



**CENTRE FOR THE STUDY
OF ECONOMIC & SOCIAL
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**SCHOOL OF SLAVONIC & EAST
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**FOREIGN DIRECT INVESTMENT AND
RESTRUCTURING IN THE AUTOMOTIVE INDUSTRY
IN CENTRAL AND EAST EUROPE**

by

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Working Paper No. 53

March 2005

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Abstract

This paper reviews and explores the major effects of FDI on industry restructuring of the CEE automotive industry. In particular, we are interested if automotive companies have exploited the value creation potential of CEE? Which factors explain the scale and depth of automotive industry restructuring in CEE? What are the economic effects of restructuring the automotive industry in terms of employment, trade and technology? What has been the role of national and EU policies in shaping FDI and restructuring in the CEE automotive industry?

Our results suggest that the value creation potential of CEE as a global automotive location has not yet been fully exploited with great differences across countries. A combination of country specific factors (proximity to EU markets, socialist heritage in automotive industry, skilled labour and privatisation policies) coupled with strategies of automotive MNCs have generated different country patterns and very different effects on industry. Improvements in productivity and technology transfer in both embodied (equipment upgrading) and disembodied form (know how) are significant in countries with large FDI in automotive industry. Employment effects are positive in particular in automotive suppliers industry. Privatisation policy in early 1990s which was followed by a policy of attracting Greenfield FDI on the eve of EU accession is crucial in explaining country differences in FDI presence. Automotive investors have foreseen EU accession and in that respect, EU membership will not bring to changes in trend but possibly a deepening of the automotive cluster in central Europe. However, whether this will happen or not will depend on the ability of CEECs to develop sector specific policies which would support the upgrading of local automotive suppliers.

¹ This paper has been produced within the Study for the EU DG Employment on "Industrial Restructuring in the Accession Countries", Contract No. VC/2003/0367 coordinated by Vienna Institute for International Economic Studies, WIIW

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1. INTRODUCTION

Since 1989 industrial restructuring of central and Eastern Europe (CEE) has been greatly dependent on foreign direct investment (FDI). These have brought capital, technology, know how and access to foreign markets. Equally, local markets, cost advantages and a skilled labour force have attracted foreign investors. Privatization policy and the EU accession have greatly facilitated this process.

The automotive industry² is a leading sector in terms of its importance for industry restructuring in CEE. Moreover, it is one of three sectors, in addition to electronics and the clothing industry, in which CEE has become a global production location. Hence, this sector represents very interesting case for understanding how globalization of CEE as an automotive market and production location has affected these economies and industry in particular.

Effects of globalisation of CEE in the automotive industry, its determinants as well as its future prospects are still largely unexplored³. This study is of the review type and aims to explore the major effects of FDI on industry restructuring of the CEE automotive industry. In particular, we are interested if automotive companies have exploited value creation potential of CEE? Which factors explain the scale and depth of automotive industry restructuring in the CEE? What are the economic effects of restructuring of automotive industry in terms of employment, trade and technology? What has been the role of national and EU policies in shaping FDI and restructuring in the CEE automotive industry?

Our results suggest that the value creation potential of CEE as global automotive location has not yet been fully exploited. This process has most progressed in the Czech Republic and Hungary, is consolidated in Slovenia and has started in Slovakia and Romania. It is faced with difficulties in Poland while other CEE countries are largely bypassed by automotive networks. A combination of country specific factors (proximity to EU markets, socialist heritage in the automotive industry, skilled labour and privatisation policies) coupled with strategies of automotive MNCs have generated different country patterns and very different effects on the industry. Improvements in productivity and technology transfer in both embodied (equipment upgrading) and disembodied form (know how) are significant in countries with large FDI in the automotive industry. Employment effects are positive in particular in the automotive suppliers industry. Privatisation policy in the early 1990s, which was followed by policy of attracting Greenfield FDI on the eve of EU accession, was crucial in explaining country differences in FDI presence. Automotive investors have foreseen EU accession and in that respect, EU membership will not bring to changes in trends but possibly deepening of automotive clusters in central Europe. However, whether this will happen or not will depend on the ability of CEECs to develop sector specific policies which would support upgrading of local automotive suppliers.

The restructuring of the automotive industry evolves around large investors and is based on a good understanding of competitive dynamics and micro-strategies. In terms of an analytical perspective, this requires the blending of economic and international business perspectives which has been followed in this paper.

This paper is organised as follows. Part 2 positions CEE within the globalisation process of the automotive industry and try to estimate value creation potential of CEE as production location for MNC. Ultimately, it is this value creation potential that will determine the scope and pace of restructuring in the region. Part 3 analyses major aspects of restructuring the

² For the purpose of this paper, the automotive industry is defined using NACE classification DM (manufacture of transport equipment) code 34 (manufacture of motor vehicles, trailers and semi-trailers), and SITC classification 78 (road vehicles including air-cushion vehicles). The terms automobile, car, motor, and motor vehicle will be used here interchangeably to mean the same thing.

³ There have been several papers written on the CEE automotive industry (see for example Havas 1997, Havas, 2000, Sadler et al. 1993, Sadler and Swain 1994, Swain 1998, van Tulder and Ruigrok 1998, Richet and Bourassa 2000, Pavlínek 2002, Pavlínek and Smith 1998). These are mostly written from an economic geography or industry perspective. To date there has been very little written on the globalisation of CEE automotive industry from industry restructuring perspective.

automotive industry – employment, productivity, trade and FDI effects. Section 4 analyses the industry from a micro perspective including how MNCs have addressed the issue of local supply base. Part 5 analyses key policies and how they have shaped globalisation and restructuring of the CEE automotive industry. Conclusions summarise the main arguments and derive a few policy ideas.

2. GLOBALIZATION OF THE AUTOMOTIVE INDUSTRY AND THE EMERGENCE OF CENTRAL AND EASTERN EUROPE AS A GLOBAL PRODUCTION LOCATION

The opening and integration of CEE automotive markets and industry coincided with the emergence of ‘new’ model of competition in world automotive industry. The Sloan Foundation study on automotive industry (Sturgeon and Florida, 1999) concludes that the automotive industry has transitioned from an older “domestic” model of competition to a new ‘global’ model. The key features of the ‘old’ and new’ models are summarised in the table below.

Table 1: Old and new models of competition in automotive industry

‘Old’ model of competition	‘New’ model of competition
‘Domestic’ model (competition based on exporting from home country supply-base)	"Global" model (day-to-day production functions are organized on a regional and global basis)
Emerging markets as dumping grounds for old models and production equipment	Emerging markets as locations for building leading-edge productive capacity
Export-led industry (firms from different countries compete mainly through markets)	Network-led industry (each major firm is producing within each major market)

Source: Based on Sturgeon and Florida, 1999, p. 113.

The key drivers of transition from the domestic to global model of competition are modularization and supplier outsourcing. Increased complexity and capital costs of assembly have forced assemblers to deverticalize and shift part of design development to first tier suppliers. Once vertically integrated assemblers have become the node of networks to which they outsource a wide range of tasks.

Costs of design and produce are shared across common modules which can be built in a variety of different models. For example, VW has shared costs of its platform for Škoda with Audi and VW models. Sturgeon and Florida (1999) point out that the introduction of modular assembly may reduce minimum scale economies and greater specialisation within an MNC network. Therefore, the issue of which parts are to be globalised and which localised become one of the central concerns of automakers.

A crucial part of this issue is the sharing of responsibility between assembler and part suppliers. Sturgeon and Florida (1999) point to the rise of *the global supplier*. This leads to ‘deverticalization (by automakers) and vertical integration (among first tier suppliers) that— in combination with globalization— is helping to create a new global supply-base capable of supporting the activities of final assemblers on a worldwide basis’ (ibid, p. 115).

The EU automotive industry is in the process of embracing CEE as its market and as its production location. The issue is whether EU OEM producers will succeed in making use of this opportunity. As table 1 suggest the key challenge is that it is not any more excellence in production that matters but excellence in network management, i.e. how to govern ‘spatially dispersed networks of plants, affiliates, and suppliers’ (ibid, p. 113).

Prospects of EU accession have induced EU OEM’s to rapidly enter CEE markets (VW), or deepen their presence (Fiat, Renault). Also, Asian OEMs (Suzuki, Daewoo) have been attracted by prospects of accessing EU markets via CEE. The entry of EU OEMs coincided with their expansion to other

emerging markets like VW's expansion to Latin America or Renault's expansion to Turkey. Additionally, EU accession has facilitated OEMs to build regional integration strategies i.e. to gradually integrate CEE, in particular central Europe, in their production network. For OEMs this was strategy which they developed by integrating Spain in their production network since the 1980s.

Initially, CEE played role mainly as market but increasingly OEM's followed "build-where-you-sell" strategy (Sturgeon and Florida, 1999). However, small size of the CEE market led them to gradually expand production and use CEE as production location to serve all the EU market.

2.1. CEE in the world automotive industry

After a drop from 1990 to 1991, CEE automotive production has been continuously rising from 1.67mn units to 2.3m (2000). The share of CEE in the world production of cars has increased from 4.7% (1991) to 5.6% (2002). In between 2000 and 2002 its share has actually declined by 0.4% points. In comparative terms, this rise has not been exceptional as production in other emerging markets, in particular Asia, has increased much more, from 6.23% (1991) to 13.7% (2000). The share of Western Europe in world production of cars has decreased from 39% (1991) to 36.0% (2002) (table 3). In absolute terms, during the 1990s production of cars in Western Europe has been stagnating around 14m units (table 3). The shifting balance in production between West and East Europe is merely a reflection of production shift towards emerging markets in automotive industry.

Table 2: Share of production of cars in West and East Europe, 1990-2002

	1990	1991	1993	1995	1997	1998	1999	2000	2001	2002
West	39.2%	39.2%	34.3%	37.7%	37.2%	37.7%	37.6%	36.2%	37.2%	36.0%
East ⁴	5.0%	4.7%	5.9%	4.8%	5.3%	5.8%	5.6%	6.0%	5.7%	5.6%

Source: Based on EIU, OICA

Table 3: Production of cars in global regions 1990-2002 (in 000 units)

	1990	1991	1993	1995	1997	1999	2000	2001	2002
Western Europe	14 423	13 873	12 034	13 973	14 865	14 872	14 595	14 949	14 815
NAFTA	7 725	7 219	8 172	8 361	8 103	8 255	8 377	7 362	7 346
Japan	9 948	9 753	8 497	7 612	8 492	8 100	8 363	8 117	8 618
Asia (excl Japan)	2 028	2 205	2 889	3 667	4 197	4 644	4 387	5 003	5 646
Eastern Europe	1 848	1 669	2 060	1 779	2 123	2 200	2 432	2 298	2 292
Other Markets	847	918	1 474	1 622	2 155	1 481	2 184	2 415	2 398
Total	36 819	35 637	35 126	37 014	39 935	39 552	40 338	40 144	41 115

Source: EIU, OICA

However, the shift towards emerging markets has its limitations in industry characteristics, in particular in scale economies (advantages of concentration); sensitivity to labour costs, and in the share of transportation costs. As a result, the trade-sales ratio in automotive industry was 42% in 2000 which is significantly behind consumer electronics (118%) and apparel (77%) but ahead of steel industry (33%)(McKinsey, 2003, ch3, p. 19). This is further compounded by legal and regulatory restrictions (trade barriers), and by organizational characteristics of

⁴ Data does not include Russia and CIS

the industry (firm strategies and union contracts). In addition, economics of the automotive industry suggest that different auto parts have very different relocation sensitivities⁵. Nevertheless, physical proximity to Western Europe and liberalisation of trade ahead of accession worked strongly in favour for CEE as a low cost source automotive production location.

2.2. Value creation potential of CEE for auto MNC

The integration of CEE into global MNC networks may generate significant new value for EU automotive producers. McKinsey (2003, ch.3) points out that in the auto sector over \$150bn in cost savings and at least another \$170bn of revenue could result if the barriers to industry restructuring could be overcome. Together these two opportunities represent roughly 27% of the \$1.2 trillion industry (p. 29). If we assume that the share of CEE industry in the world automotive industry is 6% this would generate a value creation potential for CEE of around \$9bn in cost savings and \$10bn in liberalisation effects.

An important policy and management issue is how that potential could be realised. Its realisation is essentially a micro issue which requires restructuring of the value chains of leading automotive suppliers that are located in CEE, and integration and growth of local car parts suppliers.

The McKinsey Global Institute has developed a taxonomy of types of global industrial restructuring which takes into account the new role of emerging markets in generating value creation in globalised industries (McKinsey, 2003). There are five types of global industrial restructuring:

1. Market entry: Companies enter new countries in order to expand consumer base using a very similar production model in the foreign country to the one they operate at home; This mode of restructuring has been present in CEE during the 1990s only through tariff jumping FDI like Opel's investment in Poland. However, liberalisation of trade tariffs with the EU has removed a source of profits for assemblers which gradually abandoned this strategy.

2. Product specialization: the entire production process of a product (components to final assembly) is located in a single location or region, with different regions specialised in different products and trading finished goods; Audi's investment in engine production in Győr (Hungary) from which it supplies the whole EU market or Fiat's production of cars in Poland for the entire European market are examples of this type of restructuring.

3. Value chain disaggregation: different components of one product (e.g. car engine brakes) are manufactured in different locations/regions and are assembled into the final product;

4. Value chain reengineering: after moving value chain steps to a new location, processes can be redesigned to capture further efficiencies/cost savings (e.g. capital/labour trade offs); Value chain disaggregation and reengineering are currently the most common in the CEE automotive industry as we indicate below.

5. New market creation: by capturing the full value of global activities firms can offer new products at significantly lower price and penetrate new market segments/geographies.

⁵ According to McKinsey (2003, ch. 3, p. 33) relocation sensitivity is the lowest for wiring harnesses, car radios, followed by radiators and major body stamping which have the highest relocation sensitivity. Criteria which are used in assessing relocation sensitivity are: bulk/value; ease of meeting quality standards obsolescence time, damage sensitivity, demand volatility and sunk costs

This type of restructuring has the greatest value creation potential and has been fully implemented in the case of Škoda VW. Also, a forthcoming Logan model of Renault Dacia is designed explicitly to generate such potential.

The existence of all types of global industry restructuring in the CEE automotive industry shows that the full value creation potential of CEE has not been yet realised. A current situation could be seen as the outcome of foresight and strategic commitment of automotive assemblers coupled with the quality of business environment in CEE, especially quality of labour and local car parts suppliers.

