

# **Beyond flexible specialization: the rearrangement of regional production orders in Emilia-Romagna and Baden-Württemberg\***

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**Abstract:** Emilia-Romagna and Baden-Württemberg are two highly successful industrial regions. Their economic success is based on a specific industrial and institutional order, on regionally concentrated production networks mainly based on small and medium enterprises and on 'cooperation enhancing' institutions. This regional production order was the basis for strategies of 'flexible specialization'. The fundamental restructuring of mass production concepts as well as harsher world-wide competition over innovation and costs, however, undermined previous advantages of these regions. Emilia-Romagna and Baden-Württemberg handle these new challenges in different ways: while Baden-Württemberg counts on technology- and research-based restructuring, Emilia-Romagna's restructuring is service-based – increasing the demand for new production-related services (quality control, financial services, marketing). These different patterns of reorganization and institutional learning point out institutional and industrial differences between the two regions undervalued in the concept of 'flexible specialization'.

Industrial districts are often regarded as a fundamental alternative to taylorist-bureaucratic mass production. While the mass production concept of the postwar period experienced problems during the 70s and 80s, regionally concentrated agglomerations of smaller firms, especially in central Italy, succeeded with flexible production of high-quality industrial products (see Piore and Sabel, 1984; Pyke and Sengenberger, 1992). This success based on closely-knit interorganizational networks, embedded in a regional community and a web of supportive institutions (mostly on a regional basis: banks, education and training facilities, research and development agencies, cooperative labour relations, etc.). Industrial districts characterized by cooperative industrial networks and a supportive institutional environment were regarded as guarantors of high employment and income levels, economic growth, increasing export rates and high tax revenues.

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The reasons for this success are not sufficiently explained in the concept of flexible specialization, because qualified workers, cooperative labour relations, a strong regional identity, and sometimes even the cooperation of competing firms can also be found in less successful or even deindustrializing regions (Grabher, 1993). High-trust relations between management and workers and between cooperating firms seem to be a useful but not a sufficient condition for innovation and flexibility. Strong institutions and stable networks are no guarantee for innovation. On one side, relatively stable patterns of interpretation and behaviour are the source of lock-in effects, of path dependencies and technological trajectories, of resistance to change, of communication and cooperation barriers between different professional, organizational and socio-cultural "thought worlds". On the other side common cognitive patterns and common practices, common myths and ceremonies are regarded as an efficient way of facilitating learning, of reducing transaction costs and of preventing opportunistic behaviour; "localized rules, institutions and practices are key both to their geographical concentration and their technological performance" (Storper, 1993: 434).

Given the current economic difficulties of even the "prototypical" examples of flexibly specializing regions, the reasons for the successes and the shortcomings of "institutionally rich" regions are more than a question of academic interest. The crisis of formerly successful regions like Baden-Württemberg demonstrates that institutional richness – a concept proposed by Amin and Thrift (1994) – does not always facilitate technological learning but it can also become a serious obstacle to innovations. There is no direct link between regional production networks, a dense institutional environment and technological learning; a more complex concept is required.

We therefore propose to analyse regions as a specific type of organizational field.<sup>1</sup> Regions sometimes develop a particular production order<sup>2</sup>; i. e. regional actors develop a quite stable stock of common patterns of interpretation and behaviour, of common experiences and worldviews facilitated by repeated interactions and incorporated in regional firms, institutions and governance structures. These patterns of "sense-making" (Weick, 1995), interaction and behaviour are an efficient way of reducing uncertainties (thus facilitating organizational and regional path dependencies). Regional production orders can tackle problems of opportunism always threatening to block the exchange of knowledge and experiences. Therefore, regional patterns of communication, cooperation and competition facilitate the creation of regional innovation networks, characterized by the continuous recombination and redefinition of technical knowledge. But this is only one side of the coin, conservatism, momentum and the stabilization of exhausted technological trajectories may be the other side. A distinctive feature of regional production orders therefore is the capability of institutional and organizational restructuring processes in an increasingly globalized competition, the capability of organizational and institutional learning.

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<sup>1</sup> This concept has been defined by Scott (1994: 207f.) in the following way: "Organizational fields are made up of both cultural and behavioural elements. The former refers to the meaning systems and symbolic frameworks that define and give coherence to a set of behaviours, together with the constitutive rules that define the utilities and capabilities of actors and the normative rules that specify appropriate forms of conduct: the rules of the game ... Behavioural elements within fields refer to the activities and interactions carried out by social actors, both individual and collective. These actors select from, enact and reproduce cultural beliefs and meaning systems, but, at the same time, they also challenge and change them." The particularities of a **regional** organizational field are the result of spatial proximity: Members of regional institutions and organizations have the chance to meet on a regular basis and to develop a common socio-cultural background facilitating a homogenization of the tacit dimensions of knowledge.

<sup>2</sup> Regional production orders are institutionalized forms of interpretation and behaviour between regional companies, shaping the patterns of conflict and cooperation between different groups of employees and management, and the choice of product and production concepts (in the dimensions of technology, work organization, and personnel policy). Regional orders are embedded in industrial relations (between regional unions and business associations), regional education and training systems, regional industrial policies, regional financial systems, regional labour and product market structures and interorganizational networks.

Given the ambivalent relationship between institutionalization and innovation, regional production orders have to be analyzed in a dynamic perspective (instead of proclaiming it "the" alternative to mass production in a somewhat static perspective).<sup>3</sup> When regional differences are neglected in order to develop a convincing, ideal alternative to other (lean, tayloristic, neo-Fordist etc.) production concepts, the specificities, the dynamics and the path dependencies of regional innovation processes are easily overlooked. This also requires increased attention to the differences between regional production orders – differences which are also the basis for different patterns of technological learning (cf. Cooke, 1996).

Such increased attention to regional differences and institutional dynamics even applies to the two paradigmatic examples of the concept of flexible specialisation, for Emilia-Romagna and Baden-Württemberg. By taking the organizational and institutional particularities of these regions into account, the current difficulties with the different restructuring paths of these regions can be understood much better than by subsuming them under the unifying label of flexible specialization. Faced with an increasingly globalized competition for costs, flexibility and innovation (section 1) and given the differences in the production orders (section 2), these regions and their enterprises follow very different paths of organizational and institutional change (section 3).

