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7 Industry in the Carpathian area

7.1 Situation and challenges

While in some areas of the Carpathians, agriculture remained the largest sector of employment, in most Carpathian regions industry played the role of most important employer until the most recent period. This role of industry was reinforced by the fact that services were underdeveloped in most former "socialist" states, and they could not fulfil the same role in employment than in the Western European countries. Employment in services increased dynamically only in the last one and half decade, and now this sector is the main employer in most – but not in all – Carpathian regions..

7.1.1 Mining

Though younger mountain ranges (like the Alps, Pyrenees and Carpathians) are less rich in mineral wealth, the Carpathians were – from the Middle Ages – one of the most important places of mining in Europe. There were four major gold and silver mining areas in the Carpathians: the North-East Carpathians (Baia Mare, Baia Sprie, Kapnik – all in Romania), the Transylvanian Island Mountains Apuseni (Abrud, Romania Alba county), the North-West Carpathians (Banska Stiavnica, Banska Kremnica, Banska Bistrica all in Slovakia), and the North Carpathians (Gelnica, Banska Belá, Roznava, Spisská Nová Ves, Jasov in Slovakia and Rudabánya, Telkibánya in Hungary). In the 13th century the volume of production was 1000 kilogram gold and 10,000 kilogram silver yearly, which was 80 percent of the total European gold and 20 percent of the silver mining. Nowadays, Australian and Canadian firms try to revitalize gold mining in Romania and Slovakia, but the applied cyanide technology implies serious environmental dangers and hazards. In several places in the Transylvanian Carpathians salt was – and partly is – extracted (*Figure 8*).

The largest hard coal reserves of Europe are to be found in Poland, Silesia. Poland is the 7th largest coal producer of the world and the first in Europe (the larger Russian coal mines are in Siberia). The mines are not in the proper Carpathians, but still in the wider Carpathian region. In the last 15 years the volume of Polish coal production somewhat decreased, but its efficiency and competitiveness increased. It was the result of the restructuring, partly privatisation and of the closure of the least efficient mines. But restructuring is still not finished and there are still inefficient mines. Nevertheless, coal remained the basis of Polish energy economy and one of the main export items of the Polish economy.

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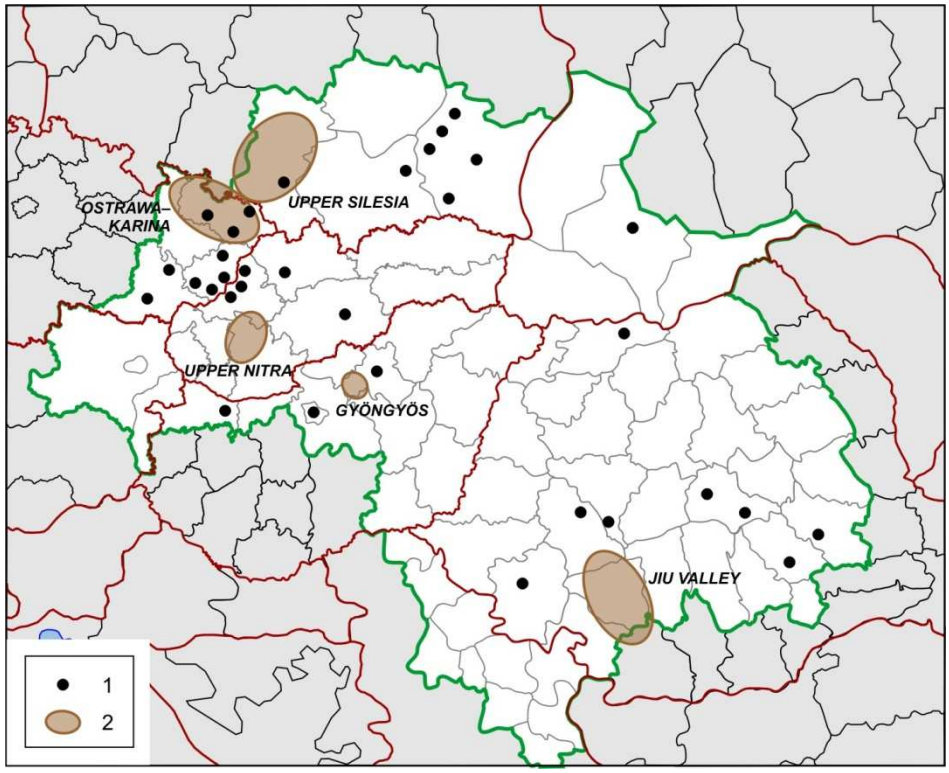
The Southern part of the Silesian hard coal basin is in the Czech Republic: it is the Ostrava-Karviná coal basin. Coal mining in this area is more than 200 years old. In the Ostrava area, all mines have been closed in the 1990s, only the mines in the Karviná area are operating. Production decreased, but efficiency and mechanisation increased also in this area. Being the only hard coal mine in the Czech Republic, the government plans the continuation of the production for a longer period.

