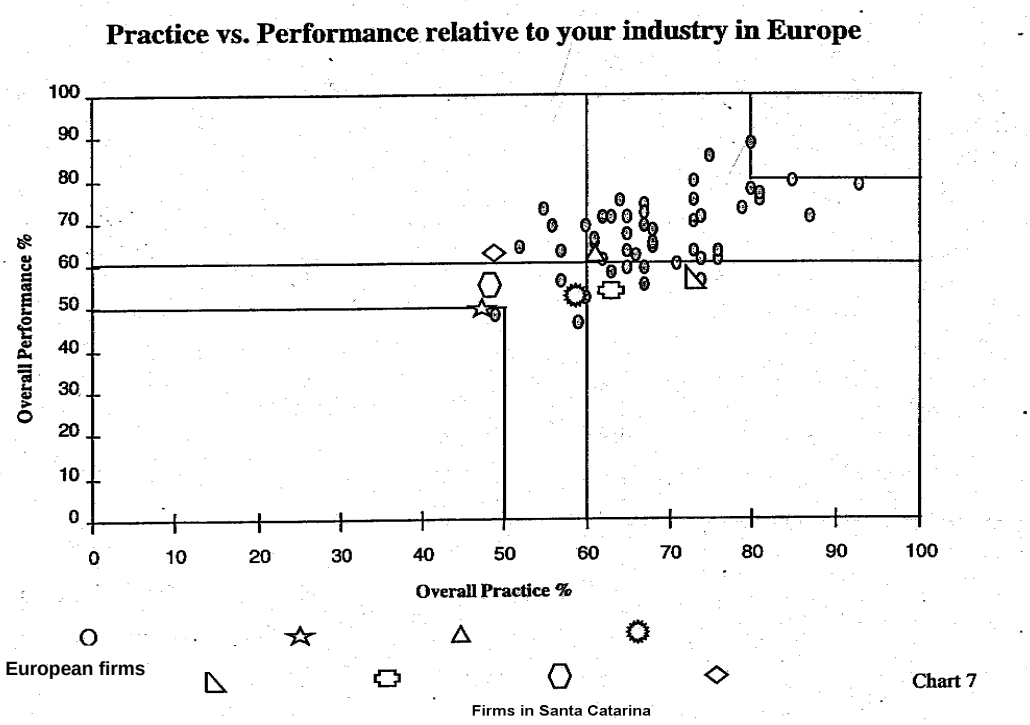


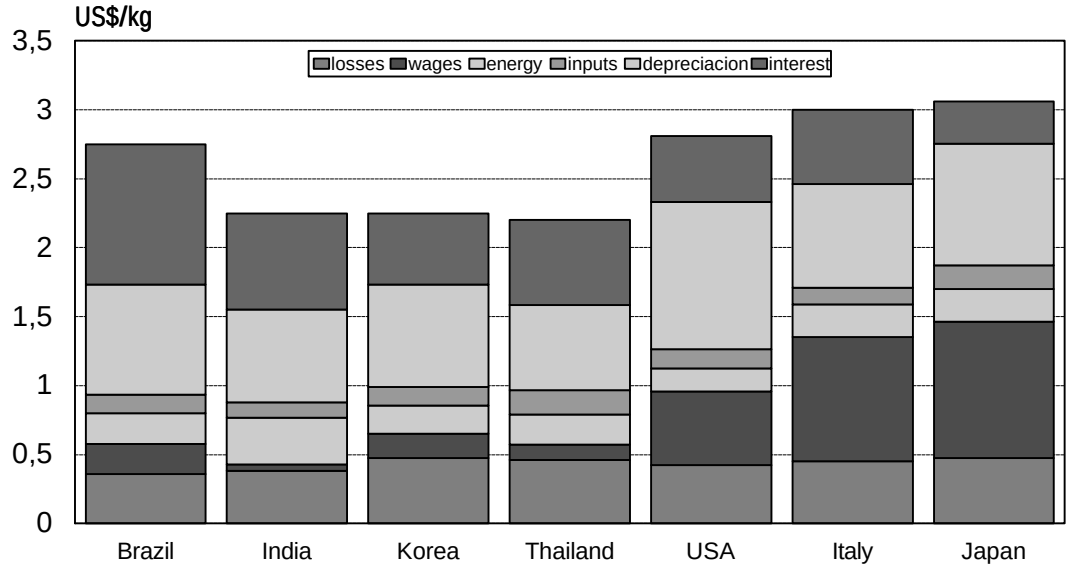
Figure 10: Results of Benchmarking in Textiles and Clothing Firms in Santa Catarina



Obs.:This is a graph which I obtained from one of the participating firms. The name of the firm was eliminated from the graph.

Figure 11

Comparing Cost Structures in the Textiles Industry
- Spinning -



Source: ITMF, quoted from Gorini & Gomes de Siqueira (1997)