## **1. Regional production orders facing new challenges**

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<sup>3</sup> The preference for "grand designs" especially in the discussion on post-fordist industrial orders can be explained by the attempt to prove the existence of alternatives to mass production and taylorism. In a historical perspective this contrast is misleading because it excludes the partial complementarity of mass production and flexible specialization. The post-war success of Emilia-Romagna and Baden-Württemberg sprang from the flexible production of high-quality goods. These production concepts enabled regional firms to avoid a price competition they most probably would have lost. The demand investment goods and the high-class market segments, which could not be satisfied with standard goods, meant companies specialized in the flexible production of high-class goods. The 'Japanese challenge' puts an end to the alternative of "either cheap mass production or diversified quality production" – an alternative which had been the basis for the postwar-prosperity; now innovative, flexible *and* inexpensive products are requested.

Emilia-Romagna and Baden-Württemberg were among the richest European regions in 1991 (along with some larger cities such as London, Brussels, Munich, Bremen, Hamburg, Frankfurt, Paris, Turin-Milan-Genoa); the gross domestic product (GDP) per capita of these regions was 29 % and 36 % above the European average (see table 1). If the core areas of the emerging global information society consist of science-based high technology regions like Silicon Valley (Castells and Hall, 1994), service-based global cities like New York (Sassen, 1994) and flexible industrial complexes like Tuscany (Storper/Scott, 1989), Emilia-Romagna and Baden-Württemberg clearly belong to the last type. For the last decades, these industrial regions have been the "growth engines" of their national economies: the employment share of their industrial sectors is above national and European levels; they export much more than they import; they heavily rely on small and medium enterprises which are an important part of their economic structure.

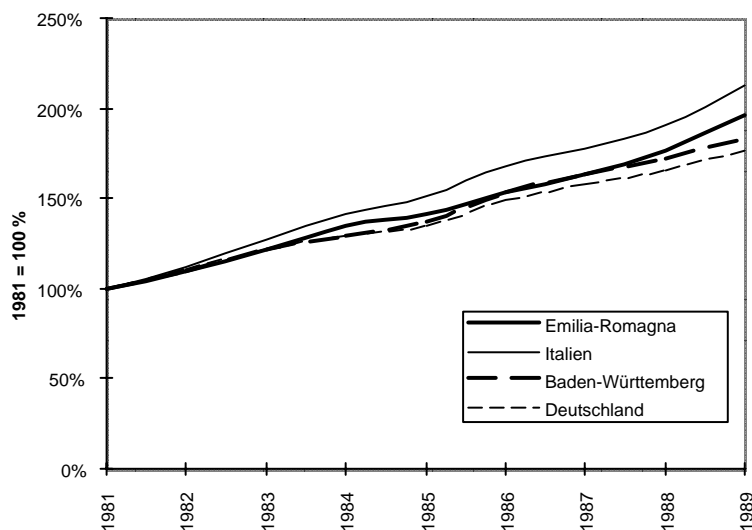
Table 1: Emilia-Romagna and Baden-Württemberg: compared on national and EU terms

|   | Emilia-Romagna            | Italy                     | Baden-Württemberg         | Germany                   | EU (EUR 12)               |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Population (1991; in million)   | 3.9                       | 56,8                      | 9.9                       | 80,0                      | 344.8                     |
| Labour force participation rate (1991; in parenthesis: female participation rate) | 53.2 %<br>(women: 41.9 %) | 49,9 %<br>(women: 35,1 %) | 59.4 %<br>(women: 47,2 %) | 58,7 %<br>(women: 47,6 %) | 55.1 %<br>(women: 43.4 %) |
| Labour force (1991)   | 1.8 million               | 21,5 million              | 4.8 million               | 37,0 million              | 142 million               |
| • agricultural employment   | 8.6 %                     | 8,5 %                     | 3.4 %                     | 4,2 %                     | 6.4 %                     |
| • Industrial employment   | 35.1 %                    | 32,2 %                    | 46.2 %                    | 40,3 %                    | 33.3 %                    |
| • Service employment  | 56.3 %                    | 59,3 %                    | 50.3 %                    | 55,5 %                    | 60.3 %                    |
| Unemployment rate (1993; in parenthesis: female unemployment)                     | 4.7 %<br>(7.3 %)          | 18,4 %<br>(19,9 %)        | 4.1 %<br>(4.5 %)          | 7,0 %<br>(8,6 %)          | 10.4 %<br>(12.2 %)        |
| GDP per capita (1991; in per cent of EU average)                                  | 129 %                     | 104 %                     | 136 %                     | 130 %                     | 100 %                     |
| Exports (in % of GDP; 1992)   | 19.0 %                    | 14.6 %                    | 24.3 %                    | 22.1 %                    | 21.0 %                    |
| Imports (in % of GDP; 1992)   | 12.6 %                    | 15.4 %                    | 19.3 %                    | 21.1 %                    | 22,3 %                    |

Source: Eurostat.

Given the economic success of these regions especially in the 60s and 70s, the declining dynamic of these "model regions" of flexible specialization is quite surprising. Even if the growth, export and labour force participation rates of *Baden-Württemberg* were in general above the national average, since the beginning of the 90s, however, there have been more and more indicators of the limits of the current model of development. In the crisis of 1991/93, the unemployment rate increased more than in the other Federal states of former West Germany (although in 1995, the unemployment rate in Baden-Württemberg of 7,4 % was still below the West German average of 9,3 %). The number of employees in the core sector of the region, the investment goods industries, decreased by 182,000 from 1991 to 1994 (-17.9 %), direct investment abroad rose rapidly, but exports (-4.5 %) and investment in manufacturing industry (-31 %) fell sharply from 1991 to 1993. For the first time since 1975, the state's tax income decreased in 1994 (-3.8 %). Even after the moderate economic upswing of 1994/95, a high rate of direct investment abroad and low export rates for high-tech products indicated structural weaknesses of the region; the Baden-Württemberg production and innovation model is under strain from a world-wide competition in price and innovation (Heidenreich and Krauss, 1996).

Figure 2: Net product development in Emilia-Romagna and Baden-Württemberg (1981-89)



Source: Eurostat: Regions. Statistical Yearbook 1994.

The Emilian growth model, too, faces new challenges (Cooke/Morgan, 1994; Telljohann, 1994). During the 80s, the growth rate for regional production was much lower than that for Italy (even if it was still above the German or Baden-Württemberg level; see figure 2). Also, the regions of northern Italy dominated by large companies were more successful in defending their positions on the world market. This raises the question whether the central Italian industrial districts based on small and medium enterprises still have a competitive advantage (Bianchi and Gualtieri, 1990). In this respect, many of the smaller Emilian companies have been taken over by larger Italian or foreign groups (see Harrison, 1994), undermining the previous closedness of local production structures.