Figure 8

The major mining fields and arms industrial sites in the Carpathians



Key: 1 – Arms industrial sites; 2 – Main mining fields.
Source: Author's construction.

In Slovakia, most of the coal mines are – because of inefficiency or depletion – closed for now. Hard coal is not to find in Slovakia, the most significant brown coal mines are in Upper Nitra (Hornonitrianske Bane Prievidza).

In the Hungarian Carpathian region all coal mines are already closed, only some open pit lignite mines are still operating.

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In Romania, the only hard coal mine is (was) in the Southern Carpathians in the Jiu Valley. In the recent decades several restructuring programmes of coal mines were implemented in this Carpathian region. Obviously, the implementation of these programmes entailed tensions and problems everywhere. The Jiu Valley restructuring programme, however, is unique in the sense that after 20 years of efforts and several bailing out operations, the solution is not yet in the horizon. Bad management and political intervention resulted in a dramatic situation.

Coal mining had several and serious impacts on the environment and on the social-economic situation. Excavated waste rock was about half of the quantity of produced coal. A larger part of it was used by the building materials industry, in the reclamation of surface ground or as filling of gobs. But a large part has been deposited in waste rock piles. A huge amount of cavern water have been pumped out which is also a non-renewable resource. In areas of long time underground mining, the surface had been deformed substantially. In this areas land slides and depressions occur frequently. In areas of open pit mining whole settlements, villages had to be relocated. This occurred in the Czech Republic, Hungary and Romania several times in the last decades (*Figure 8*).

In the 1970s, about 1 million people worked in the mining sector in the Carpathian region. Today, the number of employees of the sector is about 340 thousand. Its distribution among countries is the following: 177 thousand in Poland, 90 thousand in Romania, 55 thousand in the Czech Republic, 15 thousand in Hungary and 9 thousand in Slovakia (2006 data). 700 thousand high-wage jobs disappeared in the area which could not be replaced in other sectors. Many cities and settlements, which belonged to the most prosperous ones, are regarded now as crisis areas with high unemployment and low incomes. Infrastructure and services which were operated and maintained by the mining companies are now in a deteriorated and poor condition.

7.1.2 Manufacturing

The Carpathian area was for a long time an industrially less developed part of Europe, and even when industrialisation took place, the industry located in the Carpathian regions was an industry with distorted, imbalances and unfavourable structure:

A large part of industries were of extractive and primary processing character. Based on the mines a metallurgic industry and based on the forests a timber industry has been developed, but frequently only the first phases of the processing were located in the Carpathian area, which had less value added content. These industries offered jobs only for the male population. Industries were based on exhaustible resources, and these resources were used rather wastefully and with extremely

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harmful environmental impacts. Air pollution was stuck in the narrow valleys, causing serious health hazards.

In the middle of the 20th century, a new phenomenon appeared in the Carpathian area. A substantial part of the *arms industries* were located in this area.

