Regional Clusters and Transformation of Old Industrial Regions

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Abstract

The regional or industry clusters have become the focus of both intensive research and regional policies all over the world in the last two decades. Their support have been proclaimed in many official EU, OECD and national documents. The aim of this paper is to contribute to the discussion on effectiveness of cluster based policies in the process of transformation of old industrial regions in the Czech Republic which adopted national-wide cluster policy with the financial contribution of EU Structural Funds. In the case of Moravia Silesia region with traditional coal and steel industries that was deeply affected by industry restructuring it demonstrates which results can bring the targeted regional cluster policy with the involvement of public sector and academia within regional innovation system and Triple Helix concept. The emergence of new innovative automotive, ICT and other industries connected with nine cluster initiatives supported by regional authorities and universities have started new dynamism in the economic development of the region. The paper describes the changes which have been brought about not only by foreign investment but also by the utilization of endogenous regional potential, related variety of industries and the presence of synthetic knowledge base in the region. The competitive advantage of the region may be constructed.

Key words: Transformation, old industrial region, innovation, cluster.

JEL Classification: O25, R11, R58

1 Introduction

In the 1970s, the decline of many old industrial agglomerations in Western countries could be observed, which were confronted with severe competition from low labour-cost countries mostly in Eastern Asia like Taiwan and South Korea [1]. These old industrial regions had often showed long periods of economic growth, before they declined or even collapsed. The principal source of their growth in the past was the specialisation on products which were basic inputs to other sectors (steel, trains and rail infrastructure, chemical products, electronics), or mass consumption goods (textiles, cars). These products had a strong position on the market, but only for certain and sometimes quite long period. Their physical and institutional structure of old industrial regions had been developed in order to sustain these basic sectors. Their position became vulnerable due to new developments like technological change or the increasing opportunities to shift production to other regions or countries with cheap labour. Within a decade many urban agglomerations lost many jobs in mature industries like textiles, steel making, coal mining and shipbuilding.

The focus on national and regional 'competitiveness' in a connection with the Lisbon strategy at the beginning of 2000s has hidden the dramatic impact that the industrial structure changes have had upon regional economic performance and development. The position of old industrial regions (OIRs) has been neglected in recent regional development research, partly as a result of dominant discourses concerned with concepts such as the knowledge economy, learning regions and the

new regionalism [2]. Lacking the capital, technological and labour assets of more dynamic cities and regions and with the historic legacy of deindustrialisation and the decline of traditional sectors, OIRs face some important dilemmas of adjustment and adaptation.

In western part of European Union the largest OIRs can be found in Germany, France, UK and Spain. However after EU enlargement the similar issues of economic decline in huge agglomerations have been seen in some parts of new EU member states in Central European countries and their industrialized regions in eastern part of Germany, the Czech Republic and Poland.

Decades of central planning had left many regions there with even larger-scale problems of over-dependence upon basic industries, rapidly rising unemployment, and acute environmental and infrastructural legacies. Just as it was becoming more and more apparent that re-industrialisation built around inward investment and new business creation could only partially and slowly tackle the problems Europe's old industrial regions, a whole new generation of problem regions emerged.

There is no simple definition of old industrial and mining areas. But these types of areas are usually recognised by the EU as facing structural difficulties and therefore eligible for support from the Structural Funds. They are normally made up of clusters of originally separate settlements drawn together by industrialisation to become urban agglomerations founded on a specialised economic base [3].

These sorts of regions tend to suffer the problems that go with growing unemployment and economic restructuring. There is a generally slack demand for labour but, as new sectors emerge, many also exhibit skills bottlenecks in emergent service sectors. Unemployment and social exclusion dominate the policy agenda, with a constant drive to establish new economic sectors that can take up the excess labour supply. In summary old industrial and mining areas have to face some or all of the following issues [3]:

- "a tradition of heavy industry and of large firm dominance that gives a narrow economic base and a vulnerability both to short-term employment shocks and long term economic decline as the old sectors confront new forms of competition;
- a weak local tradition of entrepreneurship and small independent enterprise as a product of single sector and large firm dominance and the weight of its influence on occupational and skill structures;
- a long-standing, high unemployment, particularly amongst young people and older men and low wages and lack of job security;
- a complex, long standing and often deeply embedded mixture of social, economic, and environmental problems;
- a low overall level of demand for labour but with the paradox of skill shortages in certain key sectors through an inability to attract and retain the necessary human capital;
- a history of underinvestment and continuing deterioration in the natural and build environment with special problems in the area of housing;
- a tradition of loyalty to the locality and a strong spirit of community, an established and complex array of civic society forms together with well-established traditions of partnership and association;

- mixed multi-ethnic populations as a result of previous waves of immigration before the advent of decline, sometimes with associated problems of racial tension".