Faced with the challenge to define a new position in a changing global environment, key actors in both regions have to define new strategies for transforming the former industrial and institutional order. This redefinition has to start from the strong points of the two regions: regional agglomerations of firms within the same branch and intercompany cooperation, qualified workers, cooperative labour relations embedded in a collective social order and other aspects of a rich institutional environment. But regional restructuring processes are also shaped by economic and institutional differences between the two regions. At first we will analyze these differences in more detail, then discuss how these characteristics are accepted and strategically applied by firms – in the face of world-wide changes.

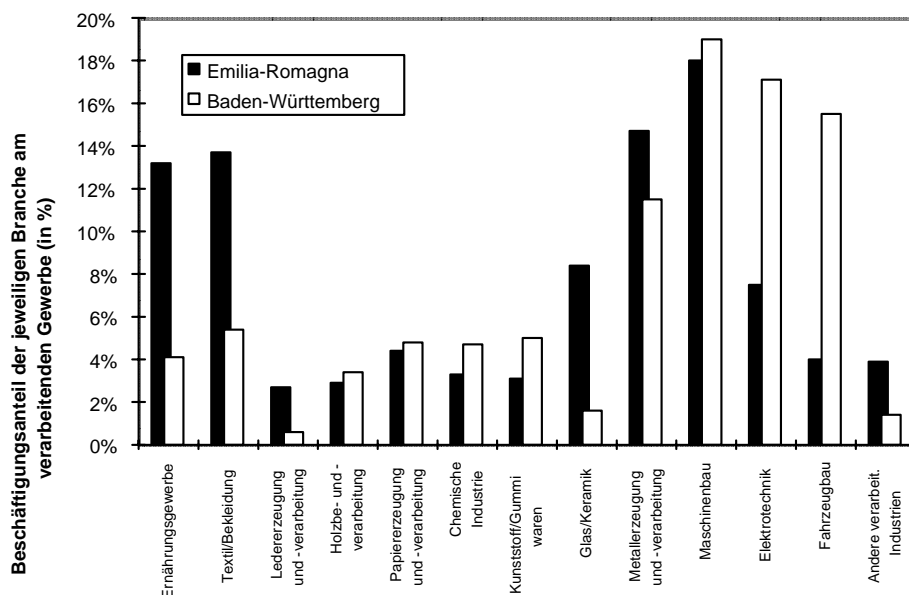
## **2. The production orders of Emilia-Romagna and Baden-Württemberg**

The economic success of Emilia-Romagna and Baden-Württemberg in the post-war years emanated from the flexible production of high-quality goods. Companies in both regions rejected Taylorist-bureaucratic mass production concepts during the post-war boom. Another common feature is the intensive cooperation between the individual companies in regional production clusters. The industrial districts of Emilia-Romagna and Baden-Württemberg's car production and mechanical engineering cluster (including the electrical engineering industry suppliers) are examples of "geographically defined productive systems, characterized by a large number of firms that are involved at various stages, and in various ways, in the production of a homogeneous product" (Pyke and Sengenberger, 1992). Those spatially concentrated production systems are coordinated by socially embedded market relations. Both regions are characterized by a "rich" institutional environment, allowing a balance between cooperation and competition with positive impacts on innovation, flexibility and diversification. Moreover, cooperation between employees and management, strong unions, practically experienced workers, and a relatively autonomous regional government allow a high-road concept based on the production of diversified, high-quality products by qualified workers. Competitive advantage is not achieved by deteriorating labour and wage conditions but by continuous efforts at keeping a position in higher market segments.

A first difference between the two regions is the divergent pattern of industrial specialization. A large part of Emilian industry is specialized in classic consumer goods (food, textiles, furniture, and leather). Those technologically less sophisticated branches are nearly insignificant in Baden-Württemberg (see figure 3). Instead, car production (Mercedes, Porsche, Audi) and electrical engineering (Bosch, HP, IBM, Alcatel-SEL, etc.) are more important. Both regions, however, have in common the strong role of mechanical engineering industry.



Figure 3: Manufacturing industry in Emilia-Romagna and Baden-Württemberg (1991)



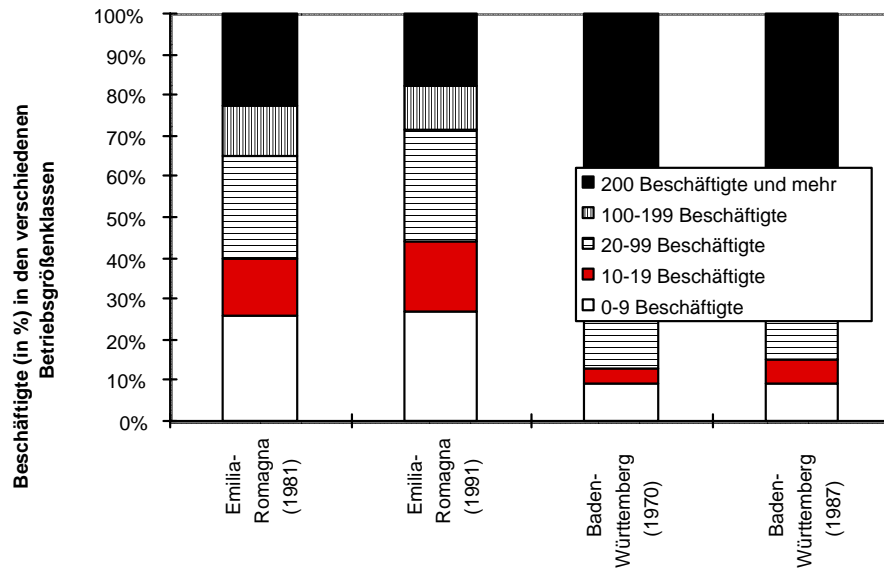
Da die Wirtschaftszweigsystematiken Italiens und Deutschlands erheblich voneinander abweichen, kann die obige Graphik nur als erster Hinweis auf unterschiedliche regionale Spezialisierungen verstanden werden.

Source: ISTAT: 7° censimento generale dell'industria e dei servizi; Statistisches Landesamt Baden-Württemberg.

The firm size structure in both regions differs as well (see figure 4): 42 % of the industrial workers in Emilia-Romagna are employed in small companies with less than 20 employees; in Baden-Württemberg only 15 % (1987). The share of workers in large manufacturing companies (500 and more employees) in Baden-Württemberg, however, is much higher: 47,5 % (1992) compared to 12,2 % (1991). While the production model of Emilia-Romagna is based on small and very small companies, Baden-Württemberg's economy relies on medium and large companies (the typical *Mittelstand* firms of this region are not defined by size but by their political, ideological and cultural distance from "anonymous" bureaucratic large companies. They may actually employ thousands of persons; see Cooke et al., 1993). The smaller firm size in Emilia-Romagna points to the extraordinarily high importance of individual, often family-based companies in this region.<sup>4</sup>

<sup>4</sup> 30,9 % (1991) of regional employment (in manufacturing industry: 19,1 %) comprise independent workers; in Baden-Württemberg only 10,9 % (1994). 15 % (1991) of the manufacturing employment in Emilia-Romagna is in individually

Figure 4: Company size in the manufacturing industry of Emilia-Romagna and Baden-Württemberg



Source: ISTAT: 7° censimento generale dell'industria e dei servizi; Statistisches Landesamt Baden-Württemberg.