3. RESTRUCTURING OF THE AUTOMOTIVE INDUSTRY IN CEE: KEY FEATURES

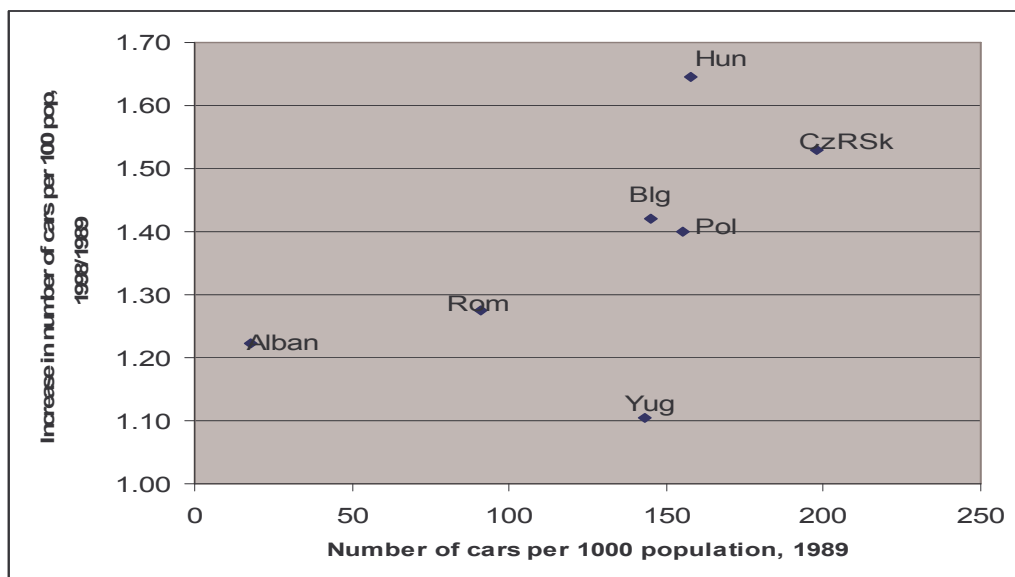
Initially, CEE has been seen by foreign investors as dominantly a market location and accordingly FDI has been perceived as mainly market seeking. Indeed, judging based on the market shares of automotive investors in CEE this has been the dominant but declining feature of the automotive industry. The liberalisation of CEE markets, EU accession and discovery of the cost and skill advantages of CEE have developed the region into both market and production locations.

3.1. CEE as an automotive market

Optimism regarding CEE as markets for cars has been based on initially relatively small and outdated car park. Producers have regarded region as a market for relatively cheap cars and at the lower end in terms of model ranges and component supplies (see Sadler et al. 1993, Sadler and Swain 1994, Swain 1998, van Tulder and Ruigrok 1998). Also, population growth in CEE is stagnant which does not bode well for car sales projections. So, the key driver of growth is purchasing power. On positive side, CEE has higher share of middle class than other regions of similar level of development.

Figure 1 relates the initial level of car per 1000 pop in 1989 (axis x) with relative increases in period between 1989-1998 (axis y). It shows that there is not tendency of convergence in

Figure 1: Relationship between initial level of cars per 1000 pop in 1989 and index of increase 1998/1989

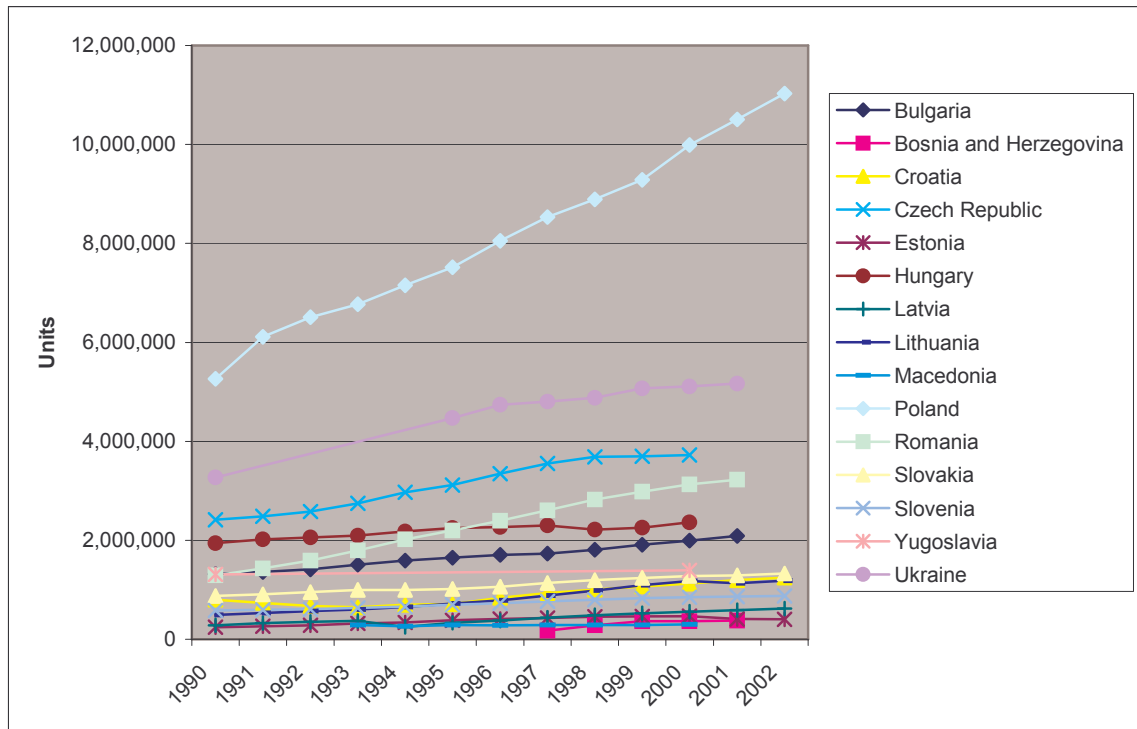


Source: based on Pemberton and Puckering 1999

car density across countries of different income level based on the initial density levels. Countries that initially had higher levels of cars density have further increased their car density and thus widening intra-regional differences.

Data in absolute figures shows somewhat different picture. Figure 2 shows trends in registered cars in CEECs during the 1990s which suggest that only Poland recorded growth rates which could be considered as dynamic. There has been very little movement in some markets such as Hungary, Slovakia and Slovenia due to the relatively high number of cars per capita.

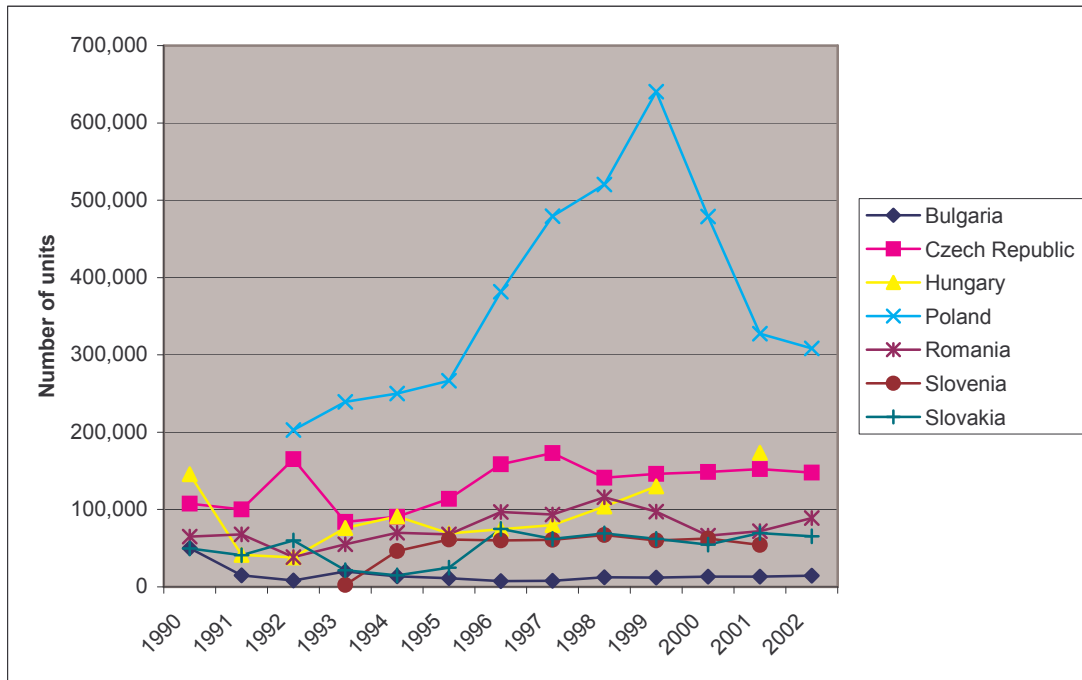
Figure 2: Registered cars in central and Eastern Europe, 1990-2002



Source: National statistical yearbooks

Figure 3 further confirms the crucial importance of Poland, both in terms of market size as well as in terms of growth of car sales. In between 1993-1999, the average rate of car sales in Poland was 17.8% annually. Other markets have recorded significantly lower one digit rates which reflected lower rates of their economic recovery during the 1990s when compared to Poland. However, the decline in rates of GDP in Poland in early 2000 have led to declines in car sales.

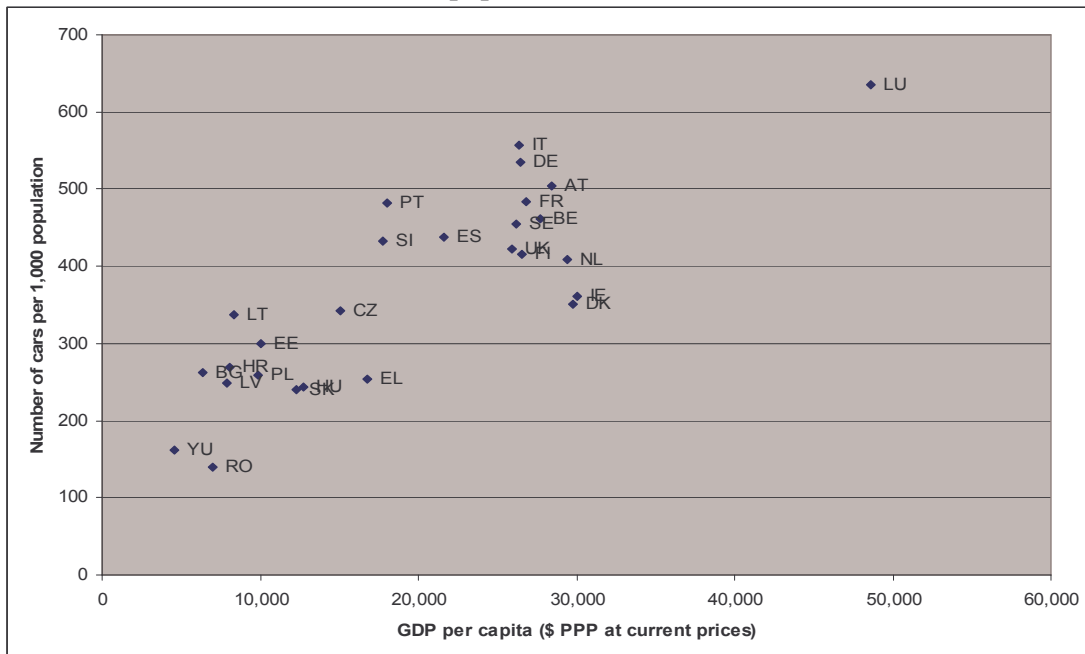
Figure 3: Car sales in 1990-2002



Source: National automotive agencies

Penetration of cars in CEECs broadly reflects their income levels (see figure 4). This suggests that expansion of market seeking FDI has its limits in still low income levels of these economies⁶.

Figure 4: Relationship between GDP per capita and number of cars per 1,000 population, 2001

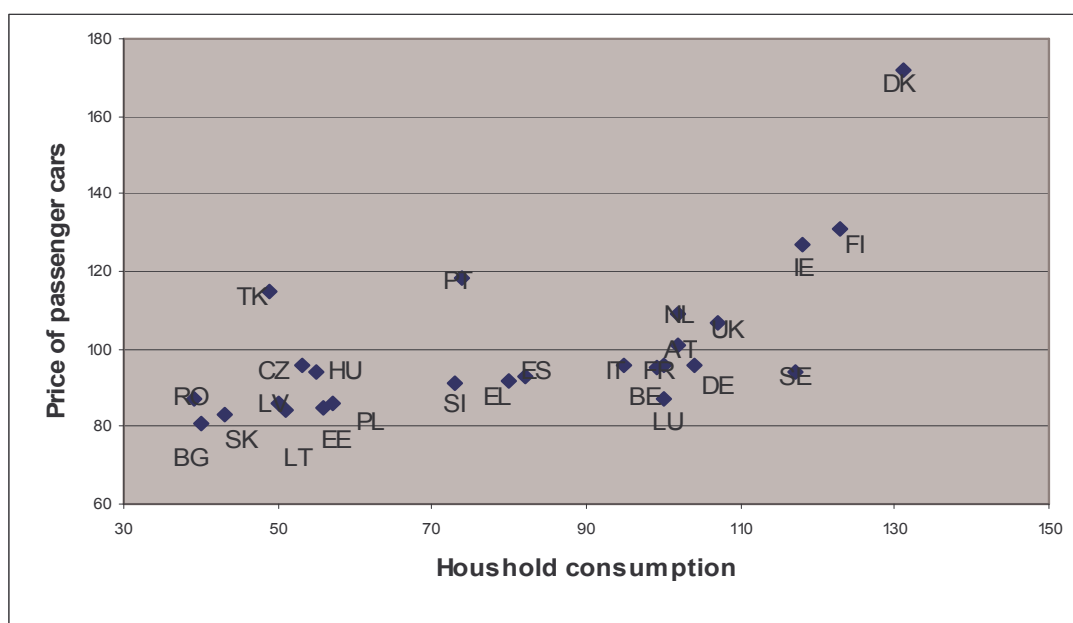


Source: UNECE, 2003, The Statistical Yearbook of the Economic Commission for Europe 2003

⁶ There are some interesting country differences (Slovenia vs Greece) which would require further research to be explained.

