

Institutional Change in Old Industrial Areas – Lessons for Industrial Policy in the Transformation Process

1- Old industrial areas - examples for reconversion

Problems of structural-industrial adaptation are a common feature of changing economies (an expression which comes close to a pleonasm). They are nowadays a dominating problem in countries in transition in so-called eastern Europe, they are a pertinent problem in specific regions of the so-called western world. Old industrial areas (OIAs) – in the context of the United States also called "rust belt" - as a typical form of a combination of regional and sectoral decline in these postindustrial economies have been treated extensively in the literature of industrial organization, regional economics and technological and social change (see e.g. Tichy 1981, 1986, Steiner 1985, 1990, Prisching 1985, Markusen 1985, Geldner 1989). They are typically characterized by a large industrial base going back to the last century (or longer), an overrepresentation of a few sectors leading to a monostructure, a domination of large, often nationalized firms with a limited range of products, a low mobility (both of firms and workers), above average wage levels, a well organized labour force, strong hierarchical organizations within the firms.

In eastern Europe the starting point of transformation was a overdimensioned industry, characterized by nationalized big firms with a soft budget constraint by means of generous credits of nationalized banks, a restricted market orientation and a limited degree of competition from the world market (see e.g. Döhrn/Heilemann 1992, Brenton et al. 1997, Welfens 1997) – problems that seem very similar to those the OIAs in the western countries have or at least have had one or two decades ago.

This paper implies the hypothesis that OIAs and the attempts of reconversion in the last ten to twenty years can serve as an example for transformation processes; it can

also be regarded as an argument for countries in transition to strengthen their regional dimension of economic policy by establishing new administrative entities and to reinforce regional policy actions.

OIAs in the West suggest that the geographical concentration of industrial sectors (in quite various sectors ranging from raw materials like coal and ore to textiles, car production, watches and furniture - to name but a few) can grow old and petrify under certain conditions: these areas tend to become inflexible, and in the worst cases, unable to adapt to a new environment. Different theoretical answers (not quite incompatible) have been given why this happens, why OIAs cannot adapt to new conditions; why they cannot develop new products, why they cannot adapt their skills; why their old specialisation cannot meet demand any more. In this sense they can serve as examples why and how market processes under certain conditions are not capable to prevent aging and petrification.

This calls for a design of policy strategies and instruments. Economists who strongly believe in the allocative power of markets may object to this (in their view) misplaced task of policy. Yet history has proven that rejuvenating OIAs is possible and that this process of rejuvenation was definitely (and positively) influenced by policy. Economic policy was necessary and in many cases successful - not in the form of subsidies and public ownership, but by:

- improving infrastructure,
- creating access to various kinds of information,
- a differentiated form of social policy,
- the support of new firm creation,
- deregulation,
- an induced change of mentality.

All in all, it was a well designed change of an institutional framework with new incentive structures. It is in this sense that OIAs and regional and industrial/technology policy oriented towards them can serve as an example for processes of transformation - this policy with its strategies and instruments should be

interpreted as creating accommodating institutions for change in times of insufficient incentives for endogenous improvement.

In the following theoretical interpretations for reasons of stagnation in OIAs in the western economies will be given, then empirical assessments to characterize OIAs will be made taken as an example the northern part of Styria/Austria, pointing to indicators of stagnation but also to subsequent accommodated change, then policy measures and instruments used for conversion will be listed and finally some conclusions concerning the strategy of policy induced change and the appropriateness of these experience for countries in transition will be drawn.

2- Theoretical foundations to explain the changing fortunes of OIAs

A first and necessary first step of theory based knowledge creation consisted in the important insight that the problems of these areas were specific in kind and not just a transient feature of general economic development accidentally scattered in space. And for a while it was disputed that OIAs are a special type of problem regions. Some of the presumed characteristics were to be seen in other regions too as single factors: concentration of specific sectors (e.g. agriculture, tourism), a small number of big firms (which sometimes also happens in urban agglomerations), a small portion of a qualified service sector.

The fact that the term "OIA" was up to the mid80s disputed may be traced to the fact that up to then it was a dominating concern of (regional) economists to explain regional disparities and to recommend policy measures to prevent or at least to attenuate them. Frequently, attention has been paid to parts of a national economy which were considered as "structurally weak", "declining", "areas of economic stress" without analysing in detail the specific form of disparity. Another reason for the difficulty in defining the specific character of OIAs rested in the (up to then) inability of growth theories to explain the "turning point" in the development of (regional) economies: OIAs were formerly prosperous, rich economies the dynamics of which have been lost and the income and standard of living of which are in decline. Growth models usually only put forward one direction of development and put emphasis on one element of stagnation (an early exception was Olson 1982 who put forward an explanation for the rise and decline of nations).

Yet at the beginning of the 80s several explanations were put forward that focussed on some of the specificities of these areas and tried to explain their changing (and declining) fortunes.

a)The "structural" approach tried to explain the decline in terms of the composition of its sectors. Indeed it was very tempting to explain the decline in terms of "structure" particularly if the economy of the unit under scrutiny is characterized by monostructure.

Yet this approach – beside the vagueness of the term (for an eloquent criticism see already Machlup 1958) – suffered from two essential shortcomings: The first is the rather weak theoretical content; in rudimentary structural theory the change in the proportion of sectors and industries is regarded as a result of economic development. If we consider the contribution of such theories to the study of growth, they do not give any clear causal information but put forward an interdependent process of structural change and economic growth. They also left open the question of how to define a "desirable" structure. This was the core of the debate on balanced or imbalanced growth were the one position – in the tradition of Hirschman (1958) – regards imbalances and deviations of a balanced growth path as advantageous, and the other – following Chenery (1960, 1969) and Kuznets (1958) – arguing for the necessary adjustment to a spatially and temporally invariant growth path (so-called "normal patterns of growth").

These theories, especially the (various) versions of shift-share analysis, cannot be regarded as a causal clarification of the connection between a given structure and resulting growth – they are ex post rationalizations of deviations of regional growth rates from national growth rates. The second shortcoming is that the countless studies undertaken were unable to show the dominant influence of the structural component¹. This is not to suggest that the "structural" explanation must be dismissed completely. After all, in most studies, approximately half of the growth differential is explained by the structure. In addition, the attempt to define the problems of OIAs in terms of the structural composition of their industry may be the starting point for an analysis and may lead to further considerations which go beyond the purely compositional aspect of structure: Chinitz (1961) made the important point that a particular structure can have a negative influence on important

characteristics of the supply side, such as entrepreneurial behaviour, accessibility to capital, high waves, level of skill of the work force, environmental conditions etc. All this means, however, is that the decline of OIAs cannot be explained exclusively in terms of structure in the traditional sense of sectoral compositions.

¹ The weak explanatory content of "structural" explanations is not only a result of the crude explanatory approach of shift-share analysis. The same picture emerges from a theoretically more sophisticated model of normal growth pattern (Steiner, 1981).

b) A step further went the "sclerosis approaches", an expression going back to Kindleberger (1978), sometimes also – more technically – called as "blockage of endogenous renewability" (Geldner 1983). The basic assumption here is that adaptive mechanisms do not work any more and that behavioural potentials have been reduced: this leads to an overemphasis of distributional aspects instead of efficiency, the existence of strong ties leading to collusion and reducing the necessity to strong performance. The external conditions for "entrepreneurial alertness" (a notion introduced by Kirzner (1980) in the tradition of Schumpeter) have deteriorated, the subjective element of entrepreneurial behaviour has been negatively influenced by objective preconditions (the "entrepreneurial climate").

This raises the question why this happens especially in OIAs. One part of the answer is given by theories of "bounded rationality" (Simon 1959, 1983, Cyert/March 1963) assuming rigidities in the mechanisms of finding and processing information – externalities are an important factor for these mechanisms leading to a diversion of the logics of individual and collective action. These mechanisms have a clear regional and sectorspecific dimension (Tichy 1979, Prisching 1985): Industries and regions having a long success story are not any more able to take up the relevant market signals, the petrification of structures and the routines of decision making leads to misjudgements and misconceptions. The spatial dimension here includes not only geographical distance, but informational aspects of lacking economies of urbanization and agglomeration because of the similarity in behaviour resulting in locally bounded rationality.

This bounded rationality is also reinforced by strong distributional coalitions. Olson (1982) emphasises the negative effects of collusions of social groups which are able to influence political decisions in their own favour. They are the stronger the longer societies and economies grow in a stable way – it takes a long time to build up such coalitions but once they are installed they are able to exercise rent seeking behaviour. OIAs with a long past of industrialization and wealth are strongly influenced by such coalitions comprising managers, unions and politicians leading to higher wages and prices and preventing mobility and flexibility.

The increasing age and rising wealth of these institutions also leads to different behaviour and changes the mentality: less efficiency and motivation for work. This "Buddenbrook-approach" (as it is called by Tichy (1987) because of the decline of this family in later generations in Th. Mann's famous novel) symbolizes the correspondence of age and welfare with changing values and diverting interests.

c) These approaches have been taken up and integrated in a systematic way in a cyclical-evolutionary interpretation of regional development and spatial concentration of sectors and industries. It combines Vernon's (1966) and Hirsch's (1967) contribution to a product cycle in international trade with evolutionary theories of economic change (Nelson/Winter 1982) and "Austrian" interpretations of the creative function of the market:

Besides the allocative function of the market - and this is usually less emphasized - there is also a further function: the market is an instrument which transfers incentives for economic change. This emphasis on the market's creative function started with the Austrian school of economic thought. Hayek, especially, underlined the explorative potential of the market - its capabilities do not rest so much in the allocation, but in its flexibility in adjusting to new situations. The market is an optimal process of exploration, it is a development process. In the same sense, Schumpeter always regarded the market as a process and not as a state: economic competition is not price-taking behaviour under conditions of perfect competition, but a process with winners and losers.