The overall policy objective for these regions has been to find ways to re-position them away from the traditional sectors in decline and to install new drivers for economic growth. Regardless of national designation the diversification of the economic base has been the first-order policy objective for at least 30-40 years virtually. Its aim has been two-fold: attract inward investment in new growth oriented sectors and boost indigenous potential. The common policies generally include inward investment, sectoral clustering and the promotion of inter-firm network, SME development and entrepreneurship, new technology and innovation strategies [3].

The paper is organized as follows. The second part introduces brief literature overview about the role of industry cluster in restructuring of old industrial regions. The third part describes the main OIRs in the Czech Republic and their latest development. The fourth part presents the approach for the restructuring of Moravian-Silesian Region, the former steel heart of the Czech Republic and then the conclusions are derived.

2 New Clusters in Old Industrial Regions

In the past two decades clusters have become a subject for scholars in regional studies and for regional politicians. Industry or regional clusters are today recognised as an important instrument for promoting industrial development, innovation, competitiveness and growth. Although primarily driven by the efforts made by private companies and individuals, clusters are influenced by various actors, including governments and other public institutions at national and regional levels. Clustering is generally defined as a process of firms and other actors co-locating within a concentrated geographical area, cooperating around a certain functional niche and establishing close linkages and working alliances to improve their collective competitiveness [4].

Hundreds of cluster initiatives have been launched involving virtually all regions of the world and their number is growing. Cluster initiatives, the organised efforts to increase the growth and competitiveness of cluster, are in many countries becoming an important way to structure economic policy and strengthen ties between industry, government and academia.

The view on the benefits of clusters is two-sided. On one hand they are appreciated as the key drivers of innovation and competitiveness, on the other hand they are criticized by several authors [5] as they can lead to the possible risk, fallacies and harmful effects of geographically concentrated industries. Old industrial regions can, in fact, be regarded as a prime example of the negative side of clustering and strong spatial concentration of specific industries in particular regions. Clusters are or can be a main reason why these formerly dynamic and prospering regions have experienced an economic downturn. Whilst considerable attention has focused on growth regions and the early stages of cluster development, only limited research has explored the renewal of clusters in old industrial regions.

Utilising a "regional innovation system" approach, Tödtling and Trippl [6] argued that local specialisation in mature industries does not necessarily lead to a loss of entrepreneurship and innovation. Taking issue with the view that old industrial regions need diversification and suffer

from the over-powerful role of historically dominant companies, they proposed instead that such regions do often have a high density of institutions of education, innovation and R&D. The challenge is "to bring in new technological orientations as well as new and more interactive forms of innovation" (p. 1177). Summarising the results from the literature regarding the renewal of industrial clusters in old industrial regions, they pointed out the following:

- Clusters in such regions often face the problems of mature industries such as stagnating demand, high competition and a 'lock in' into old technology paths.
- The renewal of clusters can be supported by a well-developed regional innovation system. Strong institutions of knowledge generation and diffusion might help companies to build bridges to new technology paths.
- Clusters in old industrial regions are often characterised by either fragmentation (few links within the region) or by network oriented towards the old trajectory.
- The attraction of leading transnational companies may have a positive effect on cluster renewal, if they bring in complementary knowledge to the cluster and if they can be integrated into regional supplier and innovation networks.

An active policy is needed to overcome the situation of 'lock in'; market forces alone will not be sufficient to improve the situation.

The systems approach to regional policy for old industrial regions based on regional innovation systems presented by Todtling and Trippl draws attention to the firms, clusters and institutions of an innovation system [6], [7]. They identified the problem areas and RIS deficiencies for peripheral regions with organisational thinness, for fragmented metropolitan regions and old industrial regions, which often exhibit technological, organisational and political lock-in. The old industrial regions characteristics are [6]: often specialization on matured industries, large firm dominance, mature technological trajectories, domination of incremental and process innovation, orientation on traditional industries. For new innovation policy they proposed the following approaches aimed at renewal of regional economy: Innovation in new fields, support of clusters in new/related industries, restructuring of dominant industries, new firm formation, attraction of cluster related FDI, setting up research organisations and universities in the new relevant fields, building up new skills required.