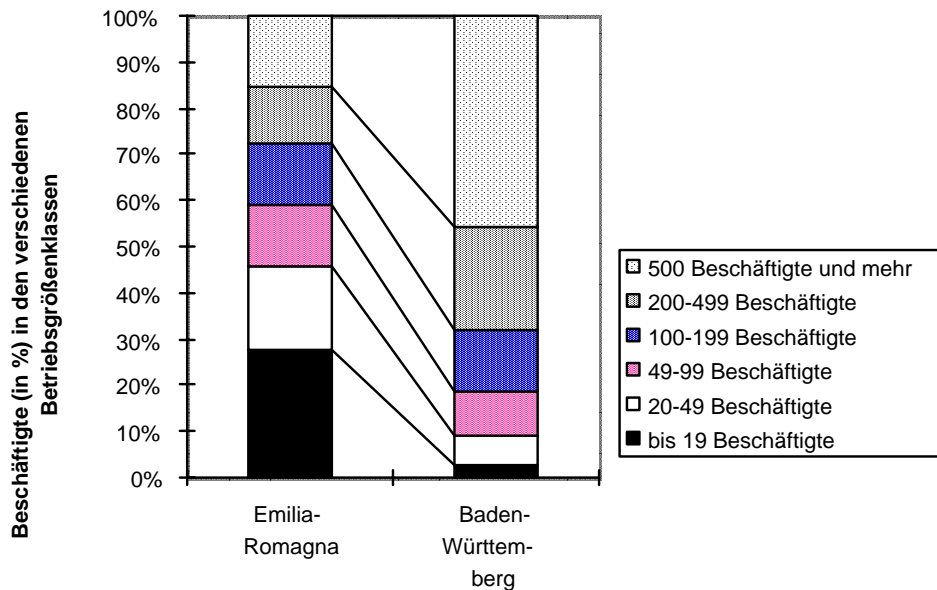
The different impact of industrial branches with mostly small firm (textiles, leather, food, etc.) cannot explain all the differences in company sizes. Even when regarding only one branch – e.g. mechanical engineering (see figure 5) – those differences do not disappear. This different size structure is very important because it points to the greater external dependency of Emilian firms; they have to rely more on intercompany cooperation and on external services.

This explains the different interorganizational networks in Emilia-Romagna and Baden-Württemberg. Baden-Württemberg's industry is especially networked by vertical supplier-customer-relations (Schmitz, 1992); in the center of these networks are some large companies, especially for electrical engineering and car production. Local industrial districts in Central Italy, however, rely more on horizontal patterns of cooperation, e. g. between competing producers of textiles, clothing, furniture or shoes within a region.

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owned companies and 32,4 % (1991) in artisanal firms.

Figure 5: Company size in the machine engineering industry of Emilia-Romagna and Baden-Württemberg (1991)



Source: ISTAT: 7° censimento generale dell'industria e dei servizi; Statistisches Landesamt Baden-Württemberg.

The differences in specialization and firm size point to the fact that economic activities in Emilia-Romagna for a large part are organized in local industrial districts dominated by one single branch (see table 6).<sup>5</sup> This is also true for the mechanical engineering industry of Emilia-Romagna, integrated in local industrial districts and producing, for example, machines for manufacturing ceramics in Modena and Reggio Emilia, machines for the food industry in Parma, or agricultural equipment in Modena and Reggio Emilia. In contrast, Baden-Württemberg's industry is organized in regional (i.e. not merely local) production clusters.<sup>6</sup>

<sup>5</sup> 67,2 % (1991) of the Emilian workforce is employed by manufacturing companies with only one work site, 15,6 % of the regional workforce is employed in companies with sites spread over the whole national territory. 17,2 % is employed by companies with two and more sites within Emilia-Romagna itself (source: 7° censimento generale dell'industria e dei servizi).

<sup>6</sup> Some numbers may illustrate the difference: the machine building industry of Bologna, the textile and clothing industry of Modena (Carpi) and the ceramics industry of Modena and Reggio Emilia are the largest industrial districts of the region with about 28,000 employees each. In the area of Stuttgart, however, – the industrial centre of the region – 75,000 (mechanical engineering), 114,000 (car production) or 84,000 (electrical engineering) persons, respectively, are employed in the interlinked core clusters of the regional economy.

*Table 6:* Local employment in selected industries of the Emilia-Romagna (column percentages; 1991)

|                         | Food industry               | Textiles/<br>Clothing       | Leather production and manufacturing | Wood machining and working  | Chemical industry           | Glass Ceramics              | Metal machining and working | Mechanical engineering      | Electrical engineering | Car production              | Manufacturing industry (total) |
|-------------------------|-----------------------------|-----------------------------|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------|-----------------------------|--------------------------------|
| Piacenza                | 5.4%                        | 2.9%                        | 3.0%                                 | 5.2%                        | 2.4%                        | 4.6%                        | 6.7%                        | 4.9%                        | 5.8%                   | 6.2%                        | 5.0%                           |
| Parma                   | <b>20.3%</b> <sup>(1)</sup> | 4.6%                        | 7.8%                                 | 9.6%                        | 10.9%                       | 12.1%                       | 8.7%                        | 8.7%(7)                     | 7.2%                   | 1.3%                        | 9.7%                           |
| Reggio nell'Emilia      | 11.8%                       | 14.7%                       | 1.6%                                 | 15.3%                       | 6.1%                        | <b>22.2%</b> <sup>(6)</sup> | 15.8%                       | <b>15.9%</b> <sup>(7)</sup> | 11.4%                  | 8.1%                        | 14.2%                          |
| Modena                  | 17.1%                       | <b>39.0%</b> <sup>(2)</sup> | 5.8%                                 | 14.8%                       | 10.3%                       | <b>40.9%</b> <sup>(6)</sup> | 16.5%                       | <b>22.3%</b> <sup>(7)</sup> | 17.8%                  | 21.6%                       | 22.3%                          |
| Bologna                 | 15.0%                       | 16.0%                       | 23.5%                                | 15.2%                       | 26.0%                       | 7.4%                        | 28.7%                       | <b>29.4%</b> <sup>(7)</sup> | 40.3%                  | <b>42.4%</b> <sup>(8)</sup> | 24.4%                          |
| Ferrara                 | 7.0%                        | 8.8%                        | 3.6%                                 | 7.2%                        | <b>18.3%</b> <sup>(5)</sup> | 2.7%                        | 6.5%                        | 7.6%                        | 5.9%                   | 3.6%                        | 6.5%                           |
| Ravenna                 | <b>12.3%</b> <sup>(1)</sup> | 4.4%                        | <b>16.2%</b> <sup>(3)</sup>          | 6.7%                        | <b>20.5%</b> <sup>(5)</sup> | 5.0%                        | 7.2%                        | 3.9%                        | 4.5%                   | 2.6%                        | 6.9%                           |
| Forlì                   | 11.1%                       | 9.6%                        | <b>38.6%</b> <sup>(3)</sup>          | <b>25.9%</b> <sup>(4)</sup> | 5.6%                        | 5.2%                        | 9.9%                        | 7.3%                        | 7.1%                   | 14.2%                       | 11.0%                          |
| Emilia-Romagna (=100 %) | 70,470                      | 72,697                      | 14,168                               | 15,274                      | 17,402                      | 44,927                      | 78,307                      | 95,748                      | 39,908                 | 21,034                      | 531,928                        |