The evolutionary aspect in this approach is the necessity for adjustment; economic agents are in an interplay with their surroundings. The concept of selection means that they either have to adjust or they perish: non-survival of the non-fit. Yet this performance of adjustment has to be differentiated. It can mean adaptability or adaptation (Prisching, 1986): adaptation is a reaction to the surroundings, it is an optimal use of the exterior facts; adaptability, in contrast, means keeping open structures and resources which are not bound for specific purposes but which are available for necessary reorganizations in times of new challenges - here, adaptable behaviour is dominant. These contrasting forms of behaviour – the one creative, the other allocative – may be regarded as being united in an evolutionary process with

spatial consequences (Ellinger 1977). This behaviour is dependent of the age of the firms. In the early stage, firms are not limited in regard to their location decision. In the early stages of growth, the combination of super profit and of imperfect competition (because of existing limits to capital mobility and because of price inelastic demand) allows for successful development without consideration of regional differences in costs of location (Markusen, 1985). This is the consequence of the specific decision-making behaviour of these firms: they are "adaptable", i.e. they are either innovators themselves or quickly adopt innovations; they decide to start production soon after a major innovation. In later stages this behaviour changes: the firms become "adaptive" - they adjust to their economic and regional environment. Their behaviour becomes "locationally decisive" in locational costs.

Both forms of entrepreneurial behaviour - the adaptable and the adaptive - thus follow a temporal sequence; the spatial consequences are part of an evolutionary process. Yet the basic freedom of location in the early phase is restricted in real space and in real time - the resources which are necessary for adaptable behaviour cannot be attracted everywhere. From this there results an interrelationship between the locational needs of innovative firms and the manifold factors of production which are necessary for adaptable behaviour. On the other hand, the distribution of regional supplies of such factors is not independent of the distribution of such firms - the location and the situation of many factors can be influenced by the decisions of firms in their innovative stage.

These different kinds of behaviour demand certain economic environments with special resources. The difference in regional economic potential therefore resides in these specific factors which are characteristic of each evolutionary stage. At the same time, they correspond to the different behaviour and the adjustment performances which these supplies of factors allow to be produced - the regional distribution of factors of production depends in the long run on the behaviour of a region's firms. Old industrial areas accordingly are regions with an insufficient adjustment performance, deficient in adaptation, which results in negative selection either because an "over adjustment" led to a dead end of the evolution or because a too rapid change of the environment (to which there was no timely reaction) exceeded the potential for adjustment; "non-adapted" regions stagnate, they have

lost their potential to survive, their dominating firms were too stable; "complete stability results in stagnation" (Radnitzky, 1984). These old industrial areas are neither "adaptable" nor "adapted". In this type of region the failure of the creative function of the market is evident - no new opportunities are found, no hitherto unknown combinations are taken up, no markets are created.

Attempts to get empirically testable results described each cyclical-evolutionary stage and its dominating behaviour with concrete characteristics (Geldner 1989, Steiner 1990). For OIAs the following variables proved to be decisive (Steiner/Belschan 1991): In these regions a lack of entrepreneurial behaviour having no discretionary power, only control over routine production is to be expected. This kind of behaviour can be represented by variables such as large plants with strong internal hierarchies, a strong dependence on external headquarters, and weak (regional) competition through the entry of potential new producers (Chinitz, 1961). Research and development expenditure is below average, marketing is not very important, and the rate of innovation is low (both in respect to products and to markets; if there are innovations at all they tend to be process innovations). The attempt to preserve market power through a strategy of cartelization (Markusen, 1985) has also led to specific behaviour on the part of employees: strong unionization with strong bargaining power leading to high wages (Steiner, 1985). We also expect a sectorial concentration with a marked vertical integration and high capital intensity. Oligopoly power and high wages create barriers for entry and exit of new and old plants. The formation of new firms and the death of firms is low (Steiner/Posch, 1985).

This life cycle interpretation can also be extended to hypotheses concerning performance indicators and labour market outcomes (Steiner 1990 a, Kubin/Steiner 1992). Different regional potentials have implications for the labour market outcome, not only for the overall labour market result as measured by the traditional rate of unemployment and rate of vacancies, but also with respect to the underlying labour market dynamic. This last aspect is suggested by approaches to labour market statistics splitting the stock figures into their two components, incidence and duration (Sallant, 1977, Clark/Summers, 1979, Akerlof/Main, 1981), which have been developed in connection with the rise of search models in labour market theory

(Phelps, 1970). It also conforms to the theoretic perspective of segmented labour markets.

In contrast to neoclassical interpretations of labour markets as rather homogenous, the theory of segmented labour markets stresses their differences. The main difference lies in the two segments: a primary one with "good" jobs with high wages, stable employment and the possibility of upward mobility, a secondary one with "bad" jobs offering low pay, high fluctuation and little chance for advancement. This approach (Piore, 1975) relates labour market behaviour to certain characteristics of product demand which we expect to differ regionally. It also relates to the theoretical characteristics of the regions thus allowing differentiation of the labour market structure of the regional types.

Relying on this approach we presume that global labour market performance differs between regions, that labour market structure within a single region tends to be homogeneous, and that this structure should differ between regions: Firms in old industrial areas have adjusted their production technology too much to their former economic environment. This over-adaptation leads to insufficient results in the face of changing circumstances preventing any creative strategy as well as any passive reaction to these external changes. Their product demand used to be highly stable. Under these conditions an inflexible technology is chosen, combining great amounts of fixed capital and a primary labour force of the lower tier showing highly specific productive traits. The traditional employment behaviour found in old industrial areas, characterized primarily by a high portion of specifically skilled blue-collar workers and a low female participation rate, on the one hand rendered this area attractive for this type of standardized production, while on the other hand is defined itself by the employment structure offered by the big enterprises found in this region. This primary structure, that also results in comparatively high wages, was rendered possible by a former monopolistic power in product markets (indicated by the size of plants).

3- An empirical assessment - the case of Upper Styria

3. 1 Regional Characteristics of Upper Styria

The province of Styria is located in the south-east of Austria, bordered on Slovenia in the south and close to Hungary. From the Austrian as well as the EU perspective, it is in a peripheral and border location.

Within the Austrian federal constitution it has the status of a Bundesland with own provincial government and parliament (Landtag). Despite a number of formal competencies and economic development, the autonomous financial means of the Länder to perform them are not too strong.

Styria's population of 1.2 million - spread over 16,000 sq. km – contributes 12% to the Austrian GDP. With its topography it has relatively strong populated planes and valleys with urban-industrialised areas and low settled Alpine-dales with primary industry.

As a region of basic industry its role was strong in the past but it has been declining continuously since the 1960s.

Within the province, several subregions can be identified:

- *Upper Styria*, the case study region, consists of the 6 political districts Bruck an der Mur, Leoben, Judenburg, Knittelfeld, Liezen and Mürzzuschlag. Austrian industrial development originated in this region, based on the iron-ore from the *Erzberg* as well as on natural resources like coal, timber and water power from Alpine valleys. Since Alpine rivers were used for transportation as well, the iron- and steel industry as well as forward linked metal based industries have developed along the river valleys of Mur, Mürz and Enns.

The region, an old industrial area (OIA) is periphery located in a broader view. Connections to Western- and Central European agglomeration are weak, even transport towards Vienna and Graz is to improve. Inner-regional transportation facilities along the Mur-/Mürz river valley has been improved whereas side-valleys traffic facilities suffers from its topography.

- *Graz*, capital of Styria and own political district with a population of about 250,000 is the economic and political centre of Styria. It has a tradition and industrial base in mechanical engineering, machinery industry and vehicles. International

established firms, research institutions, knowledge suppliers (incl. 3 Universities) and special services are located in the urban area. Income levels are higher and labour market indicators show a better performance than the average of Austria and the EU.

- *Rural periphery* to the south, minor industrial structured until the 1970s, has undergone industrialisation since then. Besides labour intensive industries such as leather, textile and clothing there are modern sectors such as electrical products, electronics and machinery present as well.

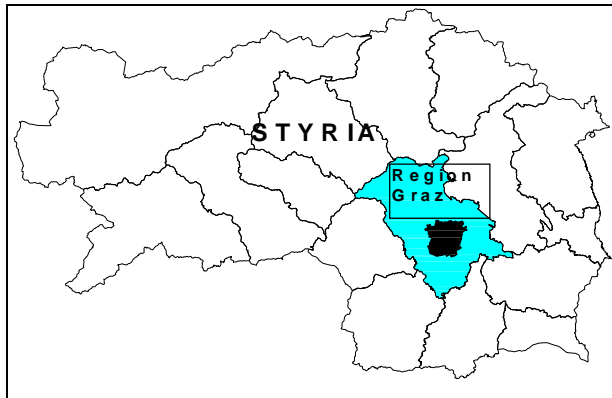
Styria, thus has a mix of traditional and modern industries, of types of subregions as well as policies.

Styria's regional economy is dominated by the manufacturing sector, which produces 21% of the GRP. The economically most important regions are Upper Styria and the capital Graz (and surroundings), both with a long-lasting industrial tradition.

Upper Styria was heavily based in the manufacturing of iron ore and coal, leading to the development of inflexible economic structures and the inability to adjust to changing economic conditions. As a consequence, serious economic problems indicated by low growth rates of industrial production, high unemployment and migration rates which are jeopardising the economic competitiveness of the whole region.

Fig. 3- Location of Austria/Styria





Facts & Figures: (census 1991)

Inhabitants:	355,858
Persons employed:	189,554
Dominating industries:	
- mechanical engineering and steel construction, environmental technology:	6,262 empl.
- automotive engineering:	4,749 empl.
- electrical and electronic engineering:	1,774 empl.
- food industry:	1,732 empl.

3.1.1 Characteristics “Old Industrial Area”: Upper Styria, late 1970s:

Table 3.1

	(USt = Upper Styria)	(St = Styria)	(A = Austria)
<i>Monostructure: Share of Employees in first- and second largest industry</i>			
	USt 60%	St 38%	A 24%
<i>Large-scale Enterprises: Average Employees / enterprise</i>			
	USt 180	St 121	A 94
<i>Low productivity: Output / Employee</i>			
	USt 100	St 108	A 129
<i>High wages & low qualification: Average wage / Employee</i>			
	USt 100	St 97	A 101
<i>Low productivity-growth: 1972-78</i>			
	USt +30%	St +40%	A +60%
<i>Low newly founded enterprises: Workplaces in new / shut-down enterprises</i>			
<i>Between 1976 – 80 in % of total industrial employment 1978</i>			
<i>Foundation-rate</i>	USt 1.1	St 3.4	A 4.0
<i>Shut-down rate</i>	USt 1.5	St 2.9	A 4.1

Source: Tichy (1994b), p. 351.

3.2 Upper Styria in Transition – Descriptive Indicators

3.2.1 Demographic Figures

According to Table 3.2, the total population in Styria was slightly decreasing by -0,2% between 1981 and 1991. In Upper Styria, the reduction was stronger (-3,7%). On political district level, a especially strong decrease could be observed in Leoben (-8,9%) and Bruck/Mur (-5%).