In *Poland,* these new elements appeared already in the 1930s. Since 1928, there were recurring attempts in Poland to create a "triangle of security", an industrial region in the middle of the country, secured from any invasion by Germany or Soviet Russia. By April 1938 the plan was set in motion and expanded to territories beyond the early plan for the most secure "triangle".

The Central Industrial Region (Centralny Okręg Przemysłowy,COP) was one of the biggest economic projects of the Second Polish Republic. The 4-year long project was initiated by the deputy Prime Minister and Minister of Finance, Eugeniusz Kwiatkowski. Its goal was to create a heavy industrial centre in the middle of the country as far as possible from the German and Soviet borders (from the south they did not expect any invasion), to strengthen the Polish economy and to reduce unemployment. Though it was said to be the middle of the country, it coincided more or less with the foreground of the present Polish Carpathians The 4–5 year plan of development of the COP was scheduled from 1 September 1936 until 30 July 1940 and was interrupted by the outbreak of World War II. Nonetheless, the COP project has succeeded in vastly expanding Polish industry, and after the end of the war COP was rebuilt and expanded. The following industrial projects were part of the plan. Steel mill and electric power plant in Stalowa Wola, rubber factory in Dębica, aircraft factory in Mielec aircraft engine and artillery factory in Rzeszów, hydroelectric power plants in Rożnów and Myszkowice, expansion of the Zakłady Azotowe in Mościce.

At present, the locations of arms industry in the Polish Carpathian region are Jasło, Stalowa Wola, Mielec, Swidnik, Rzeszów, Tarnów, Nowa Deba and Bierun.

After World War II, *Slovakia* became the main focus of Czechoslovak industrial development. The reasons were the stronger lobbying potential of the Slovak leadership in this respect, the mechanic imitation and servilism following of the Soviet practice, where defence industries (within a much different spatial dimension) were located in the Eastern part of the country. But, a certain role has been played also by the sincere intention, to implement the requirement and idea of convergence in regional development between the Czech and Slovak lands.

New plants were located mostly in the Northern – Carpathian – half of Slovakia, especially in the valleys of the rivers Vah and Hron. The majority of the new plants belonged to the heavy industries and within it, to arms industries. The huge concentration of these industries in Northern and North-Western Slovakia – in Martin, Dubnica, Detva, Považská Bistrica, Trencin was significant even in European context. By the 1980s, the degree of Slovak industrialisation matched the Czech level, in respect to defence industries even surpassed it substantially.

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Even in the *Czech Republic*, a substantial part of the arms industry was located in the Eastern part of the country, in the Czech Carpathian Region (Uhersky Brod, Kunovice, Koprivnice, Vítkovice, Novy Jicin, Vyskov, Vsetín, Brno, Bojkovice)

In the former Soviet Union, Ukraine was the main area of arms manufacturing. Nearly half of the all-Soviet arms industry was located in Ukraine. It refers, however, mostly to the Eastern part of the country. Western Ukraine – close to the Western borders of the Soviet Union, was substantially less engaged in armament industry. Nevertheless, arms industry was significant also in this part of the country. Ivano-Frankivsk was a closed city until the independence of Ukraine. Foreigners were not allowed to enter this city. Several other cities in the mountainous areas of the Ivano-Frankivsk region were also involved in arms manufacturing.

Romanian arms industries were located mostly also in the Carpathian area (Brasov, Ploesti, Orastie, Fagaras, Sadu-Gorj, Dragomiresti, Cugir, Plopeni, Moreni, Zernesti, Resica).

Hungarian armament industries were and are located mostly in and around Budapest. In the 1950s, during the "Cold War", however, following the Soviet example, new armament manufacturing plants were located in the North-Eastern part of the country (Téglás, Sirok, Sajóbábony, Diósgyőr). In the 1970s-80s most of them were fully converted to peacetime production.

Unemployment augmented suddenly and substantially in these Carpathian regions. The situation was dramatic because these regions – at least some of them – used to be the favourite and wealthier regions of the area. The crisis of these regions lasted in the more fortunate regions until the end of the nineties, in the less fortunate ones until now. By 2003, through restructuring, privatisation and FDI in the motor car industry (see later), the the Czech, Slovak and Polish regions recovered from crisis. In the Ukrainian, Romanian and Hungarian regions with this former profile, several problems still remained to be faced and to be solved.