Lower income levels of CEE means that their markets are very price sensitive and with limited purchasing power. Expenditure per household in CEE is between 30-70% of the EU15 average. A low expenditure per household is a strong regional feature as variations in this respect are much smaller than variations within the EU15 (see figure 5). However, prices of cars are only 7 percentage points lower than in the EU15. So, limited purchasing power is a constraint for market seeking FDI in CEE. This has forced all assemblers to increasingly orientate themselves towards exports which raises the issue of competitiveness of CEE in the global automotive industry.

Figure 5: Relationship between household consumption and price level of passenger cars, EU15=100, 2002



Source: Eurostat, Statistics in Focus, 'Relative prices for new passenger cars in EU, EFTA, Accessing and Candidate Countries for 2002', Theme 2, 65/2003

3.2. CEE as an automotive producer

3.2.1. Socialist heritage in automotive industry

Before 1989, the CEE automotive industry developed along three lines (Richet and Bourassa, 2000; Pavlínek 2002):

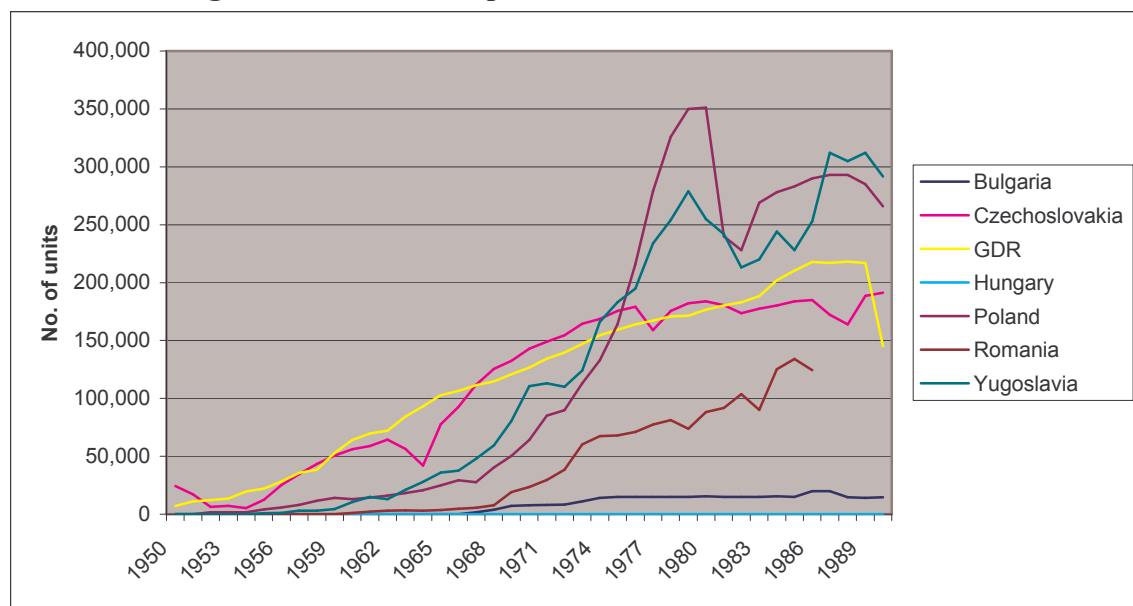
- Manufacturing based on indigenous development, technology, and car making traditions of the pre-WWII period (Czechoslovakia, GDR)
- Production developed using Western licences (Poland, Romania, Yugoslavia)
- Components production without automobile assembly operations (Hungary, Bulgaria, Albania)

The opening of CEE has not led to radically new trends in the automotive industry but it did reinforce market position of already developed capacities. FDI projects since 1989 have reinforced the three former production patterns that were observable under socialist times: the Czech Republic (and East Germany) are specialising in automotive production, with Poland, Romania and Slovenia increasing their production capacities based in part on the former links

and cooperation licenses with western manufacturers, while components manufacturing has remained the core activity in the Hungarian automotive industry.

In the long-term perspective growth of car sales during the 1990s are comparable to rates of sales during the 1970-79 period for Poland and are above rates of this period for other countries, except Bulgaria (figure 6). However, during the 1980s all CEECs, except Yugoslavia and Romania, had either negative (Bulgaria, GDR, Poland) or very low rates (Czechoslovakia). The deterioration in terms of car production during the 1980s led to large pent up demand in early 1990s, despite strong declines in household incomes. Recovery in demand has been accompanied by increasing variety of models and price levels.

Figure 6: Socialist car production in CEECs 1950-1989



Source: National statistical yearbooks

All of the major indigenous automotive manufactures were taken over by foreign manufacturers, through privatisation, as the large state owned enterprises were broken up and sold to foreign investors (table 4). However, creative destruction was not without victims as some companies were liquidated (such as Wartburg, Trabant, FSO) or are in process of prolonged degradation (Crvena Zastava).

Table 4: The fate of major indigenous socialist manufacturers after 1989

Company	Location	Fate
VEB Automobilwerk Eisenach (Wartburg)	East Germany (Eisenach)	Joint venture with GM Opel Opel-AWE Personenwagen GmbH formed on 26 March 1990. Plant closed on 10 April 1991. Plant facilities reopened as Opel-Werk on 23 September 1992
VEB Sachsenring Automobilwerke Zwickau (Trabant)	East Germany (Zwickau)	Closed down on 30 April 1991. Plant facilities taken over by Volkswagen AG as subsidiary Volkswagen Sachsen GmbH
Automobilové Závody Národní Podnik (AZNP) Škoda	Czechoslovakia (Mladá Boleslav)	Taken over by Volkswagen AG. Plant called Škoda Auto a.s.
Tatra, národní podnik	Czechoslovakia (Kopřivnice)	Factory at Pribor closed and car production moved to Kopřivnice in 1998. Car production stopped in same year
Fabryka Samochodów Małolitrażowych (Small Car Factory) – FSM	Poland (Bielsko Biala)	Taken over by Fiat S.p.A. Plant called Fiat Auto Poland S.A.
Fabryka Samochodów Osobowych (Passenger Car Factory) – FSO	Poland (Warsaw)	Company liquidated on 18 January 1996. Agreement signed between Daewoo and FSO in November 1995. Taken over by Daewoo. Plant called Daewoo-FSO

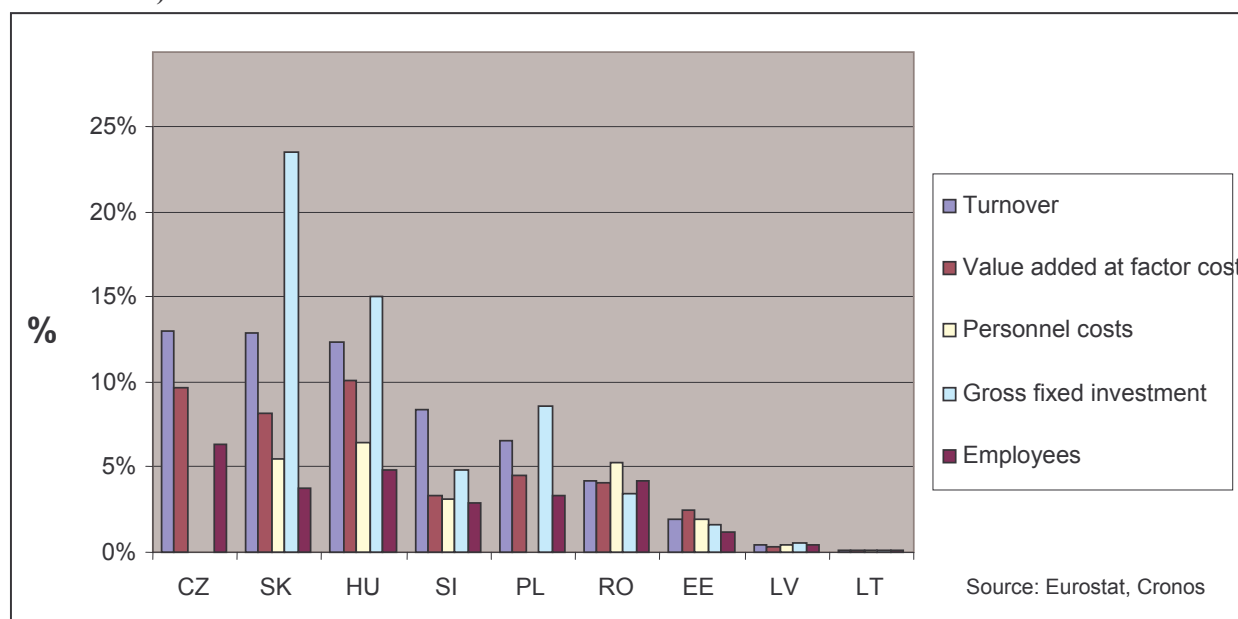
		Motor S.A.
Uzina de Autoturisme Pitești (Pitești Car Factory) – Dacia	Romania (Pitești)	Taken over by Renault S.A. Plant called Automobile Dacia S.A.
Oltcit	Romania (Craiova)	Citroën withdrew from Oltcit SA joint venture in 1991. Government decision No. 499/1991 to form S.C Automobile Craiova SA. Taken over by Daewoo. Plant called Daewoo Automobile România S.A.
Industrija Motornih Vozil (IMV)	Yugoslavia (Novo Mesto)	Subsidiary Revoz transformed into public company Revoz d.d. in June 1990. Taken over by Renault S.A.
Zavodi Crvena Zastava (Red Star Factory) – ZCZ	Yugoslavia (Kragujevac)	Taken over by Nucarco on 4 October 2002. Joint venture called Zastava Motor Works

Source: authors

3.2.2. Role of automotive industry in CEE manufacturing

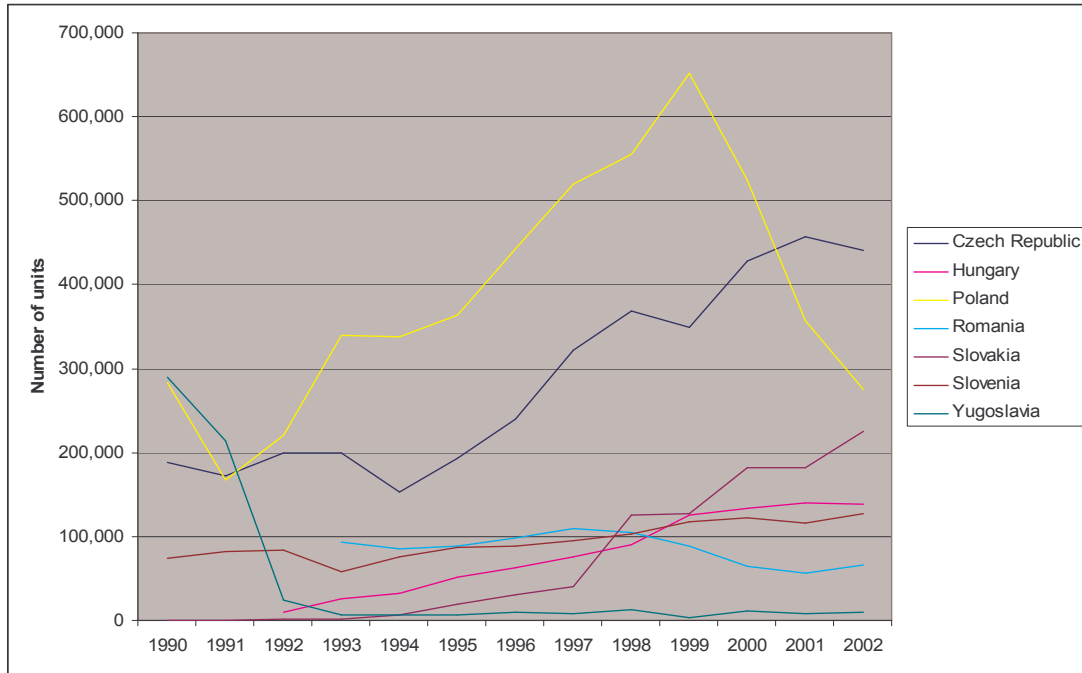
Judging based on shares in main economic indicators, the automotive industry plays a very important role in manufacturing industry in three central European economies (the Czech Republic, Slovakia and Hungary), a moderate role in Slovenia, Poland and Romania, and a marginal role in Baltic economies (see figure 7). In the leading group, the automotive industry employs in between 3.7% to 6.4% of manufacturing labour force but generates from 8- 10% of value added. In terms of turnover, the automotive industry has a very similar share in the leading group of 12-13%. By the end of 1990s, investment in this industry in Hungary and Slovakia were 23% and 15% respectively.

Figure 7: Share of automotive industry in manufacturing, 2001 (Czech Republic, 2000)



A combination of market size factors and inherited competencies in automotive assembly coupled with strategies of foreign investors has led Poland and the Czech Republic to be the two leading production locations (figure 8). Trends across countries can be clearly traced to investment decisions of individual investors.

Figure 8: Car production in CEECs, 1990-2002



Source: National automotive agencies and OICA

Fiat dominated the **Polish** market until Daewoo entered via the takeover of a domestic producer by the end of the 1990s. However, due to Daewoo's and Fiat's troubles Polish production numbers have been stagnant since the end of the 1990s.

Although being four times smaller market in terms of population the **Czech Republic** has become the leading producer in the region. Recent investment in a new plant by Toyota and PSA will eventually make the Czech Republic one of the largest European automotive manufacturers. As a production and supplier location, the Czech Republic is geographically close to the major European OEMs operating in Germany and France, and has also been favoured by many producers and suppliers due to its facilities, manufacturing history, low costs and technical capabilities.

Slovakia has emerged only recently as an important production location. VW investment and recent investments by PSA and Kia have expanded the production base greatly. Once these plants are up and running by 2006/7 Slovakia will have the largest per capita production globally (150 cars per 1,000 inhabitants in 2007, compared with some 90 cars in the current global leader, Belgium, in 2002) (EIU, 2004).

Throughout the 1990s the **Romanian** automotive industry operated as non-restructured, stagnant and state owned. This coupled with a very limited local market due to low purchasing power led to declining volumes. However, in early 2000 Renault/Nissan started a turnaround of Dacia and have launched entirely new model of car for emerging markets with large share of local content. If this project succeeds it will have important spillover effects on industry restructuring in Romania and may launch Romania as a new global low cost production location. Also, Continental and Michelin have made large investment in Romania to produce tyres.

With a history of car and component manufacture stretching back to the 1950's, **Slovenia** continues to play a leading role in CEE production. Its only producer, Revoz, is part of the Renault group.