Table 3.2 Age Groups

<i>Structure of Agegroups 1971-2011</i>						
Political District	1981			1991		
	< 15 years	15 - 60 y.	> 60 years	< 15 years	15 - 60 y.	> 60 years
Bruck / Mur	13.497	44.765	13.068	10.744	41.831	15.199
Judenburg	11.097	32.342	9.201	8.779	30.864	10.469
Knittelfeld	6.557	17.969	5.582	5.343	17.850	6.333
Leoben	14.610	49.592	16.316	10.608	44.894	17.870
Liezen	17.953	48.791	13.578	15.265	49.671	16.416
Mürzzuschlag	9.112	28.476	8.752	7.515	26.760	10.487
Upper Styria	72.826	221.935	66.497	58.254	211.870	76.774
Styria	248.949	719.058	218.518	207.739	732.989	243.992
Austria	1.510.564	4.591.116	1.453.658	1.356.806	4.874.252	1.564.728
Source: AK (1998), ÖROK-Bevölkerungsprognose II, ÖROK-Schriftenreihe, Nr. 79 (1990).						
ÖSTAT, VZ 1971, VZ 1981, VZ 1991						

Focusing on the age groups, especially the working-group (15-50 years), an increase of +1,9% can be observed.

For Upper Styria, a contrary result is true: a decrease by –4,5% could be observed between 1981 and 1991, mainly due to outward migration of –12.603 (absolute).

Comparing the working agegroup with employment figures (see 3.2.2.1), a difference between those two numbers becomes obvious. Reasons for this gap could include either an increasing employment rate, an early entry into active/professional life, a retarded leave or inbound commuting.

In Upper Styria, 9.000 jobs were cut in the nationalised industry, further 4.000 in the service sector due to shrinking tourism (see Tichy, 1994c, p.29).

Private industry created 1.000 additional jobs. Population in employment age decreased by –10.000 due to outward migration by more than 12.600 mainly from the political districts Leoben, Bruck/Mur and Judenburg.

A dominant question is where all unemployed had remained. According to Steiner/Wendner (1993) the answer is outward migration – not of unemployed who retired early – but of their children who had left the region. Therefore the share of 15-60 years of age in total population declined in all Upper Styrian districts, while it rose in all other Styrian districts. A significant drain from the district capitals Leoben (-6,5%) and Bruck/Mur (-6%) could be noted only within a decade. This drain of initiative population reflects a relatively pessimistic attitude under the OIA's population (see Tichy, 1994c, p. 28ff.).²

3.2.2 Labour Market

Comparing stagnant regions with innovative regions, they have a higher duration of unemployment, accompanied by a higher share of long-term unemployment. Due to a low flow of new vacancies, the rate of job-vacancies is lower as well. When people become unemployed in stagnant regions, they usually remain unemployed for a longer period due to lower vacancies (see Kubin/Steiner, 1992).

Kubin/Steiner point out that – in the regional context – labour market problems were not one-dimensional phenomena. Therefore an analysis of several available labour market indicators at the same time is required and their specific pattern noted. Concentrating only on one single indicator, e.g. the most common unemployment rate, would be misleading in this view. Analysing Upper Styria's labour market will therefore include the following relevant indicators:

² The forecast for 2011 predicts a further –5,7% population decrease. However this forecast is under discussion by Tichy (1998) and Münz (1999). An analysis of registration data for the period of 1991-96 refuted the ÖROK's quinquennial forecasts. Specially the newly introduced regional in- and outward migration is under heavy dispute. While the forecast predicted an absolute change of –917, i.e. 917 persons leaving Upper Styria, the analysed registration data returned an inward migration of +60 persons. Tichy therefore questions the forecast figures till 2011. He argues that the reason for outward migration – structural changes and declining industry during the 1980s – had ceased and that accordingly the forecast is based on a false trend (see Tichy, 1998). A disputes' settlement - whether increase or decrease - will only occur with new census data expected in 2003.

- Employment numbers; change between 1981/91; per sector employment; employment in service/ technological sector,
- Education and qualification of the population and its distribution among employees,
- Unemployment figures analysing trends in the unemployment rate between 1981/98; focus on young/ elderly unemployed; long-term unemployment.

3.2.2.1 Employment

Employment figures dramatically changed between 1981 and 1991 in Upper Styria. While Styria experienced a moderate decrease of only –0,8%, Upper Styria's employment figures fell by –8,8%. Besides this average number, the situation was worse in certain districts: Leoben's employment plummeted by –14,4% , those of neighbour district Bruck/Mur by –13,7%. Only Knittelfeld's decrease was below Styrian average during the mentioned time span.

After those dramatic losses during the 1980s, the employment situation in Upper Styria changed for the good: between 1991 and 1998 the region saw a rise of its employment number of 2,7%, compared to Styria's growth by 0,3% on average. While only Judenburg's employment situation worsened by -3,8%, Leoben (+4,3), Liezen (+6,0) and Mürzzuschlag (+7%) were far above Styrian average.

Table 3.3 Employment 1981-1998

<i>Development of Employment 1981 - 1998</i>							Change in %	
Political Districts	1981	1991	1998	1981/91		1991/98		
Bruck / Mur	30.925	26.693	26.822	-13,7		0,5		
Judenburg	20.668	19.892	19.133	-3,8		-3,8		
Knittelfeld	11.205	11.123	11.253	-0,7		1,2		
Leoben	31.320	26.814	27.973	-14,4		4,3		
Liezen	32.308	31.076	32.932	-3,8		6,0		
Mürzzuschlag	17.151	15.317	16.395	-10,7		7,0		
Upper Styria	143.577	130.915	134.508	-8,8		2,7		
Styria	483.095	479.053	480.678	-0,8		0,3		
Austria	3.260.521	3.468.504	-	6,4		-		

Source: ÖSTAT VZ 1991, AK (1998).

Employment in Sectors

Analysing the census data, employment's participation in the three different economic sectors changed remarkably between 1981 and 1991.

The **primary sector**'s overall share decreased by 1,8 percentage-point (pp) in Upper Styria and 3,8pp on Styrian average. The decrease was therefore not as strong as on provincial average. Only Liezen and Judenburg had to face over-proportional decreases in the primary sector's employment among the districts in the case study region.

Within the **secondary sector**, regional changes become more significant.

Styria's share in the secondary sector fell by 4,5pp from 42,2% to 37,7%. The overall development in Upper Styria was more dramatic: the share fell by 7,4pp to 41,8% in 1991, compared with 49,2% in 1981.

The strongest decrease occurred in Leoben with a reduction of –9,1pp from 49,9% to 40,8%. Neighbour district Bruck/Mur figures were down from 53,5% (1981) to 45,0% in 1991. Both districts had above-average changes with a gap of 1,7pp and 0,9pp respectively to the regional average.

Analysing the service or **tertiary sector**, Upper Styria performed well: with a rise of the share from 42,6% to 51,8% in overall tertiary sector employment, the gain of 9,2pp is clearly above Styrian average of 8,2%. Liezen (+9,6), Leoben & Mürzzuschlag (+9,5%) and Bruck/Mur (+9,4%) were above inner regional average. Especially Leoben and Bruck/Mur could compensate lost shares within the secondary sector with strong growth in the service-sector industry.

Table 3.4 Sectional Employment

<i>Employment per Sector in %</i>												
Political District	Sector											
	Primary			Secondary			Tertiary					
	1981	1991		1981	1991		1981	1991		1981	1991	
Bruck / Mur	5,3	4,4	-0,9	53,5	45,0	-8,5	41,2	50,6	9,4			
Judenburg	9,0	6,9	-2,1	52,6	46,1	-6,5	38,5	47,0	8,5			
Knittelfeld	10,1	8,6	-1,5	45,4	38,2	-7,2	44,4	53,2	8,8			
Leoben	4,4	4,1	-0,3	49,9	40,8	-9,1	45,6	55,1	9,5			
Liezen	12,2	8,5	-3,7	39,9	34,0	-5,9	47,9	57,5	9,6			
Mürzzuschlag	8,2	6,1	-2,1	54,0	46,6	-7,4	37,8	47,3	9,5			
Upper Styria	8,2	6,4	-1,8	49,2	41,8	-7,4	42,6	51,8	9,2			
Styria	12,4	8,6	-3,8	42,2	37,7	-4,5	45,5	53,7	8,2			

Source: ÖSTAT, LASTAT, VZ 1991, Ergebnisse III, Heft 1/96, Graz.

At present (1998), service sector and technological sector are expanding in Upper Styria, partly with above average figures.

Analysing the *service sector* between 1996 and 1998, Upper Styria saw constant above-average growth during the recent two years. A +7,2% gain for 1995/96 followed an outstanding increase in 1996/97 by +10,9%. In 1998, growth rates were even triple higher than Austrian- and 2 ½ times higher than Styrian average.

Within the *technological sector*, the OIA's growth rates were in any year above Austrian average but slightly lower than provincial average. This may result from the relatively strong position of the Styrian Automobile Cluster, where spill-over effects to Upper Styria seem to be effective: while Austria's employment within the technological sector decreased since three years, Upper Styria's grew constantly between 2,5 and 3%.

Table 3.5 Employment in the Service- & Technological Sector

<i>Employment in Service- & Technological Sector (change in %)</i>										
	1998			1997			1996			
	Total	Sector	Techn.	Total	Sector	Techn.	Total	Sector	Techn.	
Austria	0,95	5,29	-0,73	1,14	6,85	-1,22	0,09	5,26	-2,06	
Styria	1,18	6,53	2,54	2,07	8,50	3,00	1,00	8,66	2,40	
Upper Styria	0,14	15,96	1,41	0,61	10,88	2,10	-0,27	7,19	-1,61	
Bruck	0,41	-12,82	3,89	0,04	12,98	4,32	6,20	9,75	-2,92	
Judenburg	-4,11	-2,35	-7,41	1,06	26,49	-4,22	-1,95	13,51	-1,33	
Knittelfeld	2,56	128,69	-4,85	1,11	-2,79	-4,71	-0,98	4,58	-11,31	
Leoben	3,67	-3,07	6,48	2,21	17,87	11,62	-4,59	6,51	2,60	
Liezen	0,77	-7,28	8,04	0,15	4,33	7,35	-0,56	0,29	-0,64	
Mürzzuschlag	-2,44	-7,38	2,33	-0,93	6,43	-1,72	0,29	8,53	3,98	

Source: WIBIS 1999.