All the employees in one of the selected branches of the manufacturing industry of the Emilia-Romagna correspond to 100 %. For example, 20.3 % of the 70,470 employees of the Emilian food industry are working in the province of Parma – in a province with only 9.7 % of the Emilian workforce.

The bold figures point to local industrial districts, for example: (1) Foodstuffs/Parma and Ravenna; (2) Knitwear/Carpi-Modena; (3) Footwear (Fusignano/Ravenna, S. Mauro Pascoli/Forlì); (4) Furniture/Forlì; (5) Chemicals/Ferrara and Ravenna; (6) Ceramics/Sassuolo Scandiano-Modena and Reggio Emilia); (7) Farm machinery/Modena and Reggio Emilia; Packaging machines/Bologna; machines for the ceramics industry/Modena; machine tools/Piacenza; food-processing machinery; wood-processing machines/Carpi-Modena; (8) Motorcycles/Bologna

Source: Bianchi/Gualtieri (1990: 89); Franchi (1994); ISTAT: 7° censimento generale dell'industria e dei servizi

The local versus regional integration of the Emilian vis-à-vis Baden-Württemberg companies is connected to a completely different institutional setting. The inner- or intercompany relations in Emilian local industrial districts are to a large extent based on informal relations; the trust or cooperation-enhancing "industrial atmosphere" of territorial production networks is mainly ensured by face-to-face communication (in conformity with the overwhelming importance of family enterprises). Single companies do not pursue freeriding as they fear loss of reputation; formalized regulation structures (labour law, collective agreements, formalized job training, coordination by unions and employers' associations, etc.) are of minor importance due to the embeddedness of the local firms in a local community.<sup>7</sup> Or – like an Italian manager describes the relation to

<sup>7</sup> Especially in Emilia-Romagna these personal relationships are often supported by several professional and economic associations. A synthetic index measuring the membership in local, professional and economic associations (thus reflecting the

his local competitors : "C'è un rapporto di amicizia consolidata con queste aziende dove ci facciamo dei piaceri" [We have a strong, friendly relationship with those companies and do each other favours] (Baltoni et al, 1995:126). To some extent these interorganizational networks based on personal relationships are institutionally stabilized – e.g. by regional chambers of trade and commerce, by the important chambers of trade, and by publicly financed "real services" (marketing, technological advice, quality assurance, organisation consulting, information on markets and standards, etc.) in connection with ERVET and their business centres such as CITER (Brusco, 1993; Cooke and Morgan, 1994).

The role of institutionalized forms of interorganizational cooperation is much more important in Baden-Württemberg. Many institutions facilitate the cooperation between management and employees as well as between individual companies: unions, employers' associations, publicly financed technology transfer institutions like the Steinbeis-Stiftung, regional banks like *Sparkassen* or *Volksbanken*, etc.), the innovation and the research council, the Landesgewerbeamt, the chambers of trade and commerce (IHK), the chambers of commerce etc. The "industrial atmosphere" of this region depends much more on institutionally shaped interactions than in Emilia – despite several attempts of the regional government in Emilia-Romagna. Therefore, the crucial problems in the German region are linked to the reform of established institutions – and not to the creation of new ones.

It can be concluded that Emilia-Romagna and Baden-Württemberg differ in many aspects – despite common patterns summarized in the model of "flexible specialization". Firstly, while Baden-Württemberg's economy is set on the production of high-quality investment goods (cars, electrical engineering, machines), Emilia's industry is specialized in mechanical engineering and sophisticated consumer goods (food, ceramics, clothing, leather ware, furniture). This market niche strategy is more exposed to price competition of producers from low wage countries. Secondly, the production clusters of Baden-Württemberg are based on vertical supply, while industrial districts in Emilia largely rely on horizontal patterns of cooperation within a branch. Thirdly, for reasons of smaller average size, Emilian companies need an especially dense "industrial atmosphere" based substantially on direct interactions. The sociocultural embeddedness

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“civil society” of a region) marks Emilia-Romagna number one of the Italian

of Baden-Württemberg companies, in contrast, is mainly ensured by institutions like the Steinbeis-Stiftung, regional employers' associations and trade unions, regional banks, etc.

### 3. Path dependencies and the evolution of regional production orders

Companies in Emilia-Romagna and Baden-Württemberg are faced with the challenges of increased global competition. They have to create new comparative advantages. This may undermine their almost closed local or regional production networks which have been integrated in its international environment mainly by the export of finished goods (and not by direct investments or global sourcing). The firms' bonds to their region of origin weaken when they establish foreign production sites, rely on foreign suppliers, or when foreign mother companies take over. This globalization of production or ownership structures, however, is carried out differently in Baden-Württemberg and Emilia-Romagna. German companies tend to increasingly open new production sites abroad; Italian firms (which are usually smaller) give more orders abroad and buy more raw or semi-finished material there.