Baltic countries play a very small role within CEEC car production, in part due to the small local market size as well as lack of endogenous producers. Interestingly, Baltic countries are not used as production bases for neighbouring Russia. However, component manufacturers are setting up bases within Estonia, Latvia and Lithuania

Following the break-up of **Yugoslavia (Serbia and Montenegro)** in 1991, its largest manufacturer, Zastava, was faced with large scale restructuring. The following war with Croatia saw production in Yugoslavia nearly wiped out. The Zastava plant was heavily bombed by NATO in 1999, destroying the production line and forcing it to completely close its operations. Reopened a year later, production was resumed, but at a fraction of its potential.

Croatia does not have any car producers, but concentrates on component manufacture. There is very little domestic production of automotive parts, and almost no domestic production of car accessories. Local companies such as Cimos, AD Plastik, Elcon and Prevent produce a small number of parts for the French manufacturers Citroen, Peugeot and Renault, which entitles these OEMs to tax benefits.

VW has a share of 58% since 1998 in its **Bosnian** operations, following a long running assembly joint venture with a UNIS-TAS which dates back to 1972. Having suffered from the Bosnian war, it reopened again with full production in 2000, after the war damage had been repaired. Essentially a CKD plant, with a possible capacity of 5,000, this remains the only automotive and component company in the country. VW will remain minor operation in the foreseeable future

Bulgaria, Macedonia, Albania are peripheral to the CEE automotive industry. In Bulgaria, there has been some history of assembly of Russian cars (VAZ's and Moskvitch's), but only at the 15,000-20,000 unit level. Today there is marginal production, although component manufacture has been growing steadily since 1989. In Albania, under socialism there was no car or component manufacture as car sales and production were banned, which is reflected in today's lack of any production. All cars are imported.

Turkey is production source for both Middle East and Europe. For Renault, Turkey is important location as it continues to benefit from EU custom union for global sourcing of its models. Fiat too has major production facilities to produce its global 178 car, under the local brand Tofas.

Development of **Russian** automotive industry will have important effects on prospects for growth and restructuring in CEE. For 10 years, there have been numerous attempts by foreign investors to set foot on the Russian market but still with meagre success. However, some joint ventures are gradually progressing driven greatly by protected local market and high growth of domestic demand. Russian domestic producers' benefited from the 1998 financial crisis as imports have become more expensive which boosted their profitability though the technological lag remains considerable. Avtovaz and Gaz are two biggest domestic producers. GM, Fiat, Renault and several other MNCs have joint venture agreements with Russian assemblers which are subject to delays and doubts. Nevertheless, with the return of growth and increased purchasing power automotive companies will gradually increase their investments in Russia which may have profound effects on the CEE automotive industry in terms of competition as well as cooperation.

Ukraine, with a population of 50 million, has also large market potential. However, economic difficulties have led to new car sales of only 10% of neighbouring Poland.(PwC 2002). In recent years, production has risen significantly, aided by strength of the local market and based on the number of SKD assembly operations designed to avoid import duties. With economic recovery and institutional stabilisation Ukraine may emerge as an important competitor and partner of the CEE automotive industry despite its poor records of FDI, so far.

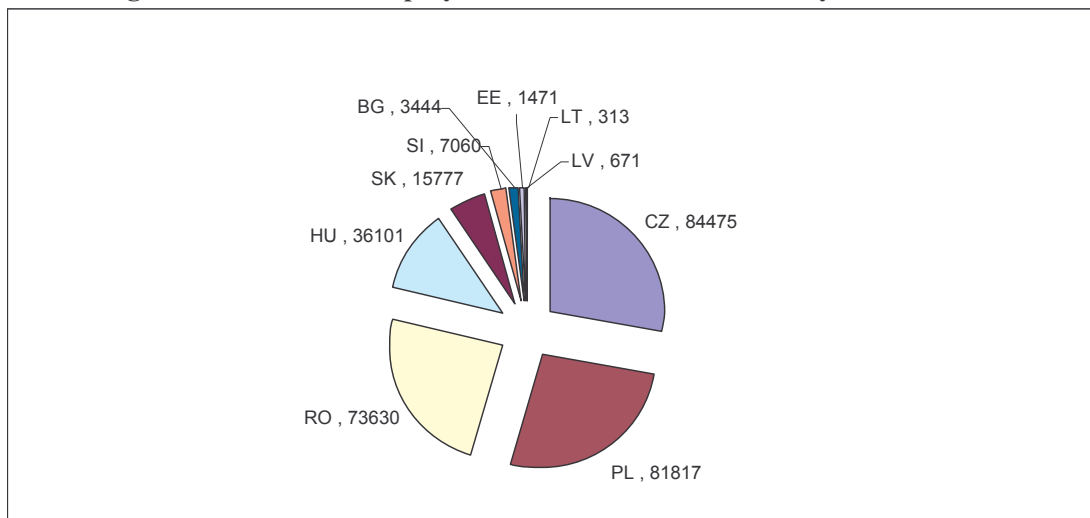
This brief overview of the CEE as markets and production location shows that production capacities in automotive industry are currently highly concentrated on central

Europe (the Czech Republic, Poland, Slovakia and Slovenia). New FDI in the Czech Republic and Slovakia will further increase their role in regional production networks. Romania is emerging as possibly an important new location. Other CEE countries operate mainly as markets though some of them are gradually becoming involved in supplier industries. Russia and Ukraine are still outside CEE production networks and attract mainly market seeking FDI. However, the return of growth to these countries may change this picture and may bring new competitive dynamics in the region.

3.2.3. Employment: OEM and suppliers

The employment structure in the automotive industry is different from value added or turnover structure (figure 5) which points to important differences in productivity and in restructuring among CEECs. This primarily relates to a very high share of employment in this sector in Romania of 73 630 (figure 9) which has its effects in terms of productivity differences (see figure 8). This large employment when compared to low production shows that the sector has not yet been restructured. Poland, the Czech Republic and Romania which employ together 240 000 people are major employers in this sector. The Hungarian automotive sector, when compared to the Czech Republic, a country of approximate size is much smaller.

Figure 9: Number of employees in the automotive industry in CEE, 2001



Source: based on Eurostat, New Cronos

Trends in employment between assemblers and parts suppliers show divergent tendencies (see table 5). By the end of the 1990s and early 2000 assemblers have been reducing employment while suppliers have been expanding. Reduction of employment by assemblers is particularly strong in Poland which reflects problems with restructuring of Daewoo investment. Increases in Latvia reflect very low base level. High reductions in employment in Bulgaria in both subsectors reflect decline of industry driven by the absence of FDI. Nevertheless, declines are much stronger in the assembly than in the supplier sector.

Table 5: Changes in employment in the CEE automotive industry¹⁰

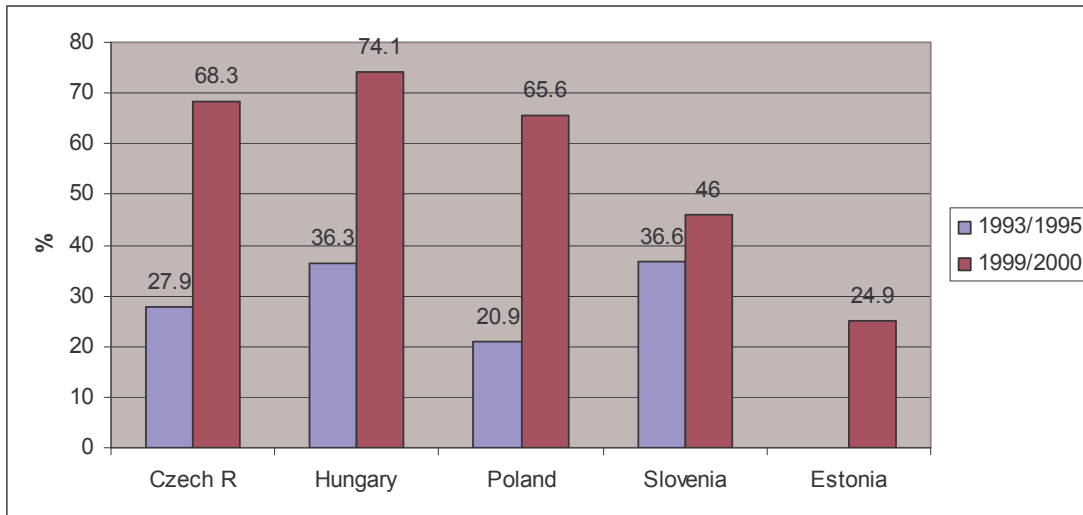
	Number of persons employed ⁸ , 2001/1998	
	Assemblers	Suppliers
BG	32.5%	74.5%
HU	90.9%	106.3%
CZ		158.8%
	Number of employees ⁹ , 2001/1999	
	Assemblers	Suppliers
HU	109.4%	112.6%
LV	252.8%	90.6%
PL	56.5%	100.4%
SI	97.7%	110.7%
SK		116.0%

Source: For 1998, EC, Business in candidate countries. Facts and figures, Theme 4, Panorama of the EU, Eurostat

Higher rate of employment in supplier's sector than in assembly suggest that spillovers' effects which start from assemblers are starting to make effects. As assemblers try to source more local components this induces foreign and domestic suppliers to enter or expand which creates demand for labour. It is not a coincidence that rises of employment in suppliers sector is the strongest in the Czech Republic and Slovakia, two countries with the biggest rise in FDI in the automotive assembly.

FDI have substantially increased their share in employment in car industry (see figure 10). In Czech R, Hungary and Poland foreign firms have controlled by the end of 1990s around 70% of overall employment.

Figure 10: Share of foreign affiliates in employment in car industry



⁸ Number of persons employed is the total number of persons who work in the observation unit as well as outside working persons who belong to the unit and are paid by it. It includes all persons who are on the payroll of the enterprise, whether they are temporarily absent, part time, seasonal or home workers, apprentices, etc. The number of persons employed excludes manpower supplied to the unit by other enterprises and persons carrying out repair and maintenance work in the enquiry unit on behalf of other enterprises.

⁹ The number of employees is defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, etc.

¹⁰ An increase of number of employees in assembly in Hungary and their decrease in number of persons employed reflects changing working practices rather than clear employment trend.

Legend:

For Czech R, Hungary, Poland: Motor vehicles and trailers, 1993 and 1999

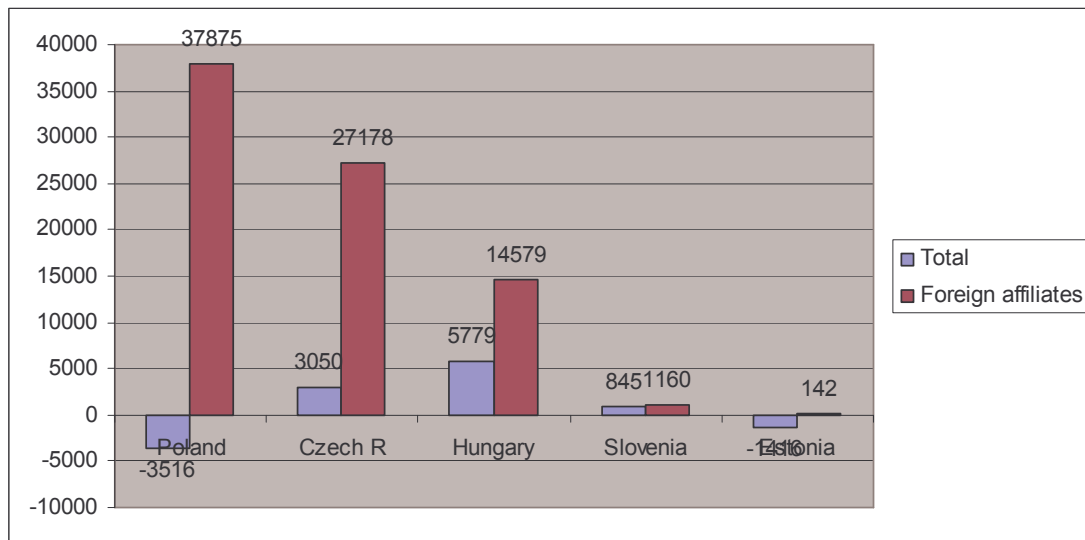
For Slovenia, motor vehicles and trailer, 1995 and 2000

For Estonia, Motor vehicles and transport equipment, 2000

Source: based on Radosevic et al (2003)

From employment perspective it is important that FDI have either preserved (Poland and Estonia) or created (Czech R, Hungary, Slovenia) new employment (see figure 11). In Poland, FDI have increased share in employment by 38000 while the overall employment went down by 3500. However, in Czech R, Hungary and Slovenia employment have either been preserved or increased not only in FDI firm but also in domestically controlled firms. This suggest that new jobs have been created among suppliers as indicated in table 5.

Figure 11: Change in employment in car industry 1993- 1999 and 1995-2000



Note: see figure

Source: based on Radosevic et al (2003)

However, data like these may be capturing only a part of the overall employment effects of automotive assemblers. As the automobile produced have become more complex, it has resulted in a greater share of supplies coming not just from the automotive component sector (NACE 3430), but also from other sectors such as the rubber and plastic, paint, glass, metal producing, textile, and electrical sectors. Indeed, the automotive component sector is too narrow in terms of coverage, which is recognised by the NACE 3430 classification as it excludes engine and tyre manufacture, most electrical and electronic components (classified as NACE 3161), as well as glass, plastic or certain castings and other metal parts (Havas A, 2000b). This would seem to confirm the knock on effect the industry has in terms of employment. Table 6 shows the range of suppliers of new Skoda Superb model. Although we do not know which of these suppliers have established local production and which are only importers we can indirectly conclude that the employment effects are far from confined on narrowly defined automotive sector.