Summarised it can be pointed out that there has been a clear and strong sectional shift from the secondary towards the tertiary sector since 1981. In the case of Upper Styria, the neighbouring districts Leoben and Bruck/Mur had to face the sharpest tumble of secondary sector decline. Growth rates with nearly 10% within the service sector between 1981 and 1991 continued and even grew during 1997 and 1998 (e.g. +16,0% in 1998). More surprisingly seems to be the continuous growth of the technological sector in Upper Styria (+2,5-3%) between 1995 and 1998, while Austria's technological sector-employment fell during the recent years. Since Upper Styria's performance is under Styrian average figures, this may be evidence for the strong position of the Automobile Cluster in Styria's southern- and easterly districts, with obvious spill-over effects to the OIA.

3.2.2.2 Education & Qualification

Analysing the qualification of the population, two clear trends could be identified:

- 1) A clear movement towards higher education could be noted in the whole case study region,
- 2) Shares in lower-skilled-workers segment decreased.

Focusing on the specific education & qualification groups, the group of *High School* leavers increased by +47,5% between 1981 and 1991. Not only was this the highest increase but also the only constantly above Styrian average (+43,9%).

The second group – *University Graduates* – also experienced growth rates of +45,1% in the OIA but clearly under Styria's overall increase of 58,9%. Two districts, Knittelfeld and Liezen were even above provincial average with increases of 61,9% and 65,6% respectively.

Technical Colleges boomed between 1981 and 1991: while the overall regional figures (+12,5%) were below Styrian average (+15,5%), again the districts Knittelfeld (+23,4%) and Liezen (+21,4%) shadowed the provincial numbers.

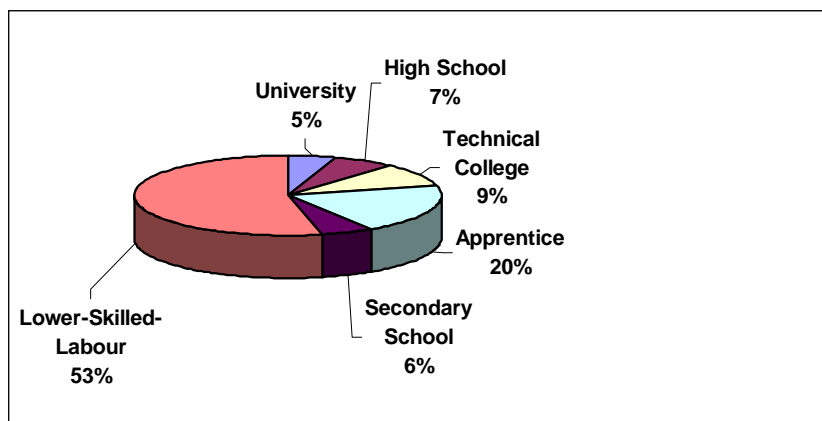
Table 3.6 Qualification in Upper Styria

Qualification									
Employees									
Change (Δ) 1981-1991 in %									
	Total					University			
	1971	1981	1991	Δ		1971	1981	1991	Δ
Bruck / Mur		11.433	12.393	(+8,4)		605	962	1.318	(+37,0)
Judenburg		7.372	8.297	(+12,5)		319	637	917	(+44,0)
Knittelfeld		4.946	5.867	(+18,6)		196	357	578	(+61,9)
Leoben		12.590	13.668	(+8,6)		783	1.145	1.533	(+33,9)
Liezen		12.942	15.184	(+17,3)		529	951	1.565	(+64,6)
Mürzzuschlag		6.206	6.974	(+12,4)		235	488	676	(+38,5)
Styria		196.174	229.191	(+16,8)		12.468	19.851	31.544	(+58,9)
	High School					Technical College			
	1971	1981	1991	Δ		1971	1981	1991	Δ
Bruck / Mur	1.171	1.500	2.028	(+35,2)		2.214	2.365	2.529	(+6,9)
Judenburg	751	759	1.234	(+62,6)		1.301	1.464	1.615	(+10,3)
Knittelfeld	425	422	715	(+69,4)		852	877	1.082	(+23,4)
Leoben	1.290	1.347	1.934	(+43,6)		2.531	2.781	2.979	(+7,1)
Liezen	1.118	1.344	1.947	(+44,9)		2.198	2.382	2.891	(+21,4)
Mürzzuschlag	582	753	1.174	(+55,9)		1.347	1.384	1.567	(+13,2)
Styria	22.834	25.624	36.606	(+42,9)		31.584	37.199	42.980	(+15,5)
	Apprentice					Secondary School			
	1971	1981	1991	Δ		1971	1981	1991	Δ
Bruck / Mur	10.715	4.579	5.084	(+11,0)		13.985	2.027	1.434	(-29,3)
Judenburg	6.648	2.989	3.447	(+15,3)		10.597	1.523	1.084	(-28,8)
Knittelfeld	3.791	2.330	2.749	(+18,0)		5.622	960	743	(-22,6)
Leoben	12.247	4.938	5.573	(+12,9)		14.989	2.379	1.649	(-30,7)
Liezen	10.205	5.350	6.820	(+27,5)		16.502	2.915	1.961	(-32,7)
Mürzzuschlag	6.434	2.319	2.698	(+16,3)		9.226	1.262	850	(-32,6)
Styria	140.761	69.669	86.733	(+24,5)		270.905	43.831	31.328	(-28,5)
	Labour								
	1971	1981	1991	Δ					
Bruck / Mur		16.964	14.754	(-13,0)					
Judenburg		11.864	10.842	(-8,6)					
Knittelfeld		5.680	5.331	(-6,1)					
Leoben		17.843	14.790	(-17,1)					
Liezen		16.527	16.617	(+0,5)					
Mürzzuschlag		10.838	9.495	(-12,4)					
Styria		238.913	236.204	(-1,1)					
Source: ÖSTAT, VZ 1971, 1981, 1991.									

Apprenticeships, first essential for highly skilled labour in a region, grew by +17,2% in the case study region. Despite this extensive gain, the regional increase was +7,3 pp below Styrian average (+24,5%). Only Liezen (+27,5%) experienced above average growth.

Focusing on *lower-skilled education*, figures with only *secondary school degree* and *low-skilled labour* were down in all case study districts. With a reduction of –30,2% in secondary school leavers, all but one districts were above Styrian average decrease (-28,5%). In the group of low-skilled-labour, Upper Styria's changes (-9,9%) were clearly above the overall Styrian changes (-1,1%). Especially Leoben and Bruck/Mur (-17,1% and –13,0%) had significantly high drops of low-skilled-labour.

Fig. 3-2 Education/Qualification in Upper Styria, 1991



Summarised, a clear movement towards higher education and more qualification in the case study region could be observed between 1981 and 1991. Some districts even shadowed the growth rates of provincial average.

3.2.2.3 Unemployment

Unemployment analysis of Upper Styria will include three main parts: the overall unemployment development during the 1980s and 1990s, unemployment of young people (15-25 years of age) and elderly unemployed (> 50 years of age).

To begin, Table 3.7 summarises the development of the overall unemployment rate in Austria, Styria and Upper Styria. The unemployment rate represents the share of unemployed in the total number of employees plus the no. of unemployed.

The unemployment rate rose in Upper Styria from 2,8% in 1981 to 8,1% in 1991. In 1998, the rate settled at 8,5% after an all year high of 10,2% in 1993. Within the same period, the unemployment rate at Styrian level was 2,9% (1981) and rose to 7,1% (1991). After an all time high of 8,1 % in 1993 and repeatedly in 1996, the rate slightly improved to 8,1% in 1998.

Table 3.7 Unemployment Rate 1981-1998

<i>Unemployment Rate in % (1981-1998)</i>															
	1981	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
Austria	2,4	5,2	5,6	5,3	4,6	4,9	5,3	5,9	6,8	6,5	6,4	7,0	7,1	7,2	
Styria	2,9	6,0	6,5	6,5	6,1	6,4	7,1	7,4	8,4	8,1	8,2	8,4	8,1	8,1	
Upp. Styria	3,2	5,5	6,0	5,9	5,7	6,7	8,1	9,0	10,2	9,8	9,5	9,3	8,7	8,5	
Bruck	3,0	6,1	6,7	6,5	6,0	7,9	9,7	10,7	12,0	11,5	11,1	10,3	9,5	8,8	
Judenbg.	3,0	5,2	5,3	5,4	5,1	5,8	6,6	7,5	9,0	8,8	8,7	9,0	8,6	8,7	
Knittelfd.	3,0	5,4	5,9	5,5	6,1	5,7	6,5	8,0	9,5	9,0	8,9	8,5	8,6	8,4	
Leoben	5,2	5,4	6,1	6,6	7,0	8,9	10,7	11,2	11,5	10,0	9,4	8,8	7,3	7,0	
Liezen	3,0	6,3	6,8	6,6	5,9	6,3	8,0	8,9	10,1	10,1	10,7	10,8	10,3	10,3	
Mürzz.	2,1	4,4	4,9	4,5	4,1	5,8	7,2	7,6	9,0	9,1	8,3	8,1	8,0	7,9	

Source: Haller et al (1994), AMS Stmk, AK Stmk.

Due to its structural problems, the unemployment rate of the case study region is higher than the provincial average. More surprisingly it was below Styrian average till 1989. After 1989, growth rates of the unemployment rates of Styria and Upper Styria respectively drifted apart. According to Steiner/Wendner (1993) structural problems – dating back to the 1970s – were invisible within the unemployment rate till 1989. Since 1989 a sharp rise could be observed.

The situation for women on the labour market is different than the one for men. Female unemployment sharply rose in Upper Styria from 4,0% in 1981 to 11,5% in 1991. Compared to the provincial level, female unemployment rose from 3,2% to 8,6% during the same time span. The rate as well as the growth path of unemployment in Upper Styria was constantly higher than in Styria during the examined period. In contradiction to the male reaction pattern, no sudden change occurred in 1989 (see Steiner/Wendner, 1993, p.15).

Summarised, the problems of OIA's are expressed earlier in employment figures rather than in unemployment rates. While the unemployment-rate overrode Styrian levels only in 1989, employment-figures decreased already above-average during the early 1980s.