The innovation systems theoretical framework highlights the embeddedness of clusters in the innovation setting of the region. From this perspective, clusters are regarded as an integral part of regional innovation systems [8]. The failures of the regional innovation system of old industrial areas have three main sources: a narrowly specialized and declining industrial base, an overspecialized knowledge infrastructure, and various forms of lock-in. As old industrial regions suffer from an overspecialization in mature, declining industries they face the key challenge to revitalize these clusters and to build up new ones. In [9] the following types of renewal are distinguished (see Figure 1):

- old clusters experiencing innovation-based adjustment processes,
- diversification into established industries that are new for the region, and
- new clusters based on knowledge intensive industries.

The differentiation between these types of clusters is important because they reflect varying degrees of regional renewal. An adjustment process of old clusters represents only an incremental change. The development of new clusters in traditional industries is a bigger step. The most

fundamental change is brought about by the emergence of a really new cluster, i.e. the breeding of high-tech or knowledge intensive industries such as environmental technology or information and communication technologies.

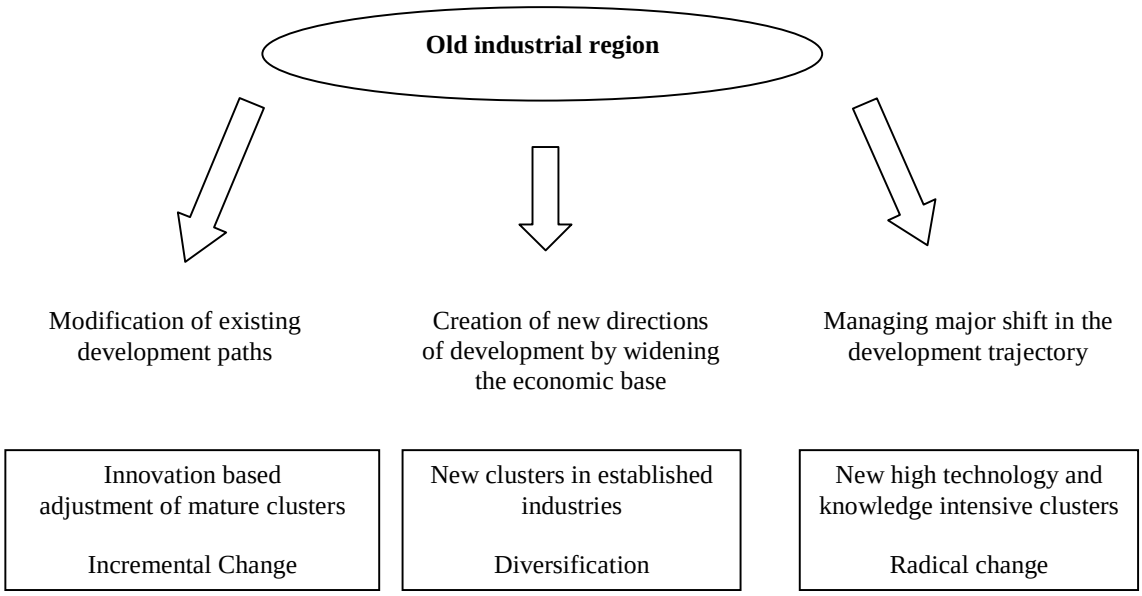


Figure 1: Types of cluster-based renewal of old industrial areas

Source: [9]

Tödtling and Tripl [9] came to the following conclusion concerning different types of the renewal of old industrial regions:

- The revitalization of traditional clusters can be associated with an incremental, modest change in old industrial regions, modifying their existing development trajectory rather than altering it. An innovation-based restructuring of old clusters could embrace different forms, ranging from a shift from mass products towards specialities and higher value products to the introduction of new technologies and organizational practices.
- Diversification as a mechanism of the renewal of old industrial regions involves a more significant change than the regeneration of mature clusters. Diversification is defined here as the emergence of clusters in established industries, that are, however, new for the region.
- The most radical form of change in old industrialized areas is certainly brought about by the emergence and growth of knowledge intensive and high technology industries, implying a major shift in the development trajectories of these regions. The formation and growth of high technology clusters in old industrial regions presupposes a major transformation in the knowledge generation and diffusion dimension of the regional innovation system.