Table 6: Škoda Superb suppliers 2002

Company	Part
Borg Warner Turbo System/Garrett	Turbocharger
Valeo	Motors for anti-lock brakes
Denso	Air conditioning compressor
Freudenberg	Radial shaft seals: Gearbox and engine
Bayer	Front grille
Bosch	Alternator
Hella	Headlamps
Beru	Glow plugs (diesel only)
ZF	Automatic transmission
Cikautxo	Cooling hoses
Bosch	Valve springs
Koyo	Hydraulic power steering
Leoni	Engine harness (tier 2 supply)
Draexlmaier	Harness system
Autoliv	Chest airbags
Bosch	Wipers
Vitro	Complete electrical system
Faurecia	Instrument panels
Autoliv	Front seatbelt
SLI miniature lighting	Door illumination
Johnson Controls	Seating system
Grammer	Headrest
Edscha Bohemia	Door hinges
Edscha Bohemia	Door latches
SLI miniature lighting	Boot lighting
Visteon	Rearlight cluster
Eberspächer	Exhaust system
Bosch	ABS
FAG	Rear Bearings
Bridgestone/Firestone	Tyres
Hutchinson	Door seals
Doga	Door, roof and module reinforcements
ZF	Chassis components
Behr-Hella Thermocontrol	Climate control system
Bosch	Navigation system
Federal-Mogul	Pistons
ZF	Clutchset
Dana	Clutch pipe
Fritz Winter Eisengiesserei	Brake discs
TI Electronics	Camshaft and crankshaft sensors
Bosch	Engine management
Hutchinson	Heater/radiator hose
Muhr & Bender	Stabiliser bars

Source: Automotive News Europe

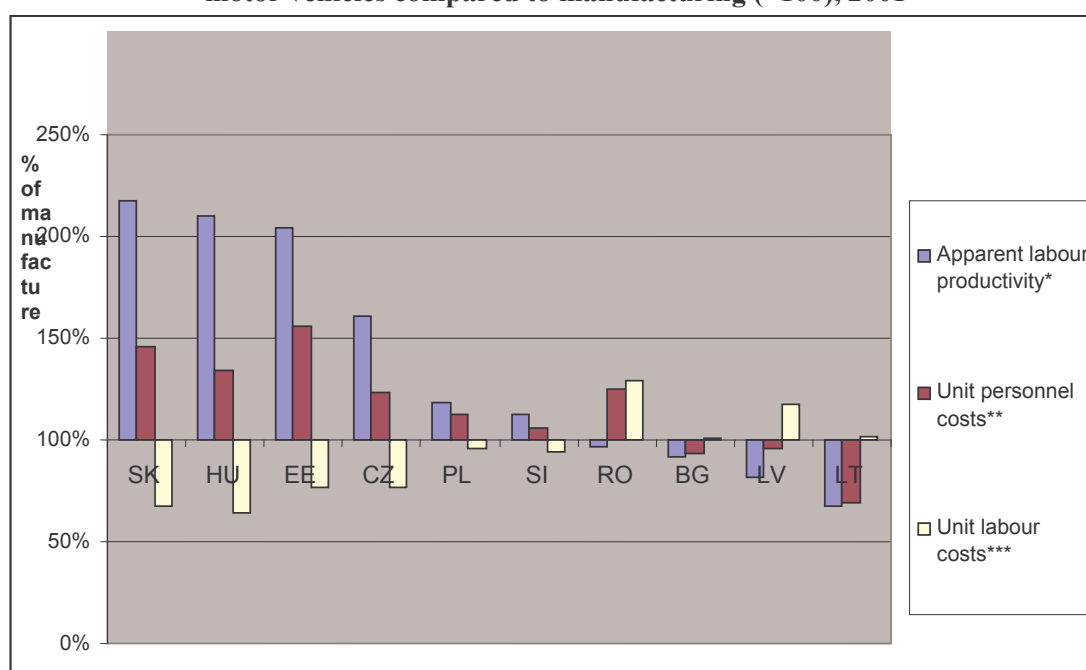
3.2.4. Productivity

the automotive industry is the driver of industry restructuring and productivity changes in this sector have cumulative effect across the whole manufacturing industry. Figure 12 shows that in countries where FDI has entered on large scale in the automotive industry (Slovakia, Hungary, the Czech Republic, Poland) productivity of this sector is significantly above the manufacturing average. In countries where FDI is not present in the automotive industry (Bulgaria, Latvia, Lithuania) productivity in this sector is below the manufacturing average. It is striking to see that labour productivity in Slovakia and Hungary in the automotive industry is 2 times above the manufacturing average. In the Czech Republic it is 1.6 times above

average¹¹. The Slovenian automotive sector is also more productive when compared to the average of manufacturing though the overall level of productivity in Slovenia is the highest among the CEECs. Although the share of FDI in the Polish automotive industry is high its productivity level is still relatively lower than would be expected, especially when compared to Slovakia and Hungary. Again, this reflects problems in the restructuring of Daewoo investments in Poland. In Romania, productivity in the automotive sector is somewhat below the manufacturing industry which reflects a largely restructured sector. This has been changing with Renault's investment in Dacia.

Differences between countries in terms of labour costs are much smaller than differences in productivity which has strong effects on competitiveness among countries as reflected in relative unit labour costs. For example, in Hungary and Slovakia where productivity is 2 times above the manufacturing level relative labour costs are only 1.5 above average. This convergence in labour costs has strong negative effects on competitiveness of the Romanian automotive sector.

Figure 12: Productivity, unit personnel costs and unit labour costs in manufacture of motor vehicles compared to manufacturing (=100), 2001



*Value added at factor cost/Number of employees

**Personnel costs/Number of employees

*** Unit personnel costs/Unit labour costs

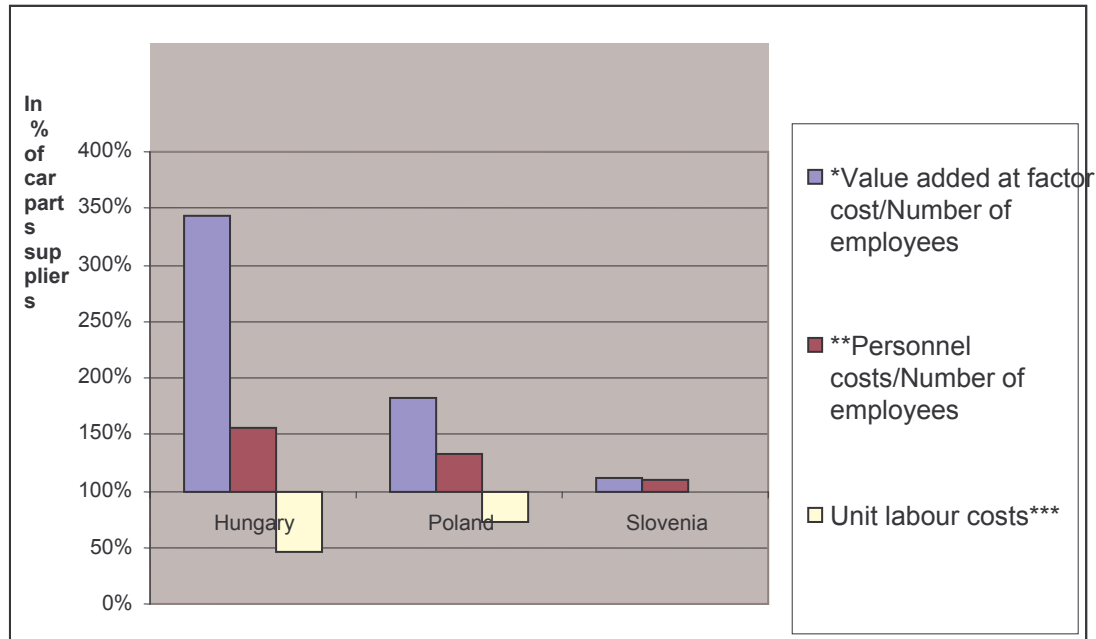
Source: based on Eurostat, New Cronos

Productivity is significantly higher in the assembly sector when compared to parts' suppliers. For example, in Hungary assembly is 3 times more productive, and in Poland 1.8 times (see figure 13). Again, differences in wages are much less significant which points to big differences in competitiveness in favour of assemblers. This may reflect the capital intensive nature of assembly as compared to parts suppliers as well as still non-restructured supply chains and absence of high quality domestic suppliers. In Slovenia, differences in productivity between assemblers and suppliers are much less pronounced which leads to similar competitiveness of both segments of the automotive industry. This further reinforces the point

¹¹ Estonian automotive sector is very small and data may reflect few very productive foreign firms.

of higher competitiveness of Slovenian domestic automotive firms when compared to the rest of manufacturing.

Figure 13: Productivity, unit personnel costs and unit labour costs of assemblers, car parts suppliers = 100, 2001



*Value added at factor cost/Number of employees

**Personnel costs/Number of employees

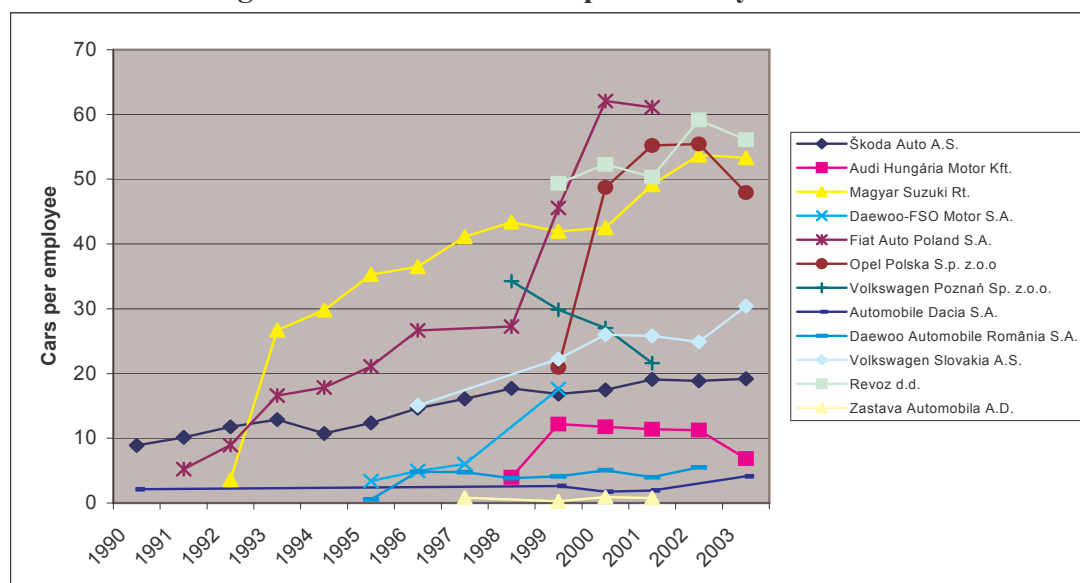
***Unit personnel costs/Labour productivity

Source: based on Eurostat, New Cronos

Although lower productivity of car parts suppliers could be attributed to higher capital intensity of this sector, case study evidence suggest that it may be also partly due to weak competencies of local suppliers. For example, Sperling (2004) cites the opinions of automotive executives who hold that the CEE supplier industry is not yet able to deliver to world standards. We also explore this issue through the local content data (see below).

Data on productivity of individual manufacturers expressed as number of cars per employee are very imperfect measures as they contain differences in vertical integration and nature of operations. Nevertheless, if available over time they are useful proxies for understanding trends in productivity. A compilation of data for several OEM producers in CEE shows (a) high and rising productivity for fully fledged producers (Fiat, Revoz, Suzuki) and (b) low and stagnant productivity for screwdriver type assembly operations (Opel, Audi) (figure 14).

Figure 14: Manufacturers' productivity 1990-2003



Source: compiled from company annual reports

A part of the differences in productivity is due to differences in capacity utilisation. Aggregate data suggest that CEE like other region is experiencing excess capacity. A shift to 'global' strategies which have now embraced all major emerging markets has led to over-extension i.e. to similar investments at the same time. Although in CEE the overcapacity is localised on few producers it still is overexpansion. Overcapacity has been exacerbated by slowdown in growth in Poland, by far the largest Central European economy. Worldwide industry utilization is estimated to be 70-75% (McKinsey, 2003, ch2). Our data for sample of CEE producers shows the simple average capacity utilisation of 62% and weighted capacity utilisation of 77.5% in 2001 which is well within the world average (table 7).

Table 7: Estimated production plant capacity in CEECs, 2000

Manufacturer	Plant	Country	Production	Estimated capacity	Capacity Utilisation (%)
Daewoo	Lublin/Nysa/Zeran	Poland	85,000	200,000	43
	Rodae	Romania	14,337	100,000	14
Fiat	Bielsko-Biala	Poland	56,250	150,000	38
	Tychy	Poland	236,000	240,000	98
Ford	Plonsk	Poland	4,525	20,000	23
GM/Opel	Gliwice	Poland	97,400	150,000	65
	Warsaw	Poland	1,800	7,000	26
Renault	Novo Mesto	Slovenia	122,949	135,000	91
	Pitesti	Romania	55,183	150,000	37
Suzuki	Esztergom	Hungary	77,250	70,000	110
Volkswagen	Bratislava	Slovakia	153,145	200,000	77
	Gyor	Hungary	56,776	55,000	103
	Kvasiny	Czech Republic	22,705	40,000	57
	Mlada Boleslav	Czech Republic	320,873	400,000	80

Poznan	Poland	47,582	80,000	59
Vrchlabi	Czech Republic	63,591	80,000	79

Source: Automotive World, World Automotive Manufacturing, November 2001

3.2. 5. Trade

Trade in motor vehicles and parts of CEE with the EU15 makes an important share of the overall trade of the CEE. This trade has risen from EUR6.8bn (1993) to EUR24bn (1999) (see table 8). However, this 3.5 times increase is highly skewed towards Germany whose trade with the CEE has increased 4.2 times. This had led to an increase in the German share of EU15-CEE automotive trade from 43% to 52%. Shares of Italy and France have declined though in absolute terms they have increased by 2.6 and 2.3 times respectively.