In Baden-Württemberg not only larger companies opened more new plants abroad (see table 7), but smaller machine engineering firms or car suppliers as well. Meanwhile, one fifth of the employees of German mechanical engineering companies work abroad. All in all, since the middle of the 80s Baden-Württemberg's direct investment abroad has been much above the level of foreign direct investment in Baden-Württemberg (see figure 8).<sup>8</sup>

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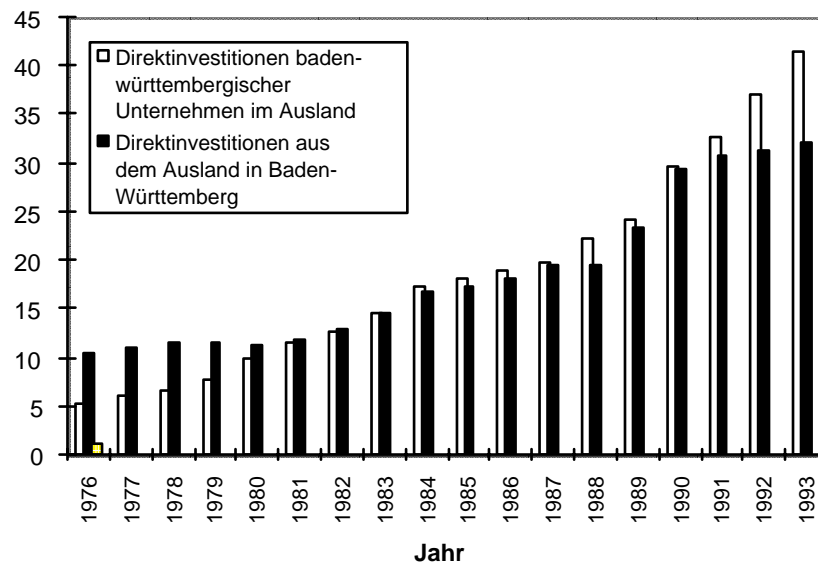
regions (CENSIS, 1995: 464).

<sup>8</sup> The figure of 41.4 bn investments abroad (1993) refers to the stocks. Total foreign direct investment is 3.8 bn DM (1993). This sum can be compared to the DM 13.4 bn invested in Baden-Württemberg's manufacturing industry in 1993.

Table 7: The eight largest companies of Baden-Württemberg (1994)

| Company             | Employees 1994 | Change to 1993 | Employees abroad   | Turnover 1994 (in billion DM) | Change to 1993 |
|---------------------|----------------|----------------|--------------------|-------------------------------|----------------|
| Daimler-Benz        | 330,551        | -9.9 %         | 79,297<br>(-3.5 %) | 104.1                         | + 5.6 %        |
| Robert Bosch        | 153,794        | -1.8 %         | 61,281<br>(+1.3 %) | 34.5                          | + 6.2 %        |
| Bilfinger & Berger  | 47,071         | +2.7 %         | ?                  | 7.6                           | +13.5 %        |
| Asea Brown Boveri   | 35,120         | -4.9 %         | 800<br>(+10 %)     | 9.9                           | + 4.4 %        |
| Carl-Zeiss-Stiftung | 32,781         | -2.6 %         | 8,864<br>(+2.5 %)  | 5.0                           | + 6.1 %        |
| ZF Friedrichshafen  | 31,393         | +9.4 %         | 8,277<br>(+16 %)   | 6.4                           | +17.5 %        |
| Röchling-Gruppe     | 25,909         | -3.9 %         | ?                  | 5.7                           | - 3.3 %        |
| Freudenberg         | 25,443         | - 0.6 %        | ca. 15,000         | 4.9                           | + 5.5 %        |

Figure 8: Direct investment in and from Baden-Württemberg (stocks; 1976-93)



In Emilia-Romagna, however, "globalization" means that companies are much more confronted with price competition from developing countries and with the competition of restructured larger firms. Less complex production processes are passed on to inexpensive suppliers at home or abroad, and more simple products are outsourced (Amin and Thrift, 1992). On the other hand, local industrial districts have to compete with basically restructured larger companies at home and from abroad – companies

which can now offer innovative, high-quality products *inexpensively*, thus overcoming the classical alternative of "mass production or flexible, quality-oriented production" (for FIAT, see Cerruti, 1993).

Emilian companies reacted to this challenge with organizational restructuring. For example, since 1971 the average size of a firm in manufacturing industry increased by 18 % to 9.4 employees by 1991, indicating a reduction in the external, territorial division of labour. The stress is once more on internal, hierarchical forms of coordination. This is further backed up by the large number of company mergers in Emilia. Bianchi and Gualtieri (1990: 99) for example observed 329 larger company takeovers from 1983-88 deducing: "It can be noted that a regrouping process of small-to-medium sized firms is now under way in hierarchically controlled structures, which replace quasi-market models of organization typical for diffused economies; the role of large groups is increasing ...."<sup>9</sup> Another aspect of internal restructuring is an increased formalization of internal procedures and a more clear division of labour (see Baldoni et al., 1995: 89-134). Such organizational differentiation often comes along with a division of labour within a family. For example, in a metal processing company the husband may be head of production, while his wife or daughter is responsible for administration, and the son coordinates quality control or sales.

Secondly, intercompany cooperation is increased, for example by the formation of new industrial groups or by common marketing or export syndicates (see Baldoni et al., 1995: 123-126).

Thirdly, internal and external services are much more called upon to satisfy the increasing demand for innovation, internationalization and quality control.<sup>10</sup> The effects include a pronounced increase in the number of employees and in the creation of special positions or departments for product development, sales, or quality assurance. Baldoni et al. (1995: 149), for example, reported the number of technical employees in 213 metal

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<sup>9</sup> Cf. Harrison, 1994. As the average company size for the manufacturing industry merely increased from 8 (1971) or 8.4 (1981) to 9.4 (1991) employees, the impact of the concentration should not be overestimated. 42 % (1991) of the employees in industry are still working in companies with a staff of less than 20 employees.