These three different types of clusters reflect various degrees of regional renewal. An innovation-oriented transformation of old and declining clusters could be equated with continuity in the

economic evolution of the region, as it implies a maintaining of the status quo in sectoral terms. In comparison, the rise of new clusters in established industries constitutes a more significant transformation. Finally, the emergence of agglomerations based on knowledge intensive activities represents the most radical form of change.

3 Old Industrial Regions in the Czech Republic

Following 1989 the Czech Republic has undergone significant political, economic and social changes, culminating by the CR's accession to the European Union on 1 May 2004. The active involvement of the Czech Republic in the European area has accelerated the country's economic growth on the one hand but also the growth of regional disparities on the other hand.

The territory of the Czech Republic is divided into 14 self-governing regions including the territory of the capital city of Prague with the elected representatives and regional government. The regional level corresponds to the division of the Czech Republic into NUTS 3 territorial statistical units. The NUTS 2 regions consist of one to three NUTS 3 units. They were created with regard to the need of coordinating and implementing the economic and social cohesion policy and there are 8 these regions [10]. The NUTS 2 regional structure of the Czech Republic is given in Figure 2.

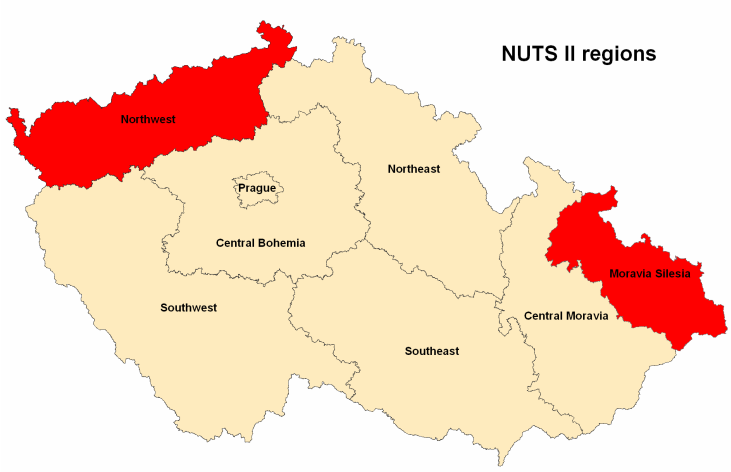


Figure 2: Old industrial regions in the Czech Republic

Source: Czech Statistical Office, own processing

The development which occurred in the different regions of the CR was closely connected with the territorially-differentiated dynamics of the economy. The main causes underlying the uneven development of the regions and the emergence of regional disparities include mainly 1) the economic structure and its diversity - a significant decline in production and employment in heavy industries and mining located mostly in two regions – Moravia - Silesia and the North-West; 2) a persistently unsatisfactory environmental situation, again in Moravia-Silesia and the North-West and in large cities – Prague, Brno and elsewhere; 3) uneven coverage of territory with technical and transport infrastructure; 4) the quality of human resources (education level,

entrepreneurial tradition) and of local government (insufficient administrative capacities in small municipalities); 5) low interregional mobility of the workforce. The significant role play also the differences in the geographical position of the regions within the CR as well as in the EU context.

The substance of the regional disparities, even not mentioning the fundamental difference existing between the socio-economic level and the degree of development of the Capital City of Prague on the one hand and of the cohesion regions on the other hand, was expressed in the National Strategic Reference Framework for 2007-2013 EU planning period by the five types of cohesion regions [10], which are described in Table 1:

Table 1: Main regional disparities in the Czech Republic

Type of Region	NUTS 2 Region	Population (mil., 2008)	HDP/capita in PPS, (EU average =100)	
			1996	2006
Regions undergoing rapid development	Prague	1,185	128,3	162,3
Regions undergoing development	South-West	1,181	72,6	71,2
	Central Bohemia	1,167	64,8	73,0
Regions having low growth dynamics	South-East	1,643	69,8	69,3
	North-East	1,485	68,1	64,7
Regions lagging behind	Central Moravia	1,229	64,7	60,1
Regions on the decline - OIR	Moravia-Silesia	1,250	67,0	64,6
	North-West	1,127	70,0	61,1

Source: Czech Statistical Office, own processing

In the period of industrial transformation which started in the Czech Republic in the middle of 1990s we can see two development paths (see Table 1). While Prague, the capital of the country has exhibited a steady growth (expressed by GDP) and this growth accelerated after 2000, other regions were affected by economic decline which culminated at the beginning of the century between 2002-2003 and only then was followed by growth. The unfavourable effects of transformation are emphasised mostly in old industrial regions, Moravia Silesia and North-West Bohemia.