7.2 Policy recommendations for the industry of the Carpathian area

7.2.1 The "brown-fields" problem

Brownfield are those industrial and other non-agricultural and non-residential areas where former activities are abandoned and at present the areas are not used for any economic, residential or leisure purposes.

The Carpathian mountainous regions are facing an extremely difficult brown-fields problem for three reasons. The brown-fields problem emerged for them in an extremely short period, in extremely large quantity and it affects an extremely large proportion of the potential industrial area:

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- The brown-fields problem is a direct and concomitant consequence of the economic transition from centrally planned to market economy. A very large part of industrial firms established under the directive central planning regime, proved to be inefficient and uncompetitive in the open market economy. Abandonment of economic activity happened within a very short time period, between 1991 and 1996, it means within 5 years in most Carpathian countries. While in Western countries, the problem emerged gradually during several decades, Carpathian countries had to face the problem in five years;
- In the Western countries, the brown-fields problem emerged as a consequence of the decreasing demand for some products or as a consequence of obsolete technologies. These problems do not occur at the same time in all industrial branches. The consequences of the inefficient and uncompetitive centrally planned economy emerged at the same time in all sectors and branches of the economy. There emerged such a huge number and area of brown-fields, which is unparalleled in market economies;
- The processes described above are common to all countries and to the whole area of the respective countries. In the mountainous areas, however, the situation is more acute, because in the narrow valleys there is very restricted place suitable for industrial location and a very large part of this restricted area is occupied by brown-fields. Therefore, if these brown-fields are not cleaned up, then there is no possibility for new industrial investment.
- Clean up and reuse of brown-fields is in most cases more expensive and less attractive for investors than green field locations. That is a main difficulty of revitalisation, because local governments cannot force investors to use brown-fields and rigid insisting upon brown-field utilisation might discourage the investors from selecting the city or region for their investment. But brown-fields are discouraging and repulsive also for tourism developments. Unfortunately, several brown-fields are situated in the immediate vicinity of the most valuable natural and cultural heritage sites in the Carpathians (for example abandoned cement factory before the entrance of the Cheile Bicazului – Gorge Bicaz – in Romania).
- Brown-fields are special problem if they are contaminated with dangerous and harmful chemical substances. Unfortunately, several brown-fields belong to this category in the Carpathians. Their reuse requires much more effort and much more money. Sometimes even the cleaning procedures are not yet properly elaborated and tested. Therefore research in this field should enjoy priority in I&TD programmes.

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How to clean up this huge amount of brown-fields in the Carpathian area? Unfortunately, one chance has been missed in most countries and it was the privatisation phase. In the 5 new Länder in Germany, the "Treuhandanstalt" connected privatisation with the obligation of cleaning up and reuse of brown-fields. In most Carpathian countries priority was given to the privatisation methods of management and employee-by-out, voucher privatisation, or to the budgetary revenue from privatisation and not to the clean up of the areas. The situation was somewhat better in the Czech Republic where a certain proportion of privatisation income and to be used for the environmental rehabilitation of industrial sites. A posteriori it is extremely difficult if not impossible to enforce the fulfilling of this obligation. Most of these real estates have changed proprietor several times during the last 15 years.