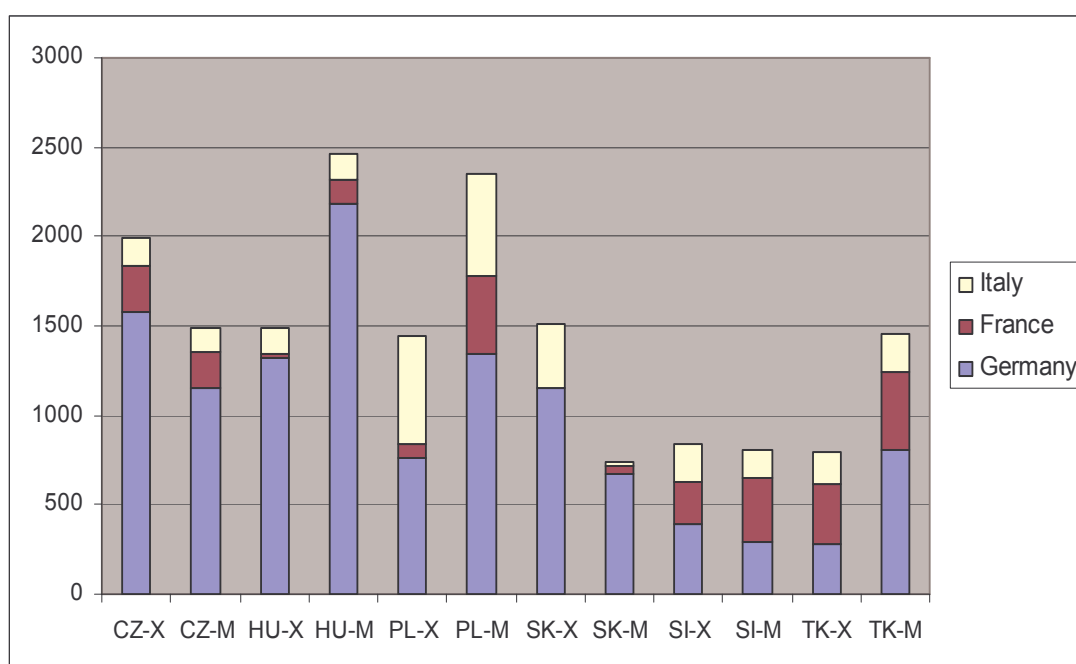
Table 8: Trade in road vehicles and parts (imports + exports) EU 15 - Candidate countries, mnEUR

	1993	Shares	1999	Shares	Index
EU-15	6828	100.0%	24035	100.0%	3.52
Germany	2974	43.6%	12572	52.3%	4.23
Italy	1157	16.9%	3011	12.5%	2.60
France	1156	16.9%	2670	11.1%	2.31
Spain	176	2.6%	1215	5.1%	6.90
UK	344	5.0%	1089	4.5%	3.17
Austria	226	3.3%	1086	4.5%	4.81
Belgium	317	4.6%	864	3.6%	2.73
Netherlands	184	2.7%	590	2.5%	3.21
Sweden	140	2.1%	432	1.8%	3.09
Finland	48	0.7%	146	0.6%	3.04
Denmark	52	0.8%	145	0.6%	2.79
Greece	43	0.6%	96	0.4%	2.23
Portugal	9	0.1%	76	0.3%	8.44
Ireland	2	0.0%	44	0.2%	22.00

Source: based on Eurostat, the automotive industry and candidate countries, Statistics in Focus, Theme 6-1/2001

Automotive trade is good example of very developed intra-industry trade. Germany dominates in both export and import (see figure 12). However, there are noticeable differences among CEECs in terms of orientation on three major EU15 destinations (Germany, France and Italy) (see figure 15). These differences reflect origins of large MNC investors.

Figure 15: Export and import from EU15 from/to CEE and Turkey, 1999, in mnEUR



Source: Based on Eurostat, the automotive industry and candidate countries, Statistics in Focus, Theme 6-1/2001

Exports and imports from the Czech Republic, and Hungary are very much oriented towards Germany due to the VW Group (table 9). The Polish automotive sector, which has Fiat as one of the top investors, is oriented in export towards Germany and Italy but less so in import from Italy. This suggests that Fiat is purchasing car parts from other EU countries and install them into final products in Poland. Slovakia has very strong orientation towards Germany (92%) in import but much less so in export where it is oriented also towards Italy. Slovenia and Turkey have balanced orientation towards three major automotive producers which reflects limited presence of assemblers from Germany and strong orientation of these countries as car parts suppliers towards all three major destinations.

Table 9: Shares in automotive export and import from CE and Turkey with three major partner countries (=100%), 1999

	Export						Import					
	CZ	HU	PL	SK	SI	TK	CZ	HU	PL	SK	SI	TK
Germany	79%	89%	53%	76%	47%	36%	77%	88%	57%	92%	36%	55%
France	13%	1%	5%	0%	28%	41%	14%	6%	19%	6%	46%	30%
Italy	8%	10%	42%	23%	24%	23%	9%	6%	24%	3%	19%	15%

Source: ibid

In summary, trade data strongly reflects FDI and strategies of respective MNCs. They also show that automotive producers have departed from exclusively market entry restructuring and moved towards product specialization and value chain disaggregation.

3.2.6. Foreign Direct Investments (FDI)

Trade and industry data show that the CEE automotive industry is driven entirely by FDI. It is one of the most FDI intensive sectors in CEE. In central Europe, share of automotive industry FDI stock in the overall manufacturing FDI in 2000 was between 10-15% (see table 10)¹². However, FDI is very much concentrated on a few production locations. Their strong concentration in central Europe strongly contrast with their absence in Bulgaria, south east Europe and the Baltics. The heavy concentration of FDI on central Europe (Poland, Hungary, the Czech Republic, Slovakia and Slovenia) and its absence in other CEE countries has reached such proportions that it will remain a strong sectoral feature for the foreseeable future. This already has important effects in terms generating spillover effects on industries which are linked to automotive industry and on manufacturing in general.

Table 10: FDI stock and share of automotive industry, 2000

Country	FDI Stocks, 2000 in USD			Share of motor vehicles	
	Total	Manufacturing	Motor vehicles	in total	in manufacturing
Poland	34227	13210	2070	6.0%	15.7%
Czech R	21644	8256	1371	6.3%	16.6%
Hungary*	10403	3830	370	3.6%	9.7%
Slovenia	2809	1141	132	4.7%	11.5%
Lithuania**	2334	672	46	2.0%	6.8%
Bulgaria	21640	1122	4	0.0%	0.4%
Latvia*	2465	388	0	0.0%	0.1%

* includes other transport equipment

**2001

Source: UNCTAD, World Investment Directory, accessed on April 15, 2004

http://r0.unctad.org/en/subsites/dite/fdistats_files/WID2.htm

Top automotive investors are most often the major investors in terms of sales (table 11). Assemblers are much bigger investors when compared to car parts suppliers which reflect industry characteristics rather than strategies of MNCs. Five major MNCs dominate the CEE automotive industry. These are VW, Renault, GM, Fiat and Daewoo. They are all concentrated in Central Europe and mainly reflect past inherited capacities from the socialist period. It is important to recognize the strong presence of MNCs in Russia but which has not yet resulted in any significant investments. However, Russia is one of the most important emerging markets in the automotive industry and we may expect major FDI in future in this sector. This may have significant effects on the situation and pattern of networking in the automotive industry in Central Europe.

¹² Table 9 does not fully capture presence of FDI in Hungary which is mainly in car parts industry.

Table 11: Top automotive MNCs in CEE, 1990-2000

Ranking	Country ranking	Company	Type	Host economy	Home economy	Sales (\$mn)
1	1	Skoda Automobilova	Assembly	Czech R	Germany	3292.5
2	1	Audi Hungaria Motors	Engines	Hungary	Germany	3190.6
3	1	Fiat Auto Poland	Assembly	Poland	Italy	1847.2
4	2	Centrum Daewoo	Assembly	Poland	Korea	918.2
5	1	Revoz	Assembly	Slovenia	France	888.6
6	3	Volskwagen Poznan	Assembly	Poland	Germany	662.6
7	6	Opel Magyarorszag Jamugyarto	Assembly	Hungary	United States	629.5
8	1	Volkswagen Slovakia	Assembly	Slovakia	Germany	507.7
9	9	Suzuki	Assembly	Hungary	Japan	446.4
10	6	General Motors Poland	Assembly	Poland	United States	412.0
11	1	Automobile Dacia	Assembly	Romania	France	405
12	2	Daewoo Automobile Romania	Assembly	Romania	Korea	384.5
13	8	Renault Polska	Assembly	Poland	France	361.3
14	17	Opel South East Europe	Assembly	Hungary	United States	288.6
15	2	Skoda Auto Slovensko	Assembly	Slovakia	Germany	286.1
16	12	Opel Polska	Assembly	Poland	United States	271.2
17	20	NABI	Car parts	Hungary	United States	249.8
18	16	Ford Poland	Assembly	Poland	United States	240.2
19	18	Skoda Auto Poland	Assembly	Poland	Germany	210.4
20	5	Siemens Automobilovi Technika	Car parts	Czech R	Germany	208.6
21	23	Visteon Hungary	Car parts	Hungary	United States	207.1
22	7	Autopal	Car parts	Czech R	United States	201.3
23	19	Daewoo Motor Polska	Assembly	Poland	Korea	200.8
24	24	Lear Automotive	Car parts	Hungary	Austria	194.5
25	3	Porsche Slovenia	Car parts	Slovenia	Austria	181.2
26	9	Robert Bosch	Car parts	Czech R	Germany	162.6
27	26	Volvo Poland	Assembly	Poland	Sweden	143.8
28	19	Daewoo Avia	Car parts	Czech R	Korea	85.8
29	10	Porsche Slovakia	Car parts	Slovakia	Austria	67.7
30	35	Debica	Car parts	Poland	United States	60.6
31	2	BP Cycle	Car parts	Serbia/Monten	Germany	39.4
32	15	Daewoo Motor Slovakia	Assembly	Slovakia	Korea	31.4
33	11	Norma	Car parts	Estonia	Sweden/US	30.9
34	16	Sachs Slovakia	Car parts	Slovakia	United Kingdom	23.5
35	30	Scania Eesti	Car parts	Estonia	Sweden	7.6
36	12	Ilta Kiev	??	Ukraine	Switzerland	4.8
	7	Cimos Buzet	Car Parts	Croatia	Slovenia	
	36	Showa Aluminium	Car parts	Czech R	Japan	---
		AvtoVAZ	Assembly	Russia	United States	
		Avtoframos	Assembly	Russia	France	
		BMW Avtotor Kaliningrad	Assembly	Russia	Germany	
		Daewoo Tagenrog	Assembly	Russia	Korea	
		Ford Vsevolozhsk	Assembly	Russia	United States	
		Nizeghorod Motors	Assembly	Russia	Italy	
		ZIL AMO	Assembly	Russia	Sweden	
		AvtoZAZ-Daewoo	Assembly	Ukraine	Korea/Russia	
		MAZ - MAN	?	Belarussia	Germany/Russia	

Source: UNCTAD, World Investment Directory, accessed on April 15, 2004
http://r0.unctad.org/en/subsites/dite/fdistats_files/WID2.htm

Most of the big FDI Investors in the industry are from Germany whose share in FDI is similar to the share in EU-CEE trade in the automotive industry (see table 12). This suggests that trade in the CEE automotive industry is FDI led rather than being driver of FDI. Opel, GM and Ford have integrated CEE plants into their European but not global operations.

Table 12: Sales of top MNCs in the CEE automotive industry by home country (1999/2000)(\$m)

Germany	8560.5
United States	2560.3
Italy	1847.2
France	1654.9
Korea	1620.7
Japan	446.4
Austria	443.4
Sweden/US	182.2
Switzerland	4.8

Source: Based on UNCTAD, World Investment Directory, accessed on April 15, 2004

http://r0.unctad.org/en/subsites/dite/fdistats_files/WID2.htm

What are the direct effects of FDI on the CEE automotive industry? FDI is the key driver of growth and restructuring in this sector. In that respect, FDI has led to extensive investments through upgrading equipment and reorganization of the production process. This has increased the capital intensity of assembly, improved management practices and has initiated the process of building a local supply base (see below). However, the most important mechanism for ensuring positive spillovers in local economies is investments in human capital, i.e investments in vocational training. By building local know how and by ensuring mobility of the labour force some of these investments may be reemployed in other firms or activities. Although we do not have systematic evidence on this aspect of FDI case study evidence points that these are substantial investments. A good example in this respect is Renault investments in training of labour in its Dacia Pitesti plant (Romania) ahead of production of the new car for emerging markets – the Logan. A total of over a million hours of training have been given in manufacturing and support functions in production, management, IT, and so on. More than 450 Dacia employees received training abroad at courses lasting several weeks¹³. Our estimates of Renault figures suggest that the overall training is equivalent of 40% of total number of 13000 workers of plant receiving full time training for half year. This figure roughly correspond to a survey of foreign managers carried out for the EBRD which estimate that foreign investment enterprises would need around 6 months of training to achieve a level of productivity comparable to Western European workers¹⁴. OEM producers have invested in vocational training as a part of the overall investment package. However, it is not certain whether they will want to sustain costs in training of local suppliers which is the key bottleneck for generating skills related spillovers. In that respect, there is room for coordinated action by local industry associations, government, training providers and investors.

¹³ Dacia group Renault. Logan: conquering new world markets and boosting the Renault group's profitable growth, Press Release, June 2, 2004

¹⁴ See EBRD Transition Report 2000

4. MICRO VIEW: OEMs¹⁵ IN CEE - KEY DRIVERS OF RESTRUCTURING?

The dynamics of industry restructuring in a highly oligopolistic sector such as the automotive industry can be better understood by analysing micro – dynamics of competition. As argued by Porter et al (WEF, 2004) and McKinsey (2003) sources of productivity are at micro level. In this section we: (a) analyse market and production trends in the automotive industry at individual company level, and (b) analyse what has been the extent of local sourcing and what is the scope for building a local supply base in CEE.