The Moravian-Silesian Region lies in the northeast of the Czech Republic being one of its most marginal parts. In the north and in the east it borders with Polish voivodeships (the Silesian and Opole voivodeships), in the southeast with the Žilina Region of Slovakia. From the 19th century the Region ranks among the most important industrial areas of Central Europe. However, the Region's structure of economy is currently causing many problems that relate to its restructuring as well as social issues arisen from the increase in unemployment triggered off by a slow-down in coal mining and heavy industry. Since 1990, a substantial environmental improvement has been observed as a result of the reduction of manufacturing, utilisation of more environmental-friendly technologies and significant investments into environmental measures. Despite the mentioned

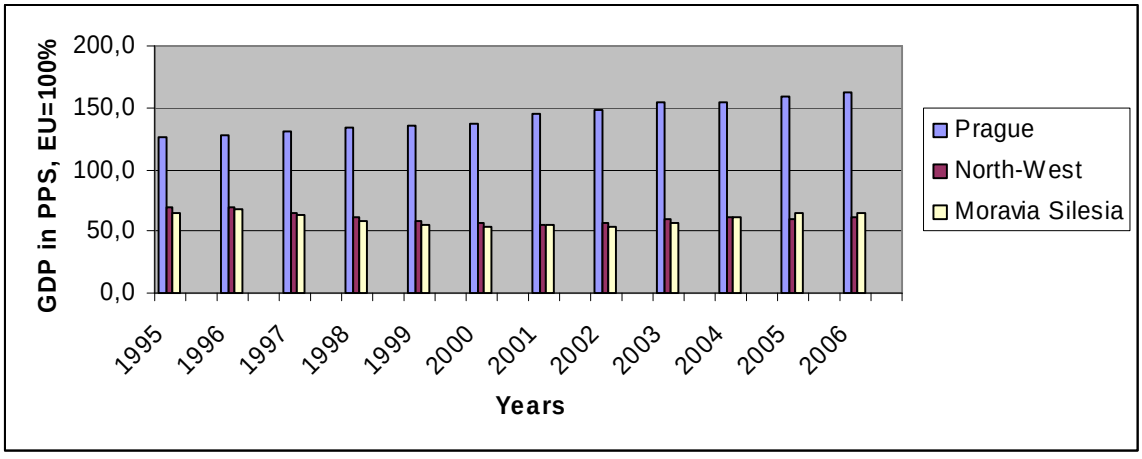
improvements, the Region still belongs to the areas with the biggest environmental burden in the Czech Republic, because in the past all components of the environment have been polluted [10].

The Region is the nation-wide centre of metallurgy. Moreover, almost the entire output of bituminous coal comes from this area, although the volume of coal brought out on the surface is diminishing. Besides these traditional branches, also generation and distribution of electricity, gas and water, production of transport vehicles and manufacture of chemicals, chemical products and man-made fibres are putting through in the Region.

The North-West Region (NUTS2) lies in the northwest of the Czech Republic along its northern border with the Federal Republic of Germany, particularly with the Free State of Saxony. It is formed by two NUTS 3 regions - Ústecký Region and Karlovy Vary region. The Region is varied as for natural conditions as well as from the point of view of its economic structure, density of settlement and condition of the environment. Historically, economic importance of the Region is based on its raw materials, especially large deposits of brown coal, which lie close to the surface. Among other branches, an important position belongs to the energy industry, coal mining, mechanical engineering, and chemical and glass industry [10].

Industrial activity from the past had and still has an unfavourable influence on the quality of the environment. Strongly developed surface mining distinctively damaged the natural face of the landscape, which gradually recovers only thanks to a costly recultivation. Well-known are also problems with the emission situation in the Region. Decrease of coal mining, restructuring of enterprises, slowing down of productions and agriculture cause that in the national comparison the Ústecký Region has in the long-term the highest registered unemployment rate.

The growing disparities between the both OIR and capital Prague are expressed in the Graph 1.