Carpathian countries and regions have to use the following instruments to solve the "brownfields" problem:

- The privatisation of the remaining stock of state-owned industrial assets should be strictly connected to the clean up and reuse of brown-field areas.
- The proprietors of brown-field areas should be obliged to clean up these areas within a given period of time. In case of non-compliance they should loose their real estate or should pay serious penalty;
- In the course of urban planning the reuse of brown-fields should be more seriously enforced. New industrial areas should not be designated until large brown-fields are not re-utilized.
- Both the EU and national governments should assign high priority to the reuse of brown-fields in their structural support policies. Brown-fields should enjoy the same status as convergence or remote areas, in the case of Carpathian countries most brown-fields are anyway in Convergence regions. In case of brown-field utilisation multinational and big enterprises should have also the opportunity, to become subjects of EU and national support.
- As already mentioned, business investors are frequently repulsed by the costs and complications of brown-fields reutilisation. Therefore, brown-field clean up should enjoy support also in the case, if it would be used for residential development purposes. In many cases, residential use is the only possible way of re-utilisation. However, this method can be applied only if the areas are not contaminated.
- In abandoned mining and manufacturing places there are two options of utilisation. Either to fully remove the remnants of the older industrial assets and start building a new in a cleaned up area, or use the area as an industrial or mining heritage place, for an open air museum or for other educational, leisure or other cultural purposes (like many places in Germany, Britain and the Czech Republic, or like several salt mines in Austria, Poland and Romania for a mining museum). Obviously, the transformation to industrial or mining museum requires also some investments;

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- In recent years, there were innovative remedial techniques employed at distressed brown-field properties. A remedial strategy uses naturally occurring microbes in soils and groundwater to expedite a cleanup, and in situ oxidation, which is a remedial strategy that uses oxygen or oxidant chemicals to enhance a cleanup. Often, these strategies are used in conjunction with each other or with other remedial strategies. Some brown-fields with heavy metal contamination have even been cleaned up through an innovative approach that utilizes deep-rooted plants to soak up metals in soils into the plant structure as the plant grows. After they reach maturity, the plants – which now contain the heavy metal contaminants in their tissues – are removed and disposed of as hazardous waste.
- If nothing else, then the assessment and appraisal analysis of cleaning up the brown-fields should be supported. A thorough analysis is namely indispensable before starting any clean up exercise.

7.2.2 Conversion

The task of conversion has been already – in large part – fulfilled in the Carpathian region. Nevertheless, there are still capacities which have to be converted to civilian use. The community initiative CONVER of the EU ceased to exist from the year 2000, but there are other Funds and ways for supporting these actions.

7.2.3 Industrial diversification and the problem of the "one-factory-towns"

One-factory-towns are a specific problem of new member states but even more of the Carpathian area:

"Socialist industrialisation" has acknowledged only big enterprises. SMEs did not exist under socialism because they were difficult to control in the state owned economy. Therefore industrialisation meant to establish one large enterprise in smaller towns which would provide jobs and income to the population of the town.

But in several cases, this single enterprise did not provide only jobs and income to the town, but it also undertook the responsibility of service provision to the population. Nursery and kindergarten were operated by the single enterprise. These plants provided housing and heating to their employees. Cultural and sports facilities were also the property of the enterprise. They have supported local authorities to construct new roads, water and sewage facilities in the town etc. These services were initially intended to serve the employees of the enterprise but later – if the enterprise was in good financial position – they were extended to the whole population of the city, since – directly or indirectly – everybody was connected anyway

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to the single enterprise of the town. The enterprise was in a monopolistic situation and the population of the town was – in a sense – exposed to the mercy of the enterprise.

The situation became especially critical, if this single enterprise gone bankrupt. It was not only an economical, but a very serious social problem as well, because there were no other jobs in the town and in its surroundings. Even the basic services could not be sustained, because they were operated by the enterprise. Governments were forced to bail out the firm because otherwise the fundamental living conditions were endangered. But this bailout did not ensure any improvement in the efficiency and competitiveness of the enterprise.

One-factory-towns existed in rather large numbers in the Carpathian regions of Poland, Slovakia, Ukraine and Romania, but there were similar towns – though in lesser number – also in the Czech Republic and Hungary.