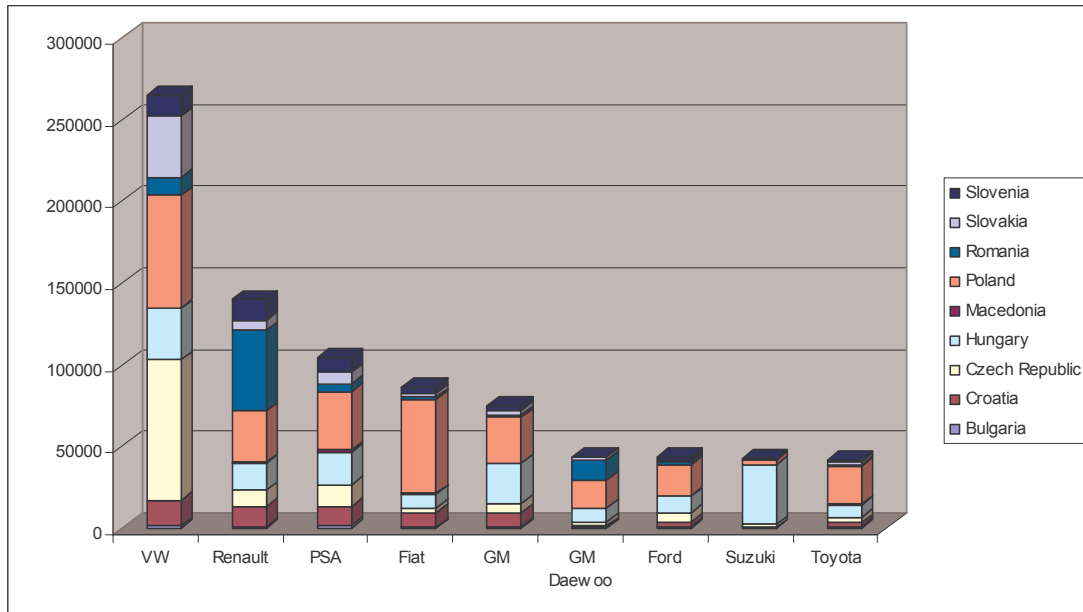
4. 1. Market and production dynamics at firm level

Figure 16a shows that European automotive companies basically dominate the CEE market. Within the Big Four (VW, Renault, PSA, Fiat) VW is by far the largest player. This may be partly attributable to the higher import tariffs that have to be paid for third countries imports. As one would expect, there is the greatest share of sales by companies that are producing in those respective countries (e.g. VW group has the largest share in the Czech Republic and Slovakia, Suzuki in Hungary, Renault in Romania). In the countries with no production plants by the major manufacturers (e.g. Bulgaria, Croatia and Macedonia) there is a more even market distribution. Also, in Poland which is the biggest CEE market and with the biggest number of manufacturers, market is relatively evenly spread (figure 16b). This is greatly due to weaknesses of Fiat and Daewoo. VW, which has entered later than the other manufacturers, is gaining market share helped in part by its strong presence in neighbouring countries.

The monopoly which existed previously under socialism, restricted choice, and took some time to undo. Benefiting from unleashed competition consumers are now able to select from many different suppliers and models, including increased imports. The inefficient producers have been driven to the margins of the market. Individual national markets are significantly less dominated by ‘national’ producers (e.g. Škoda in the Czech Republic and Slovakia, Daewoo-FSO in Poland, etc). This has led to increased market fragmentation. There is not market homogenisation in the region in terms of vehicle type either. For example, in Hungary, Poland, Slovenia and the Baltics, saloon cars are popular. However, in the Czech Republic, Slovakia and Poland, hatchbacks are more popular.

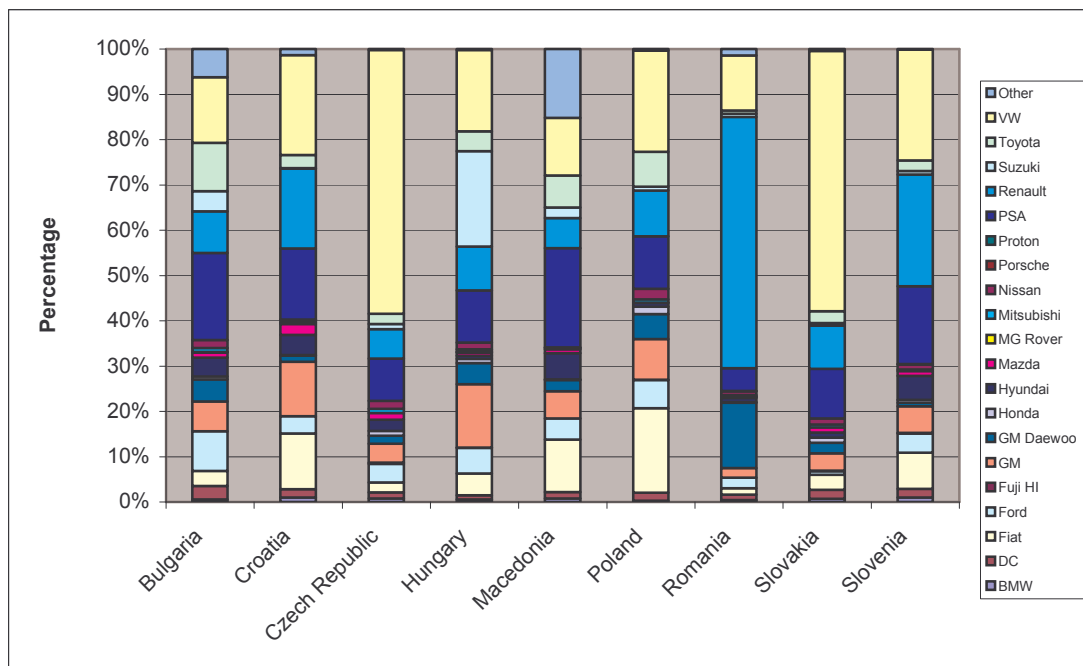
¹⁵ Original equipment manufacturers

Figure 16a: Market shares of key players (market share >4%) in the CEE markets



Source: Based on Automotive World Automotive Quarterly Review Q2-2003

Figure 16b: Market shares of key players in the CEE markets

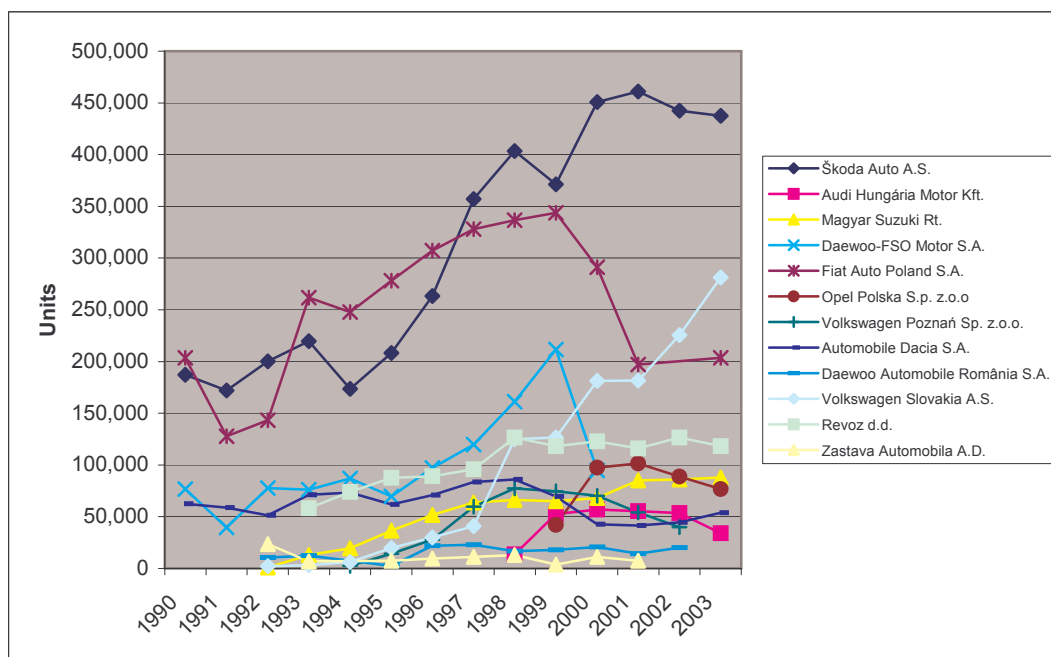


Source: Based on Automotive World Automotive Quarterly Review Q2-2003

In countries with a lower purchasing power, manufacturers that sell cheaper models seem to perform better, i.e. have higher shares. Simultaneously, upmarket companies such as BMW, Mercedes-Benz (part of DaimlerChrysler) and Porsche have also built a visible presence serving growing affluent groups.

Differences in market presence highly correlate with production trends of individual OEM firms (figure 17). The expanding presence of VW, and decline in production figures of Fiat and Daewoo FSO dominate production trends. So far, other players are significantly smaller though we may expect that expanding activities of Dacia Renault and new investments of Hundai, and PSA/Toyota may change this picture in the medium term.

Figure 17: Production of CEE OEM 1990-2003



Source: company statistics

It has been estimated that the minimum economies of scale in automotive assembly is 250,000 vehicles per year (McKinsey, 2003, ch2, p. 5). By using that criterion only 2 CEE producers are over this threshold – Škoda and VW Slovakia. Fiat Poland was producing well over this threshold until problems in the company forced a cutback in production to under 250,000 after 2000. Even in terms of capacity, it is only these three plants that are capable of producing above this level. However, the development of common platforms and sourcing has ensured that a bigger number of plants are efficient than would be suggested based on volume criterion only. One of the important factors of Daewoo’s difficulties is that it has been unable to share common platforms and sourcing as it had to cut ties with parent company.

Competitive dynamics have led to growth of some producers and relative decline of others. Škoda is the most successful of all the CEE OEMs. Daewoo-FSO has faced problems since 1999 as a result of financial problems with its Korean parent company. Similarly, Fiat faced problems with its parent company in Italy and was forced to restructure and cut down its production. A latest shift in competitive dynamics have come from the non-European companies - Toyota and Hyundai – who have associated with the two main French manufacturers, Renault and PSA Peugeot Citroën, and will build greenfield plants in the Czech Republic and Slovakia.

4. 2. OEM and building of local supply base

OEM and first tier suppliers are key agents of building a local supply base in CEE through their linkages with local suppliers. Hence, from an industrial restructuring perspective it is important to understand what are drivers and obstacles in spreading the local supply base. Systematic evidence on local suppliers’ issues is not widely available. In continuation, we will try to develop a picture of these issues based on evidence at firm level.

Practically all major component firms have established their subsidiaries in CEE by taking over local companies or more commonly through greenfield investments. This is usually

because they are requested to follow their clients in their strategic moves. Equally, assemblers are dependent on quality suppliers as costs of components and modules make great share in total costs. First tier suppliers are being given greater global roles and have been transforming their relationship with second tier suppliers.

Individual evidence in CEE suggests that there are problems with local suppliers in terms of quality and ability to develop more complex sub-assemblies. High tech and high value-added components originate from western firms. Indigenous component suppliers are seen of lower technological ability and quality (Pavlínek, 2002).

However, there are also successful cases of increased local content and supplier development. A good example in this respect is Magyar Suzuki who due to small scale follows a single source strategy. Thus it has strong incentives to ‘nurture’ a local supply base. As Havas (2000) reports Suzuki together with its Japanese suppliers conducts a thorough technological and financial audit, covering literally every single aspect of doing business from purchasing inputs through production methods and machinery, to accounting, sales and management, broadly defined. Then joint efforts are made to improve the selected supplier’s technical level and economic performance, when needed. Table 13 from Havas (1997) shows the rise of local content to the level which was needed for meeting EU rules of origin criteria (60%). This protective measure was introduced to circumvent use of the CEEC as a backdoor to access the western market with cheaper products.

Table 13: Distribution of value-added at Magyar Suzuki (%)

	October 1992	December 1993	December 1994	December 1995	December 1996
1.Magyar Suzuki	19	23	23	23	24
2.Hungarian Suppliers	6	25	27	28	29
3.Local content (1+2)	25	48	50	51	53
4.EU Suppliers*	4	11	12	14	17
5.EU Content (3+4)	29	59	62	65	70
6.Japanese Suppliers	71	41	38	35	30
7.Total (5+6)	100	100	100	100	100

* including associated member countries

Source: Havas 1997

Local content is highly dependent on the nature of assembly operations. Opel operations in Hungary in early 1990s were of tariff were SKD operations with very low though rising local content.

However, the most relevant examples in this respect are two major investors in CEE – VW and Fiat (tables 14 and 15).

Table 14: Škoda Auto suppliers and supply volume 1994-2003

	Number of suppliers			Supply Volume (Kč bn)		
	Czech	Other	Total	Czech	Other	Total
1991*				8** (74.8)	2.7 (25.2)	10.7 (100)
1992				13.4** (82.2)	2.9 (17.8)	16.3 (100)
1993	210 (61.8)	130 (38.2)	340 (100)	14 (66.7)	7 (33.3)	21 (100)
1994	174 (62.4)	105 (37.6)	279 (100)	14.0 (71.4)	5.6 (28.6)	19.6 (100)
1995	205 (49.3)	211 (50.7)	416 (100)	16.1 (69.7)	7 (30.3)	23.1 (100)
1998	274 (31.5)	595 (68.5)	869 (100)	45.5 (66.4)	23 (33.6)	68.5 (100)
1999	279 (30.8)	627 (69.2)	906 (100)	42.7 (64.7)	23.3 (35.3)	66 (100)
2000	303 (25.5)	884 (74.5)	1187 (100)	60.6 (66.5)	30.5 (33.5)	91.1 (100)
2001	290 (23.5)	943 (76.5)	1233 (100)	65.4 (66.6)	32.8 (33.4)	98.2 (100)

2002					91.5
2003					89.3

* since 16/04/1991

** Czech Republic and Slovakia

Source: Škoda auto annual reports

VW Škoda has increased the number of local and foreign suppliers. The number of foreign suppliers had outweighed the number of local suppliers giving impression of a relative decline of local content. However, in terms of supply volume, local supply volume was still around two-thirds of the total, i.e relatively unchanged. A similar trend of a declining share of local suppliers and increasing share in the number of foreign suppliers can be found in the case of Fiat as well (table 14). Also, though the number of suppliers was drastically reduced by 2000 to one-third of its level in 1992, its level of local content has only reduced slightly, and is still significant at being over 50 percent (see table 15).

Table 15: Number of Fiat Auto Suppliers 1992-2000

	Polish	Foreign	Total	Index of total suppliers (1992=100)
Dec '92	405 (65.3)	215 (34.7)	620 (100)	100
Sept '93	352 (62.9)	208 (37.1)	560 (100)	90.32
Dec '94	297 (60.6)	193 (39.4)	490 (100)	79.03
Dec '95	248 (56.9)	188 (43.1)	436 (100)	70.32
Dec '96	235 (57.0)	177 (43.0)	412 (100)	66.45
Dec '97	195 (49.9)	196 (50.1)	391 (100)	63.06
Dec '98	195 (53.4)	170 (46.6)	365 (100)	58.87
Dec '99	193 (54.2)	163 (45.8)	356 (100)	57.42
Dec '00	134 (52.1)	123 (47.9)	257 (100)	41.45

Source: Enrietti 2004

It is difficult to argue that a small and declining number of local suppliers are a regional feature. Also, we do not have evidence which would suggest what the regional average is as cases differ considerably. For example, the Suzuki case could be contrasted to VW Slovakia which had 1200 suppliers in 2000 of which only 2 were Slovak and fed directly to the plant (Weidokal and Stagles, 2002).