Graph 1: Development of GDP in old industrial regions and capital Prague

Source: Czech Statistical Office, own processing

Worth mentioning is the fact the Moravian-Silesian Region accelerated its growth in the last five years in comparison with North – West region. It was initiated with the establishment of new regional structure in the Czech Republic in 2001. The region started intensive restructuring

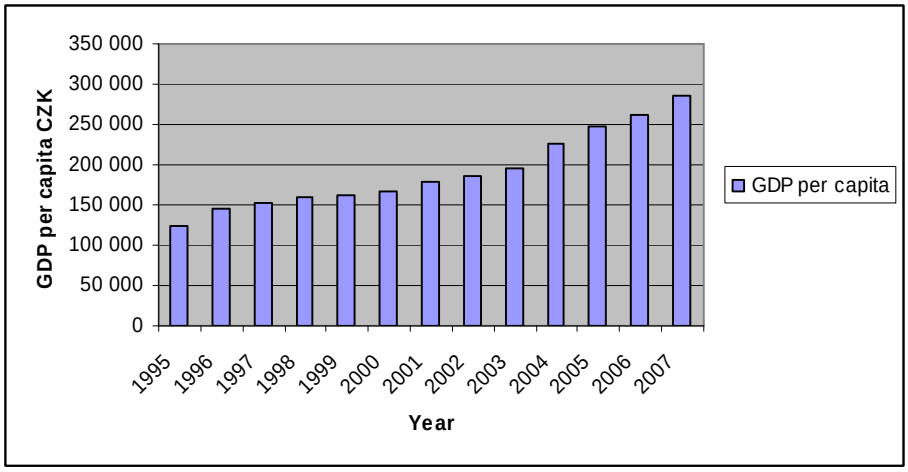
activities by attracting foreign investment and by the support of diversification the regional economy in new industries and also with the promotion of clustering activities.

4 Regional Clusters in the Transformation of Moravia Silesia

The Moravian-Silesian Region is the former heartland of Czechoslovakia's coal, steel and heavy engineering industries. It has a population of 1.3 million and employment of 530,000. Over the past decade, its main industries have had to adjust to three major changes. First, they have had to cope with the transition from a planned to a market economy. Second, they have experienced the collapse of their main former markets in Eastern Europe and especially in Russia. And, finally, as in all western market economies, the region has had to deal with the massive restructuring of the coal and steel industries [10].

Moravia Silesia has not found the adjustment process easy. Employment in the coal industry has declined from over 100,000 in the early 1990's to around 19,000 today. Over the same period, employment in steel has fallen from 90,000 to 22,000. Further job losses in steel and heavy engineering are inevitable. Nevertheless, over the past decade much progress has been made including major improvements in the physical environment and the reduction of pollution. New employment has been created in the expanding service sector. While inward investment has made a major contribution to restructuring the Czech economy, Moravia Silesia has attracted relatively little green-field foreign direct investment. The region's ongoing problems were reflected in the level of unemployment which reached the peak above the 16% in 2003. Recognizing these problems, the region has been identified by the Czech Government as a priority for regional economic development. A number of regeneration projects were to contribute to the region's redevelopment in the 1990s, as it was the establishment of Regional Development Agency, Science Technology Park, Industrial Zones Programs, etc. In 2002 a special attention was given to "cluster approach" in regional economic development policies of Moravia Silesia.

The region Moravia-Silesia belonged to the fast growing regions of the Czech Republic in the last three years by the outbreak of world economic crisis, as can be seen from the development of GDP and unemployment in graphs 2 and 3.

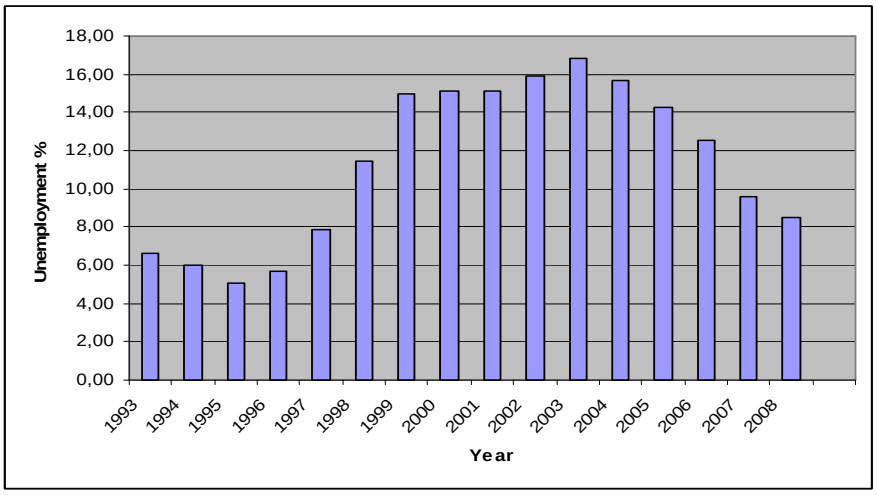


Graph 2: Development of GDP in Moravia Silesia

Source: Czech Statistical office, own processing

The decline of unemployment started in 2004 and in four next years was reduced to half, however beginning 2009 the situation dramatically changed and by the end of June 2009 reached 11,5 %.