Table 3.8 summarises the situation during the 1990s: it presents the percentile change of employment, unemployment and unemployment-rate between 1991 and 1998 (in column 1 & 2). The third column presents the quotient (Upper Styria/Styria) for the three assessed indicators. A value of 1 signals a same percentile change in Upper Styria and Styria respectively. In the case of employment, a value greater than 1 signals a stronger - positive - reaction (percentile change) in the OIA. In the case of the unemployment data, the opposite is true: a value below 1 signals a weaker reaction, i.e. a positive development of unemployment in Upper Styria:

Table 3.8 Employment – Unemployment 1991/1998

<i>Change in % between 1991-1998</i>	<i>Upper Styria</i>	<i>Styria</i>	<i>Upper Styria/ Styria</i>
Employment	2,7	0,3	9
Unemployment (absolute)	104,7	119,7	0,9
Unemployment rate	104,9	114,1	0,9
Source: Haller et al. (1994), AK Stmk. (1998) and WIBIS.			

Employment in Upper Styria performed well between 1991 and 1998. With a quotient of 9, i.e. employment grew 9 times higher in Upper Styria than in Styria, it was far above Styrian average. Unemployment in absolute numbers changed stronger on

Styrian rather than case study regional level. Even the unemployment rate (+4,9 percentile change) in Upper Styria developed better than it did in the whole province.

Age structure of unemployment

Taking a closer look on the specific age structure of unemployment, the number of age groups has been summarised to three main groups:

1. *Youth* 15-25 years of age
2. *Middle-Aged* 25 and 50 years of age (summed up from AMS data)
3. *Elderly* over 50 years of age

The situation of young people on the labour market results from a data-combination of youth (under 25 years) and apprenticeship-data.

Since unemployed over 50 years of age increasingly have to face problems of reintegration, data of elderly unemployed (over 50 years of age) will be analysed as well.

Table 3.9 Youth Unemployment

<i>Share of Young Unemployed (15-25 years of age) in Total Unemployment in %</i>								
	1991	1992	1993	1994	1995	1996	1997	1998
Upper Styria	23,4	20,0	18,9	17,9	17,0	17,7	17,5	16,8
Styria	24,7	22,0	20,9	19,3	18,7	18,6	18,1	17,5
Austria	21,6	19,5	18,7	17,2	16,9	16,9	16,3	15,3

Source: AMS Austria.

The present situation (1998) consists of a relatively low share of *youth unemployment* in Upper Styria (16,8%). In contradiction to Styria (17,5%), it is 0,7 percentage-points below the provincial average share. If the case study region-level is compared with the federal average (15,3%) its relatively higher share of youth-unemployment becomes visible.

In the group of *middle-aged*, Upper Styria's unemployment share (63,6%) is in line with Austrian (63,7%) and little below Styrian (65,8%) average.

Special attention should be given to the group of elderly unemployed:

Table 3.10 Unemployment of elderly persons (> 50 years of age)

Share of Elderly Unemployed (> 50 years) in total unemployment in %							
	1987	1989	1991	1993	1995	1997	1998
Upper Styria	7,2	18,6	29,0	32,3	27,0	20,1	19,6
Styria	8,4	12,1	17,4	20,6	17,7	15,5	16,7
Austria	18,1	12,7	17,4		18,7	18,9	21,0
Source: AMS Styria, Steiner/Wendner (1993), WIBIS.							

In 1987, the share of elderly unemployed in Upper Styria was below Styrian and Austrian average. The situation changed for the worse: between 1987 and 1991, unemployment figures saw sharp rises with exceptional increases in the case study region from 7,2% to 29%. On provincial level, increases were not as sharp but the share of elderly unemployed more than doubled within the time span. Reductions of employment through policy instruments of early-retirement schemes or special-incentive programs have been found inadequate for the second half of the 1980s.

After those dramatic structural changes in the distribution of unemployment, Upper Styria figures turned out well during the 1990s. With a share of 19,6% in 1998, the OIA could improve the share by 9,4 percentage points. The overall Styrian share remained nearly constant (16,7%) between 1991 and 1998. The OIA's success-figure becomes more visible if it is compared to Austrian average: the total share of elderly unemployed had risen from 17,4% (1991) to 21% in 1998.

After a dramatic rise in the share of elderly unemployed during the 1980s and early 90s, Upper Styria's figures were improving between 1991 and 1998.

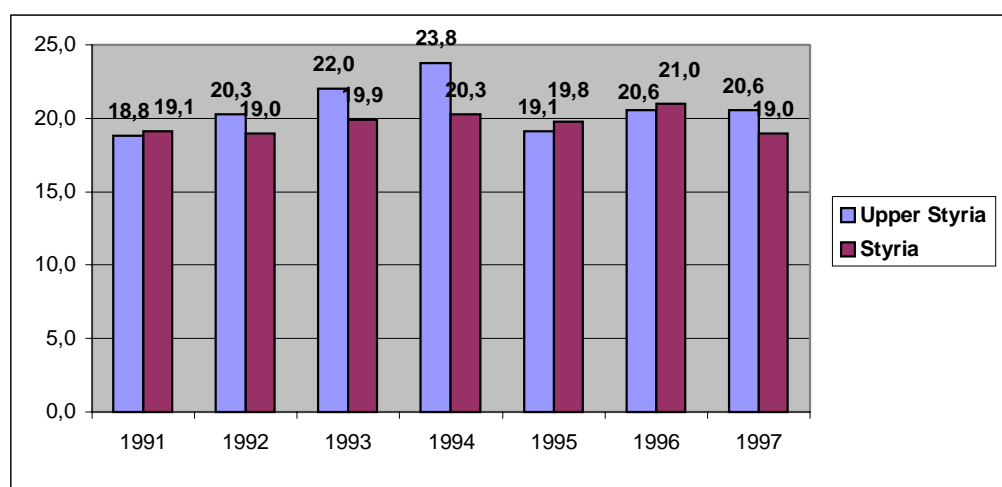
Table 3.11 Long Term Unemployment

<i>Long Term Unemployed (> 12 months)</i>						
	1993	1994	1995	1996	1997	1998
Styria	7.393	7.977	7.929	7.367	6.947	6.368
Upper Styria	4.001	4.305	4.075	3.414	2.964	2.515
Bruck/Mur	1.142	1.229	1.177	963	867	694
Judenburg	447	498	436	368	356	385
Knittelfeld	303	316	297	260	248	202
Leoben	1.011	968	815	650	449	196
Liezen	697	801	828	761	717	767
Mürzzuschlag	401	493	522	412	327	271

Source: AK, WIBIS.

Analysing long-term unemployment, i.e. persons remaining unemployed over a period of at least 12 months, the total number decreased by -1.025 or -13,9% in Styria between the examination period 1993 and 1998. Focusing on the single case study districts, a significant regional variation in long-term unemployment figures becomes obvious. An outstanding decrease of its long term unemployment could be noted in Leoben (-80%). Bruck/Mur (-39,2%) and Mürzzuschlag (-32,4%) also performed well. In relation to provincial changes, Upper Styria saw a reduction of - 37,1% between 1993 and 1998.

Fig. 3-3 Average Duration of Unemployment in weeks



The average duration of unemployment saw constant increases between 1991 and 1994 in Styria and Upper Styria. In 1994, the gap between Upper Styria and Styria had increased to 3 ½ weeks, i.e. unemployed remained on average 3 ½ weeks longer unemployed in Upper Styria than on Styrian average. In 1995, the average unemployment duration decreased significantly by -4,7 week on average in Upper Styria.

3.2.3 *Economic and Industrial Structure*

3.2.3.1 Productivity

Due to changes in the sectional employment during the 1980s – with strong set offs in the metal industry (-12.000) (Tichy, 1994, p.26) – productivity could be raised. Were all case study region districts but Liezen below Styrian and Austrian average in 1983, figures had changed by 1990 when three districts' Net Product Value (NPV)/Employee lay over Styrian and Austrian figures. The rise followed a fallback in 1994, putting Upper Styria below Austrian and leaving only two districts above provincial average.

Tichy (1994) analysing Styrian census data, assumes a passive reorganisation due to a negative correlation between productivity and employment (p.26f.).

Table 3.12 Industrial Productivity

<i>Productivity</i>			<i>Industry</i>		
			NPV / Employee		
in 1.000 ATS			1983	1990	1994
Bruck/Mur			330,5	514,8	702,6
Judenberg			298,5	644,8	631,8
Knittelfeld			272,5	494,5	493,0
Leoben			409,2	607,1	863,9
Liezen			435,0	491,5	536,1
Mürzzuschlag			285,6	703,5	676,2
Upper Styria			338,6	576,0	650,6
Styria			343,3	528,3	665,5
Austria			397,8	588,0	725,6

Source: ÖSTAT; WIFO.

3.2.3.2 Firm Formation

A valuable indicator for a region's economic progress is the intensity of firm foundations in the region. Since newly issued trade licences are not necessarily newly founded enterprises, these granted licences have been analysed in more detail by the Austrian Chamber of Commerce for the first time in 1999. Since every single enterprise has to be an obligatory member of the Chamber of Commerce, the latter disposes of a wide pool of data. According to the Chamber, enterprises are regarded as newly founded, if two of three firm's characteristic changes:

- Title of firm,
- Location,
- Branch or industry.

New membership data was also analysed according to the declaration of business, i.e. if the new firm was declared as main business rather than branch or subsidiary. Only main businesses were regarded as newly founded enterprise and included in the statistics. The data available includes the period between 1993 and 1998 for each political district.

Table 3-13 Firm Foundation Intensity (in %) in Upper Styria 1993-1998.

<i>Firm Foundation Intensity</i>							
	1993	1994	1995	1996	1997	1998	1993-1998
Styria	5,5	5,1	5,0	7,0	7,4	6,9	6,2
Graz&Umgebung	7,2	5,9	5,4	7,9	9,0	7,8	7,3
Upper Styria	5,1	4,6	4,8	6,2	6,6	6,5	5,7
Bruck/Mur	5,9	4,0	4,8	6,8	7,1	6,9	5,9
Judenburg	4,7	4,9	4,8	6,8	7,2	6,4	5,8
Knittelfeld	5,4	5,0	5,8	6,2	6,7	7,2	6,1
Leoben	5,0	4,3	4,0	5,8	7,1	5,8	5,4
Liezen	4,9	4,4	4,6	5,5	5,3	4,8	4,9
Mürzzuschlag	4,4	5,2	5,0	6,3	6,4	7,8	5,9

Source: WK 1999.