The proposed measures and institutions, dealing with this problem, are the following:

- The local governments of the respective cities should be strengthened and supported, in order to enable them for the takeover of those communal and social services which were provided in the past by the single big firm in the town. After takeover, they can be privatized to other firms, independent from the one which "monopolized" the town's economy. It refers, first of all to housing, heating, nurseries, kindergartens, local transport and health services.
- It should be avoided that in the future similar situation arise. It is important, because not only "socialist enterprises", but modern, national and multinational firms are sometimes willing to monopolise the employment opportunities of the town and exclude competitors from the area. For that aim they are sometimes willing to provide services which do not belong to their proper business activity. Local governments and the inhabitants welcome this patronage, releasing them from some obligations. Serious critical situation could arise, however, if the multinational firm moves to other countries or regions, where labour is cheaper than in the present location. Of course, firms can support local governments financially, but not with own provision of – otherwise communal – services.
- Economic and employment diversification is more served by several small and medium size enterprises, operating in different sectors or branches of economy, than by a single big enterprise. Therefore priority should be given to the support of SMEs. Unfortunately, practically in all Carpathian countries, the largest government support – taxation allowances, capital grants – are given to the large multinational enterprises, to attract them to the country. On the one hand it is understandable, because large multinationals bring also the know-how, the export and the hope for later higher tax incomes, but their

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employment impact is moderate and expectations concerning future higher tax revenues several times prove to be illusions.

– Significant foreign direct investment in Carpathian towns and cities can be connected to diversification, if assembly parts and accessories for the main plant are produced in the same region by domestic small and medium enterprises. These SMEs should be – on the one hand subcontractors and suppliers of the big enterprise. On the other hand, they should be independent enterprises, who are producing not only for a single factory but for other costumers as well. National and regional governments should insist upon that within reasonable time the share of supplies and deliveries of domestic contractors should increase. It could be a condition of supports and allowances to the large firms. On the other hand, subcontractors should make efforts not to be fully exposed to one single customer.

7.2.4 Promotion and support of SMEs

This policy proposal is closely related to the former one. It should be emphasised here that the promotion of SMEs in the new member states is quite different task from the same activity in the old member states, and therefore requires different approaches and instruments.

SMEs practically did not exist in the socialist states. All economic activities were organized in large socialist firms. These large units were easier to control centrally and to impose centrally defined production, sales, employment and investment target figures on them. Small and medium units did not fit into this economic system.

It follows that SMEs had to be created after the system change, in the last 16–17 years. Very few could be created from a smaller part of a privatised big state-owned enterprise (mostly retail shops, the so-called small privatisation), most of them had to start from zero. They did not have the time to accumulate the required capital, therefore most of them are suffering from shortage of capital.

Some “older” EU member countries (like Italy) insist upon to apply the same (or even stricter) regulations by supporting SMEs in the new member states than it was the case in the old ones. They refer to the lower wage level of new member states which makes SMEs more competitive and therefore they are against capital grants to SMEs in the new member states.

But the key question is that without the minimum required capital, SMEs in new member states (and especially in their less developed regions, like the Carpathian area) will be never competitive with SMEs in old member states which had many decades – or sometimes centuries – to accumulate the necessary capital. Therefore, they have to be dealt with differently.

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7.2.5 The Carpathian motor car industry cluster

Besides the problems of transition, the last twenty years witnessed also very positive developments in the industry of Carpathian countries. One was the fundamental restructuring of industry. The two main branches of industry became motor car industry and electronics. In Slovakia, by 2008 nearly 40 percent of total industrial output and even larger percentage of industrial exports was produced by the motor car industry. This share is somewhat lower in the other countries, bur also very high.

The region's advantage lies in the fact that it enjoys a well-educated, highly qualified and polyvalent labour force with significantly lower labour costs, exceptionally high technical capabilities and a high-quality supply base. Subsequently, the growth of joint ventures and acquisitions and the success of green-field operations are some of the driving forces that encouraged motor car concerns' decision to initiate new research development and production engineering facilities.

Technological know-how, access to local and mature Western markets, continued product quality and development, lower labour costs, subsidies and incentives from national and local governments and loans from the European Bank of Reconstruction and Development and from the European Investment Bank all point towards growth and rebirth of the region's automotive industry. This therefore presents a key example of regional restructuring where renewed economic structures are prioritised, such as adaptation to changing demands and entrepreneurship.