Graph 3: Unemployment in Moravia Silesia



Source: Czech Statistical office, own processing

The most significant industrial sectors in City of Ostrava and the Moravian-Silesian Region now-days are organised into clusters, providing the region with a new profile and simplifying the relationship between potential investors and suppliers. In terms of clusters, the Moravian-Silesian Region has long clustering tradition in the Czech Republic.

Old tradition in steel production in the region and the concentration of metallurgical companies in the region gave existence to natural metal grouping for the production of steel and metal processing already in 1970s within the planned economy and direct management of metal

industry. Beginning 1990s following the privatization schemes the management of this grouping changed.

The metallurgy cluster has been in existence in the region for more than 50 years. In the new period of transformation after 1990 the representatives of twenty Czech and Slovak companies engaged in production, trade and research of products of iron and steel metallurgy met already in November 1992 in Prague in order to transfer existing joint ventures into the joint-stock company Hutnictví zeleza, a.s. (The Steel Federation, Inc.). The first cluster initiative in the region launched its activities on January 1, 1993. The Steel Federation (Hutnictví železa, a.s. - HZ) is an exclusive steel association operating in the region. Its members are major Czech and Slovak steel producers and companies directly related with the steel industry. The membership expresses a need for co-operation in many areas on global markets.

The new era of cluster movement after 1990 in the region started as a joint initiative of VSB-Technical University of Ostrava, Union for the development of Moravian-Silesian Region and Regional Development Agency of Ostrava supported by Czech government agency CzechInvest. The Moravian-Silesian Region was the first Czech region to carry out a study identifying clusters (2002), and then established the first cluster in the country – the Moravian-Silesian Engineering Cluster (2003). This cluster was converted lately in 2008 into National engineering cluster.

As a result of its highly developed industrial base, extensive education system and range of initiatives supporting research and development, the Region has become the Czech leader in utilizing the cluster conception to support the local development of key economic sectors. Today, clusters form an integral pillar of the Region's future industrial development, and provide a key support for the growing competitiveness of the Region as a whole.

A large part of the funding for the Region's clusters is provided via EU Structural funds. Four cluster organizations received over CZK 60 million from the Cluster programme of the Operational Programme Industry and Enterprise (OPIE) 2004 – 2006. Cluster organizations will have the same funding opportunities from the Cooperation programme of the Operational Programme Enterprise and Innovation for the period 2007 – 2013. The Moravian-Silesian regional budget is also a major contributor to funding for cluster organizations. In the period 2005 – 2007 the Region provided a total CZK 7.6 million of support for cluster organizations. Currently there are a total of 10 cluster organizations in the Region. Nine of these initiatives started only after 2002, when the pilot-study on industrial groupings – clusters in the Czech Republic was prepared in the region.

The National Engineering Cluster aims to build a prestigious and modern engineering base, well-prepared in terms of human resources, technologies and innovations for the creation of supplier chains for strategic projects in the energy, transport and construction industries on a global scale.

The Moravian-Silesian Wood Processing Cluster focuses on support for the development of the timber industry in the Region. The industry aims to become a key supplier and exporter of timber structures and innovative components for timber-framed buildings and structures.

The IT Cluster focuses on the development of human resources, joint marketing activities and generating the necessary potential to implement innovation-related projects in the IT sector.

The mission of the Moravian-Silesian Automotive Cluster is the development of the Region's automotive industry to achieve sustainable competitiveness of regional suppliers for the car industry both in the Czech Republic and internationally. The cluster focuses primarily on improving the quality and ensuring the full utilization of local human resources and technical capacities.

The Hydrogen Cluster focuses mainly on research and development activities in hydrogen technologies as well as on the general development of experts in the production, storage, distribution and use of hydrogen.

The Envicrack Cluster is connected with research and development activities related to renewable and secondary energy sources. The cluster focuses on the utilization of waste as a potential source of fuel for pyrolysis technology generating electrical energy and heat.

The Construction Cluster focuses on the field of renovation of buildings built by slab technology.