Focusing on the intensity of foundations, i.e. the percentage-share of newly founded enterprises in established businesses, the districts Mürzzuschlag and Knittelfeld saw constant increases since 1995. In 1998, those two districts experienced the highest intensity of newly founded enterprises (7,8% and 7,2% respectively). Both districts, as well as Bruck/Mur (6,9%) performed better than Styrian average (6,5%) in 1998. The overall development of the foundation intensity in Upper Styria was slightly below provincial average but clearly below the agglomeration Graz & Environs between 1993 and 1998. In 1995, when Styria and Graz & Env. saw a low in their relative foundation numbers, Upper Styria's foundation intensity grew constantly between 1994 and 1997, with only a slight decrease in 1998 (-0,1 percentage-point).

Fig. 3-4 Development of Foundation Intensity 1993-1998.

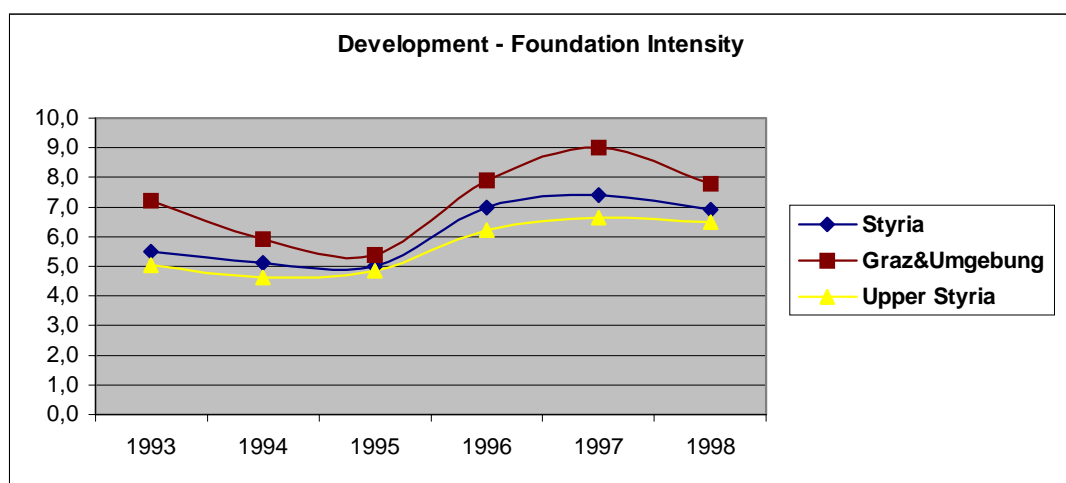
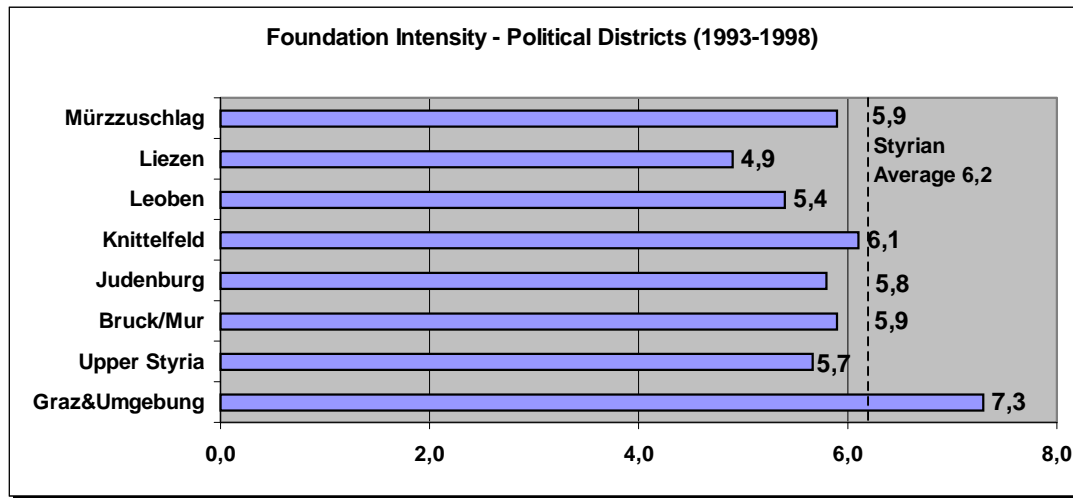


Fig. 3-5 Foundation Intensity in Upper Styria between 1993 and 1998



3.3 Summary

The applied indicators in this section deliver in many cases the structural changes in Upper Styria that occurred during the last 20 years. Demographic and labour market indicators proofed a strong decline in employment numbers not only due to early retirement programs but to brain drain from the case study region between 1981 and 1991, i.e. outward migration of young people. However, latest data predict a turnaround of this trend.

Focusing on sectional employment, shifts from the primary and secondary- towards the tertiary sector could be observed, which almost compensated set-offs from the first two sectors. The trend towards the service sector was backed on a general movement towards higher education. Within the case study region, some political districts even shadowed the average growth rates of higher education on provincial level, although there are clear signs of uneven distribution of regional change in qualification within the case study region.

Analysing the unemployment rate surprisingly a lower rate in the case study region compared to Styrian average till 1989 resulted – a relatively late reaction of the indicator to the structural crises. Between 1991 and 1998, Upper Styria saw rises in

its unemployment data but its relative change was well below Styrian increases. The age group of young unemployed (15-25 years of age) experienced less unemployment than on Styrian average but is still slightly higher than Austrian average. The opposite is true for elderly unemployed: their share of total unemployment is lower than Austrian average but higher than provincial average. All in all, the case study region (and its population) performed well during recent years. Facing a tremendous economic crisis with only a few dominant, monostructured enterprises, labour market data improved within the last decade. Through higher qualification, a base for a structural change was given and service industry could compensate for lost jobs in the primary and secondary sector. Considering the demographic outlook for the next 20 years, which recently came under dispute and positive numbers were presented, there seems to be a possible compensation for the brain drain in Upper Styria during the 1980s and therefore a basis for an optimistic sustained development within the life cycle of the region.

4- Strategies and instruments in support of reconversion

4.1 Mergers and Concentration

Mergers and concentration processes, especially during the late 1970s and 1980s, have historically always been regarded as a solution to deal with crises and to overcome structural problems.

Tichy (1994c) argues that the ability for structural change decreases since nearly every merger is accompanied by a reduction of independent suppliers.

Historically, the most important steps within the concentration process in the Styrian iron industry can be dated over four centuries:

1625 Creation of Innerberger Hauptgewerkschaft

1829 Merger of Erzberg-ownerships into public property

1868 Concentration of Innerberger Hauptgewerkschaft towards a Public Limited Company (PLC)

1881 Merger towards Alpine-Montan-Company

1973 Merger of Alpine-Montan PLC and VÖEST PLC to VÖEST-Alpine PLC

1975 Merger of Schoeller-Bleckmann (see Tichy, 1994c, p. 18f.).

The dominant strategy during the 1960s, 70s and early 80s was the search for economies of scale through vertical and horizontal integration. This centralisation process was accompanied by a concentration of headquarter functions in Vienna. Plants in Upper Styria came under “external” control. In most cases, planning, R&D and marketing/distribution functions, i.e. those responsible for the monitoring of markets and technology were lost (see Tödtling/Sedlacek, 1997, p. 50).

More recently, not only steel-producing industry but also steel trade became subject of mergers. In 1976, four large and independent steel traders were merged and taken over by the VÖEST-Alpine Steel Trade.

This merger processes have been criticised in the literature. Aiginger (1986) argues that one reason for the steel crisis in Upper Styria were those excessive mergers within the industry. All preconditions for success, e.g. impartiality, independence etc., have been disregarded. He further points out the uncritical belief in advantages of

large-scale enterprises and – technology (economies of scale). Aiginger also notes the decision-making process in conjunction with mergers. After management had left the region and be centralised in Vienna and ownership had changed to “permissive” public ownership, no emphasis was put on productivity, salaries raised to above-average levels in relation to other regions and the easier (political) governing of a centralised group (Aiginger, 1986, p. 498ff; cited in Hwaletz et al., 1991, p. 47).

4.2 Decentralisation

The strategies of mergers, vertical and horizontal integration to deal with crises were abandoned during the second half of the 1980s.

In 1986, a new executive board in the VÖEST-Alpine plc - the nationalised steel group comprising the largest steel manufactures in Austria – launched an extensive analysis of the organisational and operative structures of the group. This analysis resulted in the “VAN”-concept (VÖEST-Alpine-New) and affected Upper Styria with its large steel industry as well. Only one year later, in 1987, four spin-offs of large VÖEST-companies followed, three of them located in the case study region: The VÖEST Alpine Stahl Donawitz Ltd. (LD-semifinished material for the Group companies) , Stahlrohr Kindberg Ltd. (ready-to-install oil and gas field pipes) and Judenburg Ltd. became independent legal corporations with management that was shifted back into the region.

After “experiments” regarding product range during the concentration phase in the 1970s and 1980s, the focus was put back on the group's core-competencies rather than a wide product range with low competitive advantages.

In 1993, the VÖEST-Alpine Stahl Plc II – the parent company of the main and dominant steel enterprises in Upper Styria – focused on 3 main divisions:

- *Flat Product Division*
- *Long Product Division*
- *Sales Division*

Organisationally, the *Flat Product Division* was located and concentrated in Upper Austria, focusing on rolled steel products and surface treated flat steel products with

several patented applications (e.g. electrolytically coated, organically coated or hot dip metal coated).

The *Long Product Division* comprises Upper Styrian enterprises', all grouped and embedded in geographical proximity to each other. The Division includes the VÖEST-Alpine-Schienen Ltd. (rail), Stahl Donawitz Ltd. (see above), Austria Draht Bruck/Mur (wires) and Stahlrohr Kindberg (steel-pipes). The Alpine-Schienen Ltd. for example early recognised the high demand of western European railroads for high-speed rails. It now sets standards e.g. with the manufacture of ultra-long, weld free railroad rails at lengths of up to 120 metres or head special hardened qualities (see Annual Report VÖEST-Alpine Stahl AG, 1998/99).

Those partly privatised and reorganised enterprises regained some decision-making functions in the process of decentralisation within the group. In Upper Styria, restructuring resulted in substantial unemployment and some plant closures (see Tödting/Sedlacek, 1997, p.50).