However, a weak local supply base may be not entirely an 'endogenous' problem of CEE. An increased reliance on modular systems and use of shared platforms enables MNCs to source from a much larger number of countries than before. For example, VWs move towards sharing common platforms across a wide and high model range led to it adopting a global sourcing strategy through which all of the automotive parts were unified into all models of the same size among its four brands (VW, Audi, Seat and Škoda), which allowed the company to eliminate a number of suppliers. Of course, if a supplier could meet the requirements of price and quality, it might be selected to supply all VW vehicle manufacturers. It seems that the CEE suppliers have been unable to meet these standards. As a result, the level of local content went down from 70% for the Škoda Felicia to 31% for the latest medium sized Octavia model (Pavlínek and Smith, 1998, p. 627).

In conclusion, it seems that modularisation and use of shared common platform have reduced incentives for assemblers to source locally and thus already reduced the low levels of local sourcing. This suggests the limits of industrial upgrading in the CEE automotive industry and a clear area for policy action. High productivity improvements within assemblers have not been yet accompanied by the spread of a local supply base. The arrival of first tier suppliers is supposed to deepen automotive clusters and ensure local content with important effects on technology transfer and employment. A growth in employment in the supplier sector suggests that this process is underway. The issue is if there is would be the right role for policy to facilitate this process.

5. POLICIES INFLUENCING AUTOMOTIVE INDUSTRY RESTRUCTURING IN CEE

Policy measures in different forms have strongly influenced restructuring and the role of FDI in the CEE automotive industry . We analyse this aspect by looking specifically at four policy instruments: tariffs, privatisation and FDI policy, and clusters policy.

5.1. Tariffs

Initially, tariffs were important motivational devices for attracting FDI in CEE countries. These were used by foreign investors as a way to ease their market position and thus ‘compensate’ for investments that they had to incur. Naturally, some investors have used this opportunity and established tariff jumping FDI. Sometimes, these operations were established independently or as part of larger package like GM’s investment in engine plant in Hungary (see Moran, 1998). Usually, these were ‘shallow’ assembly operations of limited scale, with negligible employment and technology transfer effects and often with generous subsidies per job (ibid).

In all CEE countries, import duties in trade with the EU were phased out by 2001 which allowed unrestricted imports and had a knock on effect with increased sales (table 16). Today, all new vehicles imported with a EUR1 certificate are exempt from duties. However, this has put third countries at a competitive disadvantage in exporting to CEE. Import restrictions and tariffs remain in place for second hand cars which are in high demand due to low purchasing power in CEE.

Table 16: Import duties on EU imports 1995-2001

	Poland		Czech Republic		Hungary			Slovakia
	%	Quotas	New	Used	up to 1600 cc	1601-2000 cc	Over 2000 cc	
1993	35							
1994	30							
1995	30	25 000	11.4	15.2	11.7	20.7	38.7	
1996	25	30 000			9.7	17.2	32.2	
1997	25	31 250	7.6	11.4	7.8	13.8	25.8	
1998	20	32 500			5.8	10.3	19.3	
1999	15	33 750	3.8	7.6	3.9	6.9	12.9	7
2000	10	35 000	0	0	1.9	3.4	6.4	0
2001	5	36 200			0	0	0	

Source: Motor Business International 3rd quarter 1996; 4th quarter 1996; 4th quarter 1997; CEEBIC

5.2. FDI and privatisation policies

With the exception of Romanian Dacia and Serbian Zastava all other CEE automotive assemblers were privatised by 1994 and subsequently fully taken over by foreign owners (see table 17).

Table 17: Ownership changes in CEEC manufacturers

Company	Main buyer	Date	Ownership level (%)
Škoda Auto A.S.	Volkswagen A.G.	16 April 1991	31
		19 December 1994	60.3
		11 December 1995	70
		30 May 2000	100
Audi Hungária Motor Kft.	Audi A.G.	18 February 1993	100
Magyar Suzuki Rt.	Suzuki Motor Corp.	1991	40
		December 1993	55.2
		May 1996	77.7
		1998	83.7
		2002	97.31
Daewoo-FSO	Daewoo	March 1996	70
		1998	81.8
		1999	92.3
Fiat Auto Poland S.A.	Fiat S.p.A.	17 September 1993	92
		30 June 1994	79
Opel Polska S.p. z.o.o	GM Europe (Opel)	October 1998	100
Volkswagen Poznań Sp. Z.o.o.	Volkswagen A.G.	31 December 1993	25.4
		31 December 1995	48.91
		31 December 1996	100
Automobile Dacia S.A.	Renault S.A.	29 September 1999	51
		01 June 2001	92.72
		March 2003	99.3
Daewoo Automobile România S.A.	Daewoo	19 October 1994	51
Volkswagen Slovakia A.S.	Volkswagen A.G.	12 March 1991	80
		1994	100
Revoz d.d.	Renault S.A.	1990	20.2
		October 1991	54
		2000	66.68
		22 December 2003	100

Source: company press releases

For the national governments most of these investments were considered as strategic. Governments aimed to secure employment while at the same time offering direct (grants) or indirect incentives like tax holidays. In most of the cases, bargaining between investors and local governments had positive sum effects through preserved employment and improved capacities. Only the Polish government was unlucky as its two crucial investors (Fiat and Daewoo) entered into trouble for different reasons¹⁷.

However, privatisation was just the beginning of policy for attracting investors in the automotive industry. The quality and generosity of government investment packages have shown to be a very important determinant of greenfield FDI in the automotive industry. It may be not surprise that both Czech and Slovak governments have managed to attract new large scale investments primarily through quality of their investment support. For example, in Slovakia the program for development of the automobile industry was the result of enforcement of the Government Resolution from July 1998. Within the government strategy

¹⁷ Also, the Polish government seemed to be behind in competitive bidding race for Greenfield investments.

framework the institute of the SR Government Plenipotentiary for automobile production development was established, assigned with coordination of the whole implementation of the Program and reporting back to Government (Sario 2002). Other incentives such as tax holidays, tax relief, investment incentives, and incentives for the establishment of industrial parks have been also introduced.

In Hungary there exist a number of key investment incentives for automotive producers and suppliers. These include tax benefits for development, tax-free investment reserves, reduction of the costs of wages, subsidies to establish company premises, direct infrastructural subsidy, subsidies to create jobs, training subsidies, subsidies for intellectual investments, the construction of ring roads around university towns, local benefits, and the implementation of a one-stop-shop system (ITD Hungary 2003).

Polices as these led to an intra-regional investment race as increasingly countries have been drawn into fierce competition with one. Recently in 2003 and 2004 Slovakia won out to Poland to host PSA Peugeot's new facilities at Trnava and Kia's facilities at Zilina due to poorer infrastructure, weaker investment incentives, complicated and unpredictable tax system and heavier administrative burdens in Poland. This rush of investments have been generated by the fact that the CEECs will no longer be able to offer investors such generous tax breaks once they join the EU. The question is how the national automotive industries will develop without giving incentive to manufacturers, and with only EU regional aid being available.

Even after EU accession CEECs will continue to be heavily dependent on FDI for industry upgrading. EU accession will not eliminate the need for competition in attracting FDI. In some ways, this competition may even increase further. Instead of trying to limit competition for FDI between the EU regions the EU should exploit contests for FDI between regions as a mechanism to improve the business environment in the weakest regions. As Kuznetsov (2002) points out the existing competition has important limiting features in terms of its protagonists and instruments as it is limited to large MNCs and national governments. Instead of implicitly accepting this, the EC should make these contests public 'as an incentive device for private and public actors to come together to develop innovative solutions to improve the investment climate on a sub-national level' (ibid) with matching grants from the EU level. In this way contests could serve as an *incentive device* for local government and domestic firms to engage in meaningful joint actions and reforms; as a *coordination device* to coordinate activities at national and EU level under the umbrella of private-public competitiveness projects; and as a *mechanism to share policy knowledge*.¹⁸

5. 3. Clusters policy

Most OEMs request their suppliers to follow them into any new markets they enter. Once one company sets up operations in a country, a follow-the-leader strategy is usually adopted, resulting in a number of producers and suppliers being networked and integrated into the local economy. Supplier parks have been set up around most of the CEE OEMs. Indeed, it has been estimated that around 75% of all producers and suppliers are to be found in a 200km radius around Poland, the Czech Republic, Slovakia and Hungary (McKinsey, 2002). Cluster policies are now to be found in CEECs. An example of this is the PANAC (Pannon Automotive Cluster) cluster in Hungary. Formed in 2000, this was the common initiative of the major car and component producers and suppliers, which created a country-wide industrial network for the automotive industry. Its goals are:

- To increase the ability of the supplier companies to join the global supplier networks of the automotive industry

¹⁸ Based on Kuznetsov (2002)

- To help its partners to increase complexity of their products, thus being able to improve their position in the supply-chain
- To foster the development of a nation-wide automotive strategy
- To be a well accepted reference-provider on the partner companies (both to the government and domestic or international buyers)
- Internationalization of the network

This is all achieved through providing access to industry news and information; providing trainings, workshops, and specialists events; performing technology transfer services; performing individual company assessment; leading industry-wide benchmarking activity and facilitating inter-company learning (Pannon Automotive Cluster, 2004).

The Automotive Cluster of Slovenia (ACS) also provides links between members, supporting synergy with suppliers of machines, tools, manufacturing, design, logistics and other services. It also promotes joint members' activities to improve products and operations in R&D, production, quality assurance and to achieve and maintain business excellence.

However, these examples seem still to be exceptions rather than rule and we may expect that CEE governments will increasingly prioritise policies for embedding FDI into their local suppliers' networks. The Hungarian program *Integrator* is a good example of this type of policy support.

6. CONCLUSIONS

Through its numerous production and knowledge linkages to other sectors and its substantial role as generator of exports, value added and employment restructuring of the CEE automotive industry will have important effects on the overall industry restructuring in the region.

Restructuring of the CEE automotive industry has been entirely foreign led which has determined the focus of our study which has reviewed the major effects of FDI on industry restructuring.

The overall effects of FDI on growth, restructuring and employment in industry are positive. FDI has led to increased specialisation in the automotive industry at European level. Integration of CEE into a network of major European automotive MNCs enabled different models to be produced in different countries and the reorganisation of the value chain in a way that has created bigger value added for MNCs. Only a minority of activities have been relocated i.e shifted abroad and local facilities closed. The majority of internationalisation took the form of expansions and extensions which suggests that the EU enlargement has been a positive sum game in the automotive industry. Those CEE countries that have attracted FDI in this industry have benefited through preserved employment, increased productivity, export and through great potential for development of a local supply base.

The biggest beneficiaries of this change were consumers who benefited through increased variety of supply and reduced prices. EU accession has further ensured that these benefits are generated through increased competition and the abolition of tariffs and non-tariff barriers.

However, the value creation potential of CEE as global automotive location has not yet been fully exploited. This process has been the most developed in the Czech Republic and Hungary. It is faced with difficulties in Poland and has started in Slovakia and Romania. While great changes have been made in assembly sub-sector we may expect further changes in car parts supplier sector through the further arrival of first tier suppliers and the deepening of the local supply base.

A combination of country specific factors (proximity, socialist heritage in automotive industry, skilled labour and privatisation) coupled with strategies of automotive MNCs have generated different country patterns and very different effects on industry. The CEE automotive industry is highly concentrated on central Europe (the Czech Republic, Slovakia, Hungary, Slovenia, Poland) with great potential benefits in terms of clustering of supplier networks.

Improvements in productivity and technology transfer in both embodied (equipment upgrading) and disembodied form (know how, vocational training) are significant in countries with large FDI in the automotive industry. Productivity in industry is well above the industry average and company evidence points to large productivity gains. In that respect, the arrival of large assemblers has produced quite substantial effects which in the next stage needs to deepen through further development of the local supply base.

Privatisation policy in early 1990s which was followed by policy of attracting Greenfield FDI on the eve of EU accession was crucial in explaining country differences in FDI presence. Automotive investors have foreseen EU accession and in that respect, EU membership will not bring to changes in trend but possibly deepening of automotive cluster in central Europe. However, whether this will happen or not will depend on the ability of CEECs to develop sector specific policies which would support the upgrading of local automotive suppliers.

Regarding prospects for further industry restructuring, they depend mainly on improvements among local suppliers. From a policy perspective it is crucial to ensure that local content is growing. A crucial policy issue is whether current national and EU policies are addressing this next stage of industrial upgrading in CEE automotive industry.

In relation to the automotive industry, most of the CEECs have been active through FDI policy. This policy focus has become far from sufficient for industrial upgrading which requires integration between FDI and vocational training and innovation policies. In order to assist industrial upgrading CEE should take into account the network character of local and global companies. This has been already been recognized (implicitly or explicitly) through the National Subcontracting programmes (Czech Republic) and the Hungarian Integrator programme, which aim to integrate domestic firms with foreign firms through supply linkages. At EU level, we have proposed the somewhat heretical idea of EU wide FDI contests (see section 5.2.) whose underlying rationale is to integrate FDI and innovation policies. In the automotive sector, whose restructuring in CEE is dominantly FDI led, this may be a way forward.

Inter-firm linkages which have emerged through automotive value chains should be further deepened. Job and retraining grants as tools of FDI/subcontracting and innovation policy should be expanded throughout the region, possibly linked to Structural Funds programs. This should be complemented with clustering policies and promotion of 'learning networks' which would closely connect suppliers and assemblers. We believe that the best employment policies are those that support upgrading of local suppliers.

So far, growth and restructuring in the automotive sector was driven by actions and strategies of MNCs in interaction with government FDI policies which have shaped the overall pattern of restructuring. However, the next stage of industrial upgrading in the automotive industry will depend to a much greater extent on the quality of resources and ability of governments to coordinate policies at different levels. The shift in policy focus towards value chains complicates policy-making, as value chains cannot be fully supported only from the national level. They require multi level governance support at national, regional and EU levels. In addition, the focus on supply chains is not sufficient as upgrading based on value chains may be related to technology, skills and national innovation systems rather than direct production chains. The main challenge at national level is to coordinate diverse policies with very different life cycles covering very different constituencies. Government capability to integrate policy objectives and actions from the different tiers of government (EU, national, regional) will be essential for promoting industrial upgrading through industrial networks I automotive industry. This – administrative capability – will distinguish between losers and winners in the next stage of industry restructuring.

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