The mission of the Tourism Cluster is to create competitive touristic region, to coordinate activities in tourism, to communicate with public sector, to cooperate with partners active in tourism and to support innovations.

The Moravian-Silesian Energy Cluster is the new cluster, established in 2008 with the main goal to cooperate on creation of national energetic conception, to develop research in energy production and to support and motivate regional agriculturists to production of biofuels.

Table 2: Regional clusters in Moravia Silesia

No.	Name of industry cluster	Established	University participation	Members in 2009
1.	National Engineering Cluster	2003	Faculty of Mechanical Engineering	47
2.	MS Wood Processing Cluster	2005	Faculty of Civil Engineering	31
3.	IT Cluster	2006	Faculty of Electronics and IT	42
4.	MS Automotive Cluster	2006	Faculty of Mechanical Engineering	49
5.	Hydrogen Cluster	2006	Faculty of Mechanical Engineering	12
6.	Envicrack, Waste Pyrolysis Cluster	2006	Faculty of Mechanical Engineering	26
7.	Construction Cluster	2006	Faculty of Civil Engineering	19
8.	Tourism Cluster	2008	Faculty of Business and Trade	28
9.	MS Energy Cluster	2008	Faculty of Mechanical Engineering	16
10.	Steel Federation	1993	Faculty of Material Engineering	18

Source: Own processing

Following the proposed methodology by Tödtling and Trippl [9] described in Figure 1 in this paper we distinguish between three groups of clusters and cluster-based policies in the transformation of Moravian-Silesian Region in Table 3.

Table 3: Cluster -based renewal of Moravian-Silesian region

Modification of existing development paths	Creation of new directions of development by widening the economic base	Managing major shift in the development trajectory
MS Metal Cluster National Engineering Cluster MS Wood Cluster MS Construction Cluster	MS Automotive Cluster MS Energy Cluster Tourism Cluster	IT Cluster Envicrack Hydrogen

Source: Own processing

Tradition industries are included in four clusters. Metal cluster represented by Steel Federation, National Engineering Cluster, MS Wood Cluster and Construction Cluster are based upon synthetic knowledge base of the region. Second group of clusters is headed by MS Automotive Cluster, which was initiated by the FDI of Korean Hyundai manufacturing plant in 2007 with the employment of 3000 persons. This venture attracted other-tiers suppliers to the region. Tourism industry is given priority by regional authorities for utilizing the potential of nature beauties and mountains in the outskirts of regional industrial core. The last group of clusters covers new prospective industries in high-tech and research based, which are IT services and research in hydrogen and waste pyrolysis. It receives the huge support from the VSB-Technical University as well.

6 Conclusion

In the regional science literature the strong emphasis on cluster development is given to the growth and innovative regions to bring the examples of successful developments. The renewal of clusters and the restructuring of old industrial regions is a neglected topic. In new EU member countries in Central Europe similar problems with old industrial regions came into existence as it was shown upon the case of the Czech Republic and Moravian-Silesian Region. The transformation scheme launched by the newly established regional authority in 2001 distinguished following stages, which are often repeated in transformation processes: physical environment, unemployment and private investment, institution building and searching for the new competitive advantage.

From 2004 by the beginning of world economic crisis in 2008 the Moravian-Silesian Region belonged to most dynamic regions outside capital Prague in the Czech Republic, as it was shown in the decline of unemployment and GDP growth. Traditional manufacturing industries in the region still prevailed. The companies were privatized and they have undergone programmes of restructuring, improved productivity, established themselves on global markets, and focused on ecological production, engineering industry was booming and other prospering industries were metallurgy, mining and food.

The structure of investments has been changing and Moravia-Silesia is attracting higher-order investments, which are of key importance for future development and regional competitiveness. After a series of manufacturers and developers who invested over CZK 70 billion in the Region up to 2007, the new wave of investors is coming from high-tech producer and R&D facilities of international companies which already have manufacturing premises there (automotive, ITC, pharmaceuticals, etc.).

This development was caused by the specific regional policy of Moravian-Silesian regional authority aimed at industrial zones and attraction of foreign investors and at the cluster initiatives support. With nine new cluster initiatives the region Moravia-Silesia became the Czech Clusterland. Based upon Austrian experience [9] we proved that the restructuring of old industrial region can be based on cluster renewal in three directions: innovation-based adjustment of mature clusters, new clusters in established industries and new high-technology and knowledge intensive clusters.

Acknowledgements

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