4.3 Improvement of Infrastructure

4.3.1 Enterprise Support Institutions

Based on the *Obersteiermarkstudie* (a broad and innovative economic analysis of the problems of Upper Styria, commissioned by the province of Styria and the Federal Chancellery, ÖIR et al. 1982), a broad net of research- and technological infrastructure was installed in the late 1980s. Although the success of these institutions could not always be judged, successful institutions could be identified when their activities were oriented towards regional enterprises with their specific demand and capacities. Further success indicators are present qualification- and vocational training institutions (Niklasdorf) as well as motivated key actors.

The great number of facilities calls for a more co-ordinated division of labour. Steiner et al. (1993) propose a stronger co-operation and networking of these institutions. They point out present co-operations, e.g. the relocation of established enterprises from one enterprise support institution to the other (in this case Niklasdorf, a Technology Centre to Kapfenberg, a Business Incubator) or supportive technology

transfer between Joanneum Research, TTZ Leoben (see below) and the Montanuniversity Leoben, as well as lacking co-operation between Niklasdorf and the Montanuniversity (Steiner et al., 1993, p.51).

Among these enterprise support institutions, the first have already been installed during the second half of the 1980s.

The *Technology-Transfer-Centre Leoben (TTZ)* was founded in 1986 with the intention to implement environmental-techniques as promising regional sustainment for endogenous foundations of SMEs. Early they experienced that the proposed technology was part of large enterprises and only useful in parts for SMEs. On the other side, innovative foundations of SMEs in the metal-, electronic-, mechanical engineering- and plastics industry had strong demand for technological- and management consultation. The TTZ reacted and reoriented itself based on the SMEs demand and focused on an advisory board for technology and management for present and newly founded enterprises with the goal of modernising economic structures in Upper Styria.

The TTZ consists of several institutions:

- *Office for external affairs of the Montanuniversity Leoben,*
- *Branch office of the Science Centre Seibersdorf,*
- *Branch office of the Styrian Technology Consultancy Technova and the*
- *ÖAR – Regional Advice Upper Styria.*

The concrete work focuses on technology transfer and management advice for SMEs. TTZ also initiates project coordination between enterprises and research institutions. After the fifth year of its foundation, the TTZ had conducted 75 R&D projects for product- and process improvement and 80 projects regarding foundation-counselling, management consulting and project clearing (See Steiner et al., 1993, p. 45f.).

The *Business Incubator Kapfenberg* was founded in 1989. By 1993, a total of 9 companies with 160 highly-skilled employees were present. Since its successive foundation in 1989, two or three enterprises joint every year. Enterprises do not get special consultation, a few are served by technology centre Niklasdorf.

Foundations were partly endogenous, i.e. the share of founders from the region was 25%, partly only extensions (branches of existing firms with another location, 15%) or relocations (40%).

Focusing on business park estate, the *Technology Centre Kapfenberg* was established in 1993 with production halls for qualified young enterprises. Focal points are new materials, laser technology and industrial installation to continue with the tradition of metal processing and mechanical engineering in Kapfenberg. Future projects include customised industrial installations for automation- and control systems. Every located enterprise has already invented new technology or product innovation and devotes to continuous R&D (see Hartmann et al., 1997, p.28 and Steiner et al., 1993, p. 46ff.).

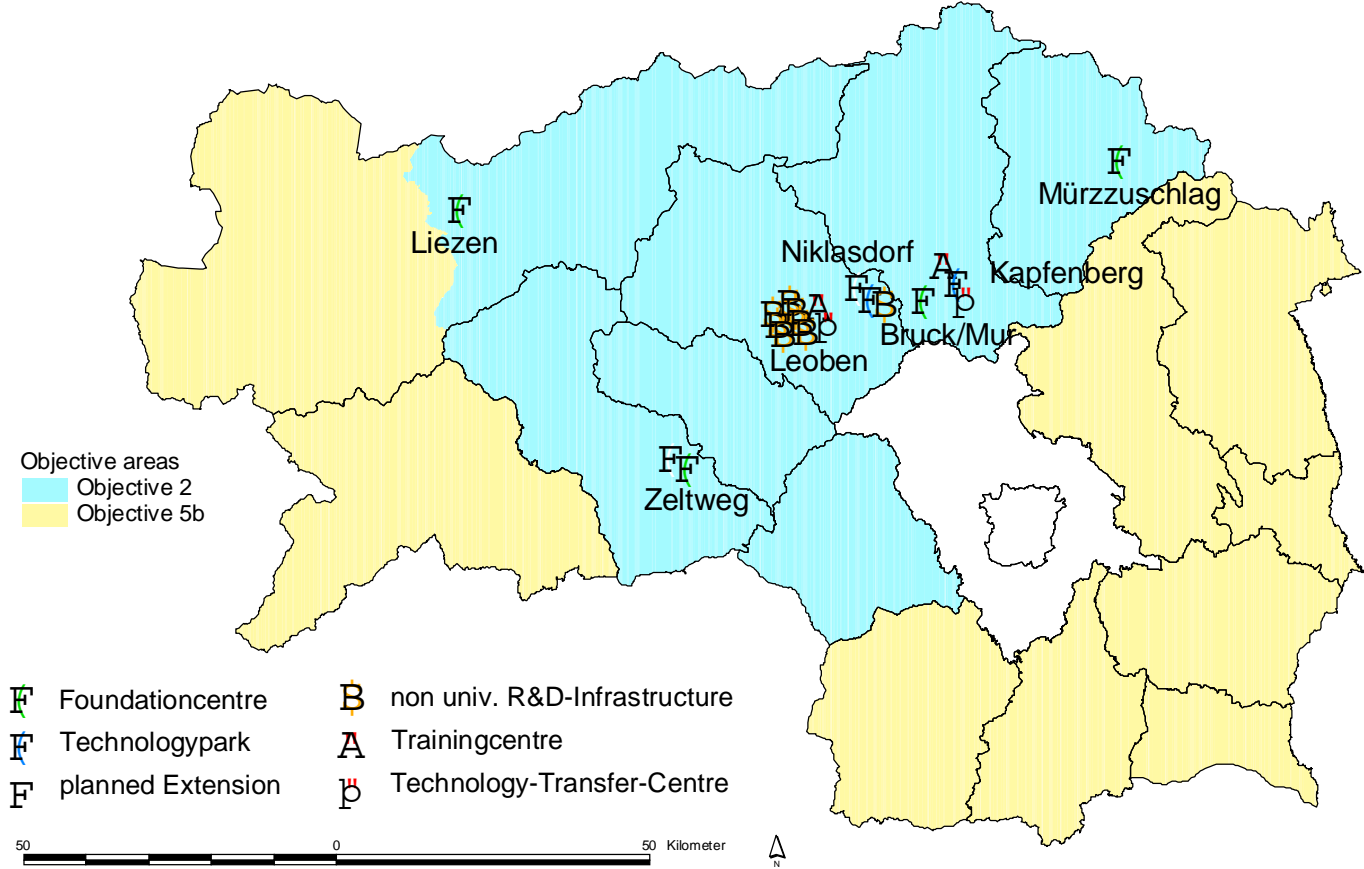
The *Technology Centre Niklasdorf*, founded in 1989 consists of a technology park, the WIFI Schulungszentrum Upper Styria (vocational institution of the Chamber of Commerce) and the Laser-Centre Upper Styria. Today it includes 12 enterprises plus further 5 which are externally located. Focal points are new materials and electronic data-processing, which were extended with laser technology. Key characteristics of the centre are service-, consultation- and assistance services as well as modern didactics in conjunction with the WIFI. Besides knowledge transfer, the centre emphasis on motivation and contacts (see Hartmann et al, 1997, p.24 and Steiner et al, 1993, p. 48f.).

The *Unternehmerzentrum A.i.Z. Aichfeldzentrum (AIZ)*, an entrepreneurial centre and founded in 1989 consists of 16 enterprises with over 90 employees. It offers management- and finance consulting and focuses on environmental technology and production-oriented services. Plans for further technological orientation and the development towards a technology- and innovation centre are present.

The *Joanneum Research Laser Centre Leoben*, already founded in 1988, emphasis the industrial application of the laser technology. Process – and production systems are adopted in co-operation with the customers (Hartmann et al, 1997, p.32).

Graphic 4.1 F&E Infrastructure in Styria

R&D-Infrastructure in Styria



4.3.2 Traffic Infrastructure

Regarding traffic infrastructure, road and rail projects have been speeded up during the 1980s.

For better regional “incoming” and “outgoing”, the accelerated construction of the *A9 Phyrn motorway* brought lasting improvement for Upper Styria.

In the north-western direction an important connection to agglomeration in Upper Austria and Southern Germany was installed, where only a little gap is still under construction.

In the south-eastern direction, the centre of Graz and the state of Slovenia were connected through the *A9 Phyrn motorway*.

Installed speedways mainly along the river valleys Mur and Mürz brought an important North-South connection between the metal-processing centres in Upper Styria. Northerly, the speedway *S6 Semmering* towards the agglomeration of Vienna brought access to the *A1 West-* and *A2 South motorway*. Heading South, the speedway *S36 Murtal* connects Knittelfeld and Zeltweg with the main traffic routes.

Rail infrastructure projects included the “*Junction Upper Styria*” for higher speed and capacities and a double-tracked extension of the “*Schoberpass*”, a mountain pass connecting Upper Styria with Upper- and West Austria and South Germany. A further project, the “*Semmering Tunnel*”, connecting Upper Styria with Lower Austria for higher speed and freight capacity, is under preparation.

4.4 Improved Information Flow

To describe the information flow between regional actors and relevant institutions, it must be noted that the provincial industrial policy is only partly “bottom up” and dependent on national policy as well. Despite political tensions, the federal and provincial levels have to cooperate and following “division of labour” can be seen:

- Research and most of the technology policy is mainly federal policy,
- Firm related support (e.g. investment subsidies, training etc.) is mostly provincial regional policy,

- Special programs for lagging regions, labour market policy as well as larger infrastructure and transport projects are common policy.

Regional economic development in Styrian regions is carried out by

- 1) Provincial government
- 2) Styrian Industrial Promotion Agency (*Steirische Wirtschaftsförderungs GesmbH - SFG*)
- 3) Intermediary organisations such as WIFI (industrial promotion institute of the Chamber of Commerce), BFI (training institute of the Chamber of Labour), ÖAR (organisation for endogenous regional development) and others (see Tödting/Sedlacek, p. 56).