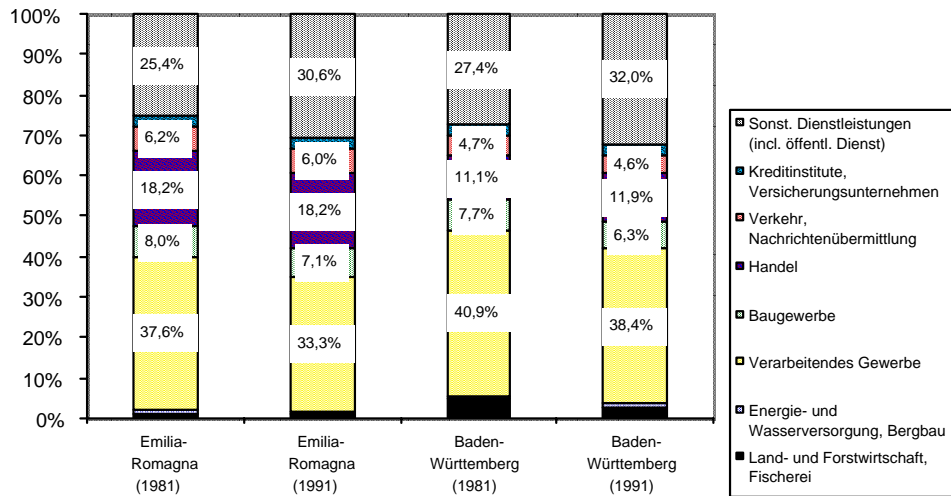
<sup>10</sup> Indicators for "service-intensive" engagements are: a high number of manufacturing companies engaged in import and export activities (1991: 13 % of all Emilian manufacturing firms with 54 % of the regional workforce); 22 % of the manufacturing companies with 43 % of the workforce using leased equipment;



processing companies of Modena increasing by 385 % (1985–92). The main reason was the creation of technical offices responsible for the development of new products. On the other hand, these internal reorganisation plans are supported from outside, either by private service companies or by the mostly publicly financed service centres in connection with ERVET (Ente Regionale per la Valorizzazione Economica del Territorio; founded 1974). During the 90s, especially interbranch functions (quality assurance and certification by CERMET; technological innovations by ASTER, export support by SVEX and enhanced supply by RESFOR) were backed up within the "ERVET-system" (see Cooke and Morgan, 1994; Baldoni et al., 1995: 225-230). A crucial problem remaining unsolved so far, however, seems to be the absence of a systematic link to the Italian R&D system. Cooperation between smaller companies and universities or research institutions are rare (Baldoni et al., 1995: 88).

A stronger service-orientation of the Emilian economy can be confirmed statistically as well. The number of employees in manufacturing industry fell sharply from 1981–91, while the number of employees in the field of financial and other services increased by more than one quarter (see figure 9). The number of employees in trade and in the field of traffic and communications, however, increased only marginally. Compared with Baden-Württemberg, the rate of employees in the service sector is much higher (see also figure 1). One explanation is the extraordinarily labour-intensive, hardly rationalized trade sector in Italy, another the higher impact of "other" services (including public services, health care and education, real estate agents, R&D, software companies, pubs/restaurants and hotels, etc.). An important part of this extremely heterogeneous category are company-related services (real estate, leasing, software, research and development, bookkeeping and cleaning services, technical services). In 1991, 6.8 % of all Emilian employees worked in this field (109,242) – nearly double the number of 1981 (56.032). Those services are quite evenly distributed in the individual provinces – with the exception of Bologna (8.5 % of the total employment). This indicates that this city is becoming a service center for all Emilia-Romagna. It can be concluded that this greater reliance on external services as well as the internal reorganization of Emilian firms open new chances for the production of high-quality or fashion goods.

Figure 9: Employees in the economy of Emilia and Baden-Württemberg (1981 and 1991)



Source: ISTAT: 7° censimento generale dell'industria e dei servizi; Statistisches Landesamt Baden-Württemberg.

The general use of external services is much more important for companies in Emilia, which are much smaller on average, than for those in Baden-Württemberg. Even if the service sector in Baden-Württemberg expanded even more than in Emilia-Romagna (1981-91: +29.4 % respectively +16.2 %) during the past few years, Baden-Württemberg's companies tend to outsource services less; many production-related services are performed by the firms in-house, especially in the technology- and export-oriented investment goods industries of Baden-Württemberg (Heidenreich and Krauss, 1996). Only 19.6 % of the services offered are requested by companies from the agricultural or industrial sector (1990). On the other side, only about one quarter of the preliminary work demanded by manufacturing industry comprises of services (1990: 25.1 %). This share, however, clearly rose after 1978 (18.7 %). Baden-Württemberg companies, too, rely on outsourcing. An indicator for the "delay in going tertiary" of Baden-Württemberg's industry is the large number of employees in industry working mainly on service tasks (1991: 41.9 %).

There is much in favour of believing that Emilian companies are set on outsourcing while Baden-Württemberg firms rather prefer in-house services. Both strategies support the reorientation on higher market segments at home and abroad. A weakness of the path Baden-Württemberg chose is, however, that by using in-house services, possible specialization and synergy effects are wasted. Also, the cost-reducing

rationalization and increasing effectiveness of production-related services might be easier for specialized service companies than for large industrial companies. While Baden-Württemberg's companies face the risks of internal coordination, Emilian firms have to deal with the problems of market coordination. The companies have to establish a more systematic link to public and private R&D centers – and this is difficult while relying upon market relations only. Therefore, Emilian companies are somewhat limited to the incremental improvement of "mature products" and in tapping new market segments.

Banks and other financial services are important for an important dimension of a dynamic regional economy. This raises the question whether financial services in the two regions facilitate restructuring processes or whether they are a bottleneck for an innovative regional economy. Both regions employ 3 % of the total labourforce in banks and insurance companies. Both are also characterized by a locally embedded banking system (in the case of Baden-Württemberg the indicator is the credits to companies and self-employed being mostly procured by regional *Sparkassen and Volksbanken* – 1994: 56 % – and only marginally by the big national commercial banks – 1994: 11 %). This allows an unbureaucratic and fast refinancing of medium-size companies. New and changing demands for capital, however, are met less easily. A particular problem in Baden-Württemberg is the availability of risk capital. *Sparkassen and Volksbanken* are extremely cautious with respect to venture capital; the same goes for other private banks or public agencies. This limits the chances for founding new, innovative firms. The finance problem in Emilia-Romagna is more tied to the limited availability of “anonymous” capital, even for larger firms. Within this region, only 12 enterprises are quoted at the Roman stock-exchange, 300 regional firms, however, would fulfill the necessary requirements (La Repubblica 30.11.1995). This points to the predominance of own, family and local capital – a serious limit to expansion.

Important for the institutional environment are the regional research and development facilities (R&D). In this aspect, the situation in Baden-Württemberg is much better than in Emilia (see table 10). The share of public and private R&D expenditure in Emilia-Romagna was only 0.63 % of the regional gross domestic product (1991), but 3.7 % in Baden-Württemberg (1993). This enormous gap between the regional research intensities also points to national factors – to serious shortcomings in the Italian R&D policy (indicated by the low R&D expenditures and the territorial

division of research capacities: half of the publicly financed researchers are employed in Lazio) – the region around Rome – while 59 % of the industrial researchers are concentrated in the North Italian regions of Lombardy and Piemont).