The interesting development is, that all these new investments were implemented in a relatively small area, embracing some parts of four countries: Czech Republic, Hungary, Poland and Slovakia. The area begins from the riverside of the Danube in Hungary and Slovakia, continuing in the valley of the river Vah and through the Silesian gate to the most southern parts of Poland. Along this line the main motor car or parts manufacturing plants are the following:

Esztergom HU (Suzuki assembly plant, Győr HU (Audi motor and assembly plant), Bratislava SK (Volkswagen gear and assembly), Trnava SK (Peugeot and Toyota), Zilina SK (Hyundai KIA), Martin SK (Volkswagen parts, axels, steering), Ostrava CZ (Siemens, parts), Nošovice (Frídek-Místek Hyundai) CZ, Bialsko-Biała PL (Fiat), Tychy PL (Fiat), Gliwice PL (Opel assembly and parts) (*Figure 9*).

Together, this area will produce by 2008 nearly 2 million motor cars, and will employ about 20 thousand people.

But the real significance of the cluster is not even in these large foreign owned plants, but in the several hundred SME suppliers, who are working for and delivering to these large plants.

The possibilities for local suppliers are not yet exhausted. Due to technical development, the parts and accessories of cars are more and more portable (that means that they fit not only to one but to several types of cars), suppliers are not

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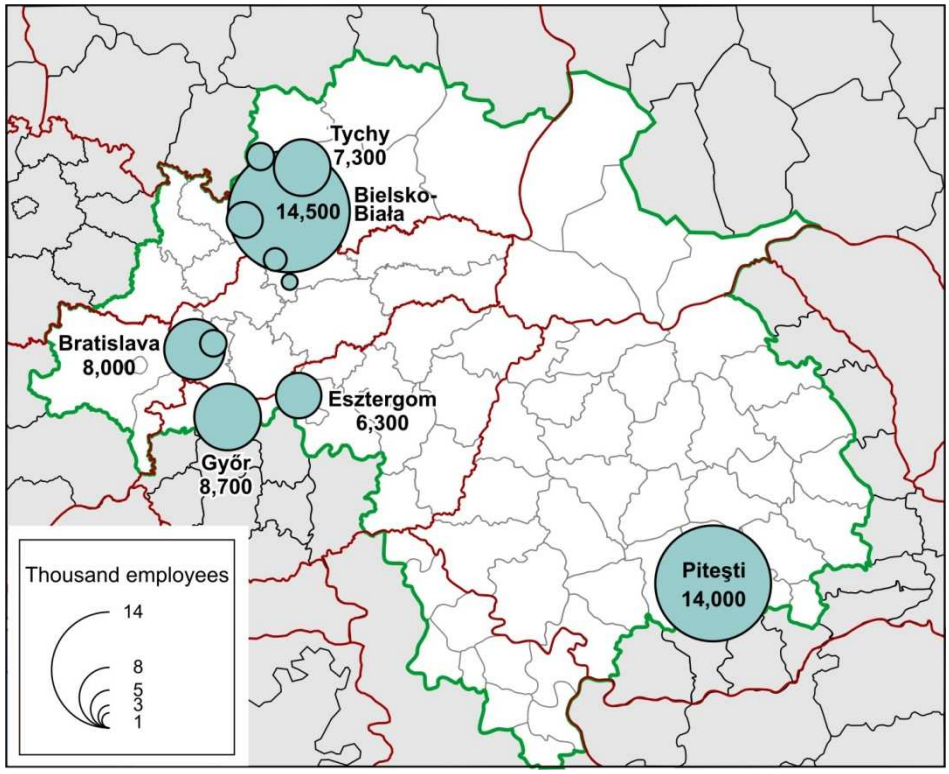
bound to one manufacturer, they can serve several of them. That makes the grouping of manufacturers to become really a cluster, with multiple cooperation and bindings. This element of the cluster should be enhanced and supported in the future.

Figure 9

The major centres of the automotive industry in the Carpathians



Source: Author's construction.