Besides those institutions, further enterprise support institutions were needed to improve the information flow. The Technology Transfer Centre (TTZ) Leoben for example was among the first created institutions in 1986 (see 4.3.1).

Through the reorganisation of the economic development policy in the early 1990s, the Styrian Industrial Promotion Agency (*Steirische Wirtschaftsförderungsgesellschaft - SFG*) was founded in 1991. It acts as an independent, semi-public regional development agency, owned, controlled and financed by the provincial government. It has the goal to improve the conditions for economic development in Styria and to support disadvantaged areas.

Together with its subsidiary *Innofinanz*, it not only plans, builds and supports technology and entrepreneur centres in Styria, but also acts as a service agency, supporting innovative activities, providing direct financial incentives incl. seed capital, subsidies for project costs, new start-up premiums and consultancy.

Further tasks are in the area of regional development, start-up of new firms, firms in the phase of growth, technology transfer, attraction of investment and training (see Tödting/Sedlacek, p. 57 and SFG).

Geldner (1995) evaluating the SFG's support activities of "enterprises in growth" in 1993/94 identified following strategy of the SFG: backing the strong with emphasis on innovations in technical and organisational fields (Geldner 1995, cited in: Geldner 1998, p. 171).

Besides the SFG and earlier mentioned institutions, further various kinds of intermediary organisations exist. There are federal policies agencies such as the WIFI (see above) and the AMS (Labour Market Service), both having establishments directly in the case study region.

Besides those two, there are federal public, semi-public and private intermediary organisations active such as the ÖAR (organisation for endogenous regional development), BFI (training institute of the Chamber of Labour, operating several branches in Upper Styria) or the ITF (Innovation & Technology Fund).

In order to enhance cooperation, including information, education and consulting activities, institutions such as the Austrian Information Centre for Cooperation, the BIT (International research and technology cooperations) or the APS (Cooperation between Universities and Enterprises) are present (see Tödting/Sedlacek, 1995, p.57.).

4.5 Support and creation of cooperation and networks

A further step to improve the situation in Upper Styria was to create "territorial networks" and "competence clusters" as a tool to improve locational quality. Styria as the region with the most urgent problems of Old Industrial Areas was the first region to pursue deliberately such a *cluster strategy*. It was partly a strategy to create and support a new, albeit in some respects complementary, automobile cluster in the southern part of the region in addition to the old declining concentration of steel manufacturing in the northern part of the country. This action was appropriate as some firms, a few of them even in dominant niches, already existed, but there was no network linking them and an auto cluster is a good customer of steel and steel products. The promotion was quite successful. A network was formed between previously unconnected firms, partly situated in the old industrial area. The existing firms expanded, cooperation and specialization increased, and foreign investment was attracted. To form a cluster of previously unconnected firms and to upgrade the product was certainly good regional policy, particularly as a part of the cluster is based on top know-how in the construction of diesel engines and four-wheel-drive equipment (Tichy 1998).

Yet the explicit aim of this cluster philosophy was more than a replacement and support of the old cluster: It was meant to "aim at empowering entrepreneurs. By that we mean their ability to use global competition as an opportunity. To put it even more clearly: We would like to see ineffective mechanisms of protection replaced by 'upgrading' and entrepreneurial fitness. In achieving this goal, we regard the cluster philosophy, already a fixed element of the Styrian subsidy policy, to be a most appropriate instrument" (original quotation by H.Paierl, regional minister for Economic Policy of Styria, 1997, p.7).

In doing so this philosophy relies on the discrete charm of clusters, on the well-founded assumption that regional specialization on interlinked activities of complementary firms (in production and service sectors) and their cooperation with public, semipublic and private research and development institutions creates synergies, increases productivity, and leads to economic advantages. In line with Jacobs and de Man (1996) this is the third phase of industrial regional policy – after a first phase of "backing losers" and a second of "picking winners" this is the next stage - "backing the winner" - with a more modest ambition of combining the strong aspects of the previous phases (for an evaluation of the risks of such a strategy see Steiner 1998).

This "cluster philosophy" especially pronounced in Styria is gaining an impetus of its own. Different forms of cooperation and networks are emerging also in other sectors. Steiner/Hartmann (1998) analysed links and cooperations between SMEs in the material- and metal-processing sector in Upper Styria. Through intensive field research, close networks and value-chain relations among 38 firms embedded in regional networks and interfirm links ("mapping" of the cluster) could be identified. Since SMEs were either integrated or strongly dependent on large enterprises, no predefined cluster existed.

Of special interest were projects relating to learning activities in the cluster and networks and interfirm links reacting through the cluster. Two network structures and 13 links between the 38 firms were identified with strong elements of interfirm learning. This is the more important because the decline of Upper Styria was to a large degree caused by an inability to learn new forms of behaviour and a preservation of old ones. The reported attempts to develop a culture of learning among SMEs may be also interpreted as a regional process of "unlearning" old

habits (something that is harder than learning new ones). Therefore, SME cluster creates for the region as a whole positive spill-over and demonstration effects as to the importance of joint learning.

These cluster firms are embedded in a rich environment. These cluster firms are embedded in a rich environment of enterprise supporting institutions. Examples of research, technology and development institutions are the Montanuniversität Leoben, Christian Doppler Laboratories, Joanneum Research and the Technology Transfer Centre in Leoben. In addition, several training institutions ensure transfer of new knowledge to the firms.

4.6 Towards a regional Innovation system in Styria

A so far last step in the process of reconversion of this old industrial area is the attempt to integrate it in the combined strategies and instruments of a national and regional innovation system. Innovation is now understood to be an iterative interaction between a wide range of actors including research organisations, firms, policy providers and the market. This is a very different understanding to the former linear model which supposed a series of clear phases from concept development to product launch. The new model of innovation is considerably more complex involving a greater number of actors and focusing as much on relationships and the operation of systems and networks as on the individual actors themselves. Further, research into the process of learning and knowledge transfer also identifies much knowledge as tacit and collective and therefore linked it to its human and social context. Taken together, these concepts bring into sharper focus the role of the social environment within which innovation actors operate.

This approach puts more emphasis on activities on a regional and local level. The exceptional feature of the regional level of policy making is the fact that the region can provide a more appropriate spatial dimension for the design and implementation of elements of technology and/or innovation policy. The potential benefits of regional policy derive either from a greater knowledge of the relevant characteristics of the local economy or from the establishment of a local network and institutions which

have a direct interest in the success of programmes and policies. (Joanneum Research/European Policies Research Centre, 1998).

The activities for Upper Styria are now strongly embedded in a general strategy to "upgrade" Styria's economy by means of an explicit Technology and innovation oriented policy. The "Styrian Technology Policy Concept", elaborated by Joanneum Research (see Steiner et al. 1996) proposes three main strategies:

- (1) cooperation,
- (2) absorption and diffusion,
- (3) quality and qualification

Regarding *cooperation*, the intention is to reduce barriers by focusing on industrial clusters, creating synergy effects for the firms and providing a common infrastructure. In addition to the strengthening of traditional clusters (materials & metals, wood & papers, vehicles), new environment activities (an "eco-cluster") should be built up and supported.

The strategy of *absorption and diffusion* of new technologies intends to enforce regional competitiveness, especially the quality of goods and services and productivity. Information deficits about new technology or the lack of technical and managerial qualifications for adaptation should be lowered for SMEs.

The *quality and qualification* goal focuses in a continuous adaptation of production technologies and an innovation oriented qualification of staff members. A better integration of learning is intended but also cluster specific qualification strategies have to be developed.

In this context Upper Styria has - with its innovative firms, potential clusters and proximity to varied knowledge suppliers in form of three Universities, various Technology Centres and Research Institutions - strong elements for a dynamic "regional innovation system". Only the degree of systemness needs to be clarified and further explored.

5- Lessons to be drawn?

(still to be completed)

The history, the empirical analysis, theoretical foundations and policy strategies of OIAs - in the specific case of Styria, but in other cases as well (for a recent overview of comparable regions and analyses see e.g. Boschma/Lambooy 1999) - may they serve for an interpretation for processes of change in the countries in transition?

Let us first summarize what lessons are drawn from the experience and attempts of reconversion of OIAs per se:

- 1) Structural change is unavoidable, also (and especially) in a growing economy. OIAs were for a long time prosperous regions with a growing output; yet this growth destroyed the conditions for survival - the successful products stayed too long within the region. If the ageing product cannot leave the region, it changes the region for worse - it binds its resources which usually are used to find new products and processes. Monostructure is then a result - not a cause - of its behaviour.
- 2) The incomplete adjustment process is mainly a problem of information and negligence of relevant signals. Structural change therefore hardly comes from within (from the "market"), but is forced from outside (from "policy").
- 3) Decision makers inside the region (management, unions, politicians) therefore do not act, but react - mostly by further concentration and fusion, by closing in, with strong elements of rent seeking nurtured by fear leading to collusive behaviour.
- 4) The process of reconversion is a time consuming process including several steps and a sequence of different instruments used. It is not done by means of a "big bang" leading to sudden closures and redundancies. Even from an economic point of view this would be counterproductive leading to discouragement. A change in mentality - learning and rebuilding - needs long phases of life. So institutions have to be found which are able to give time (it took Upper Styria about 20-30 years to manage the process of reconversion).
- 5) The market is not capable of delivering this process.

Are these lessons applicable to structural problems of countries in transition? The main arguments against the transferability of policies and strategies may be the following:

- 1) The countries in transition are faced with a completely different situation - they (or parts of them) are not old industrial areas but they suffer from an economy not yet adjusted to normal market situations.
- 2) If there are comparable problems they are rather sectorspecific than regional - as a consequence strategies should be aimed at specific sectors and industries not at regions.
- 3) There is no specific need for a targeted policy, neither to sectors nor to regions, a general strategy to support the transition to a market economy will suffice.

Yet there are several strong arguments in favour of lessons to be draw from this "western" experience:

- 1) The so-called countries in transition are not countries in transition any more.
- 2) Problems of a lacking adaptability are not problems of sectors and of monostructure.
- 3) A specific policy focussed on the regionally concentrated structural problems remains necessary and calls for a well designed mixture of institutions giving the right incentives, passing on the relevant information and allowing for the necessary time.

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