*Table 10:* Research and development (R&D) in Baden-Württemberg and Emilia-Romagna

|   | Baden-Württemberg | Emilia-Romagna | Germany        | Italy          |
|---|-------------------|----------------|----------------|----------------|
| Expenditure on R&D as a percentage of GDP                                     | 3.7 % (1993)      | 0.63 % (1991)  | 2.48 % (1993)  | 1.3 % (1993)   |
| Total R&D personnel (full time equivalents)                                   | 94,518 (1989)     | 7,382 (1991)   | 487,425 (1992) | 142,855 (1992) |
| Total R&D-personnel per 1000 labour force                                     | 21.3 (1989)       | 5.4 (1991)     | 12.5 (1992)    | 5.8 (1992)     |
| Percentage of R&D financed by industry  | 69.7 % (1991)     | 70.6 % (1991)  | 66.9 % (1993)  | 58 % (1993)    |
| Percentage of enterprise R&D personnel as a percentage of total R&D personnel | 74.7 % (1989)     | 70.5 % (1991)  | 69.5 % (1989)  | 44.4 % (1992)  |

Sources: OECD: Main Science and technology indicators; ISTAT 1994: Statistiche della ricerca scientifica; Bundesbericht Forschung 1993.

As a result, 53.5 % of the export volume of Baden-Württemberg's firms were high and medium technologies. In comparison, the figure for Italy is 31 % (regional figures are not available). This indicates that Baden-Württemberg companies relied far more on technological and innovation-centered restructuring than the firms in Emilia-Romagna. The manifold production-related services in Emilia-Romagna rather indicate a service-based restructuring, i. e. a flexible supply of a wide range of high-quality and/or fashion products.<sup>11</sup>

#### 4. Summary and prospects

There are vast differences between the industrial and institutional structures in Emilia-Romagna and Baden-Württemberg. Those different regulation structures, however, have

<sup>11</sup> Another important difference is the differentiated performance of the regional training and education systems. Indicators for this are (the nearly complete) absence of vocationally trained employees in Italy and the much lower percentage of employees with a university degree (see Cortellazzi, 1995 and CENSIS, 1995:

been in existence for a long time. As long as – during the post-war boom – the industrial environment had been dominated by bureaucratic-taylorist, institutionally rather than embedded large companies, it seemed appropriate to confront mass production and flexible specialization concepts, old and new production concepts – neglecting the differences within each group. Such an ideal confrontation now lost its explanatory power for several reasons. Firstly, many large companies are set on decentralizing responsibilities and on creating self-controlled units (legally independent companies, profit centres, partially autonomous work groups), closing the gap with smaller companies. Secondly, larger companies too have to rely more on their sociocultural environment. In face of higher demands for flexibility, quality and innovation in their products, they increasingly depend on the commitment of their staff, on the implicit knowledge in other companies and on the cooperation with politics and science. Such inter- and intra-company cooperation can be facilitated by a rich institutional environment. Cooperative employer-employee-relations, a fully developed training and research system, close relations between science and practice are therefore advantages that should not be underestimated – for smaller *and* larger companies, for investment *and* consumer goods producers, for mass *and* small batch producers.

The necessity for a "rich" institutional environment is no longer a distinct characteristic of a certain production concept; the different forms of intercompany networks depend on a sociocultural, institutionally stable embeddedness (Powell, 1990). Flexible specialization of traditional industrial districts, differentiated mass production of Japanese car producers and electronics companies, diversified quality production of Swedish or German firms, and the different forms of neofordist organization analyzed by Boyer (1992) in France and the US, all have one point in common: the increased dependence on an environment enhancing innovation and cooperation. Large companies behaving like "cathedrals in an (institutional) desert" no longer have a chance in countries or theoretical concepts.

This puts more emphasis on the different forms of institutional embeddedness in regions and countries. Regarding regions, there are large regional differences in the cooperation and innovation networks linking companies, employees, banks and science. This also shapes the perception of and the reaction to new economic challenges as we

have shown for Emilia-Romagna and Baden-Württemberg. The service- or technology-oriented paths of restructuring reflect the different industrial and institutional environment of these two regions (see table 11).

This path dependency, however, is not a unidirectional process. Industrial restructuring is not only influenced by regional institutions. The institutional environment of a region, too, changes in the face of new economic challenges, chances, and risks. We cannot assume a permanent stability in regional labour and management traditions. Regional identities and institutions are permanently redefined; regional production regimes are never static, but dynamic regulation structures always reproduce themselves in a non-identical way. This is also to be expected for the case of the two regions analyzed in this paper: the industrial districts in Emilia (with their predominantly local basis) will be embedded more in regional and national regulation structures in the future (e. g. by relying more strongly on regional labour markets, research capacity, service centers). Similarly, the production regime of Baden-Württemberg may be changed by new, more science- or knowledge-based industries (biotechnology, multimedia, new materials, traffic systems, software, microsystem technology) and by new services. With respect to the increased global competition for innovation and cost, the vocational training system (aggravating cooperation beyond the boundaries of a specific profession), and the strong technology-oriented efforts in research and development are in need of a fundamental reform. The Swabian "tinkerer" (Tüftler) and his *Mittelstand* company can no longer be the economic model for the future. Therefore, we have to accept the *coevolution* of industrial strategies and institutional regulation structures. Regional production and innovation orders are constantly arranged anew in the intertwined process of globalization and regionalization.

*Table 11:* Production and innovation order in Emilia-Romagna and Baden-Württemberg: summarizing comparison

|   | Emilia-Romagna   | Baden-Württemberg  |
|---|--|--|
| industrial basis  | smaller firms in consumer goods and mechanical engineering industry  | larger companies in investment goods industry (mechanical and electrical engineering, car production)                    |
| interorganizational networks  | very close horizontal cooperation (local industrial districts)   | interbranch supplier-buyer-relations (regional industrial clusters)  |
| organization of production-related services                                 | by private companies or public institutions  | mostly in-house organization of services (excluding technology transfer and financial services)                          |
| sociocultural basis for inner- and interorganizational high trust relations | direct interaction (face to face communication within a local community, only partially institutionalized)   | largely institutionalized cooperation between employers' associations and unions, and between the firms                  |
| new product and market strategies   | service-intensive strategies for diversification, flexibilization, exportation and marketing   | technical "upgrading" of established industries and development of new research-based industries                         |
| risks in selected specialization strategies                                 | loss of previous advantages in flexibility and price by leaner production concepts in other companies and by increased competition of low-wage countries | loss of previous lead in innovation and quality to other industrialized countries; risk of institutional "petrification" |
| globalization strategies of regional companies (beyond exportation)         | passive: takeover by companies from outside the region;<br>active: increased utilization of foreign suppliers  | especially by direct investment abroad (production sites abroad)   |

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