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Doris Hanzl

Development and Prospects of the Transport Equipment Sector in the Central and Eastern European Countries

WIIW INDUSTRY STUDIES

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- *Basic metals and fabricated metal products*
- *Machinery and equipment n.e.c*
- *Electrical and optical equipment*
- *Transport Equipment*
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Each of these studies presents a detailed picture of the development and prospects of the particular industry in central and eastern Europe. The first part of each study concentrates on: the patterns of production and employment; international competitiveness and trade performance with the EU (productivity, labour costs, price and quality indicators, revealed comparative advantage, etc.); and foreign direct investment. The second part provides more detailed industry data and valuable information about the leading domestic firms and the foreign investors in the industry.

Michael Landesmann
Research Director, WIIW

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– *1999/4 Development and Prospects of the Transport Equipment Sector in the Central and Eastern European Countries (March 1999)*

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Doris Hanzl

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December 1999

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Executive Summary

In Central and Eastern Europe, as in most economies, the transport equipment sector plays a major role in manufacturing, due to its ***size and foreign trade volume*** *as well as its links with the rest of the economy. It is considered a* ***medium-high technology*** *industry and belongs to the most globalized segments of manufacturing world-wide. In the Central and Eastern European countries (CEECs), the transport equipment sector is one of the fastest growing sectors, characterized by extraordinary production and export growth and supported by a massive inflow of foreign direct investment.*

Part One *of the study investigates the development and prospects of the transport equipment sector in the following countries:*

- *Bulgaria*
- *Czech Republic*
- *Hungary*
- *Poland*
- *Romania*
- *Slovakia*
- *Slovenia*

In size, the transport equipment sector emerged as a ***major player*** *in total manufacturing of the* ***more advanced CEECs*** *today and contributes between 9% and 12% of output, with the* ***Czech Republic*** *and* ***Hungary*** *having the largest shares of the CEECs analysed. Only in Romania and Bulgaria, is the sector of minor importance. When compared to countries of Western Europe, the CEECs are in the middle of the range, having smaller transport equipment shares than the more advanced EU countries but larger ones than the less advanced countries.*

In the first phase of transition, which lasted from 1989 to around 1992, the output of the transport equipment sector declined along with the larger economy and was even more affected than total manufacturing. From 1993 on, the performance of the sector improved and it became one of the ***most successful segments of manufacturing****, due to growing domestic demand and the inflow of foreign investment in particular. The Hungarian and Polish transport equipment sectors emerged as the regional growth leaders, while the Slovenian one continued to decline.*

As an employer, the transport equipment sector is of middle importance and employment shares range between 3% in Bulgaria and 9% in Romania today. Output shares were decisively larger than employment shares in all countries in 1997, except in Bulgaria and Romania, where production is still more labour-intensive.

As is typical for all CEECs and all sectors of manufacturing, wages, productivity and unit labour costs in the transport equipment sector were and are generally much lower than in West European countries, for which we used Austria as a point of reference. Only in ***Hungary****, did the sector's* ***productivity*** *surpass the Austrian level in 1997. From 1993 to 1997, wages and productivity rose in all countries. As the productivity increase was larger*

than the wage increase, unit labour costs declined in most countries but increased in the Czech Republic and Slovenia. In general however, unit labour costs remain at a much lower level than in Austria.

Ranges for CEECs' unit labour costs in the transport equipment sector as a percentage of the Austrian level:

Bulgaria	*23% - 51%*	*Romania*	*17% - 57%*
Czech Republic	*22% - 33%*	*Slovakia*	*17% - 27%*
Hungary	*12% - 21%*	*Slovenia*	*38% - 45%*
Poland	*29% - 40%*		

(The lower range is calculated at purchasing power parities (PPP) for GDP, the upper range at PPP for fixed capital formation; figures are from 1997, with the exception of the Austrian level which is for 1996)

In CEECs' manufacturing exports to the EU, the transport equipment sector holds a ***significant trade position*** *in the more advanced CEECs, with shares ranging between 11% in Poland, 20% in Slovenia and Slovakia and 22% in Hungary. The sector is* ***exceptionally export-oriented****, shows a* ***small revealed comparative advantage*** *compared to total manufacturing and concentrates on exports of automotive products. In Romania and Bulgaria, on the other hand, the transport equipment sector has only a very small export share in total manufacturing. Other transport equipment products form a large part of their exports, leading to more unstable export structures over time.*

Transport equipment imports from the EU have increased together with exports in the more advanced CEECs, and today account for 9% of total manufacturing imports in Hungary, up to 19% in Slovenia. Again, Romania and Bulgaria showed much lower shares. Higher absolute imports than exports, however, made the sector a ***net importer*** *in most CEECs, the only exception being the* ***Hungarian*** *transport equipment sector, which achieved a* ***sectoral trade surplus*** *since 1995.*

On the EU market*, CEECs transport equipment exports had a market share in total EU (12) imports (excluding intra-EU trade) of 1% in 1989, which increased to 8.5% in 1997. When compared to the CEECs total manufacturing exports, these market shares lay first below and then above the average of 2.8% and 6.9%. On the Austrian market, transport equipment exports from the CEECs were more important and accounted for 14% of Austria's non-EU transport equipment imports in 1997.*

The transport equipment sector is a ***central target*** *for* ***foreign investors****, which in fact, have taken over the automotive production in the CEECs (see below). Reasons for investment in the region were manifold and included favourable labour conditions, export possibilities, growing purchasing power on the domestic market and investment incentives. Foreign penetration is therefore very high in all CEECs, except in Bulgaria and Romania.*

Future prospects *for the transport equipment sector differ between countries and between industries. Based on GDP forecasts and 1999 car sales, future trends are the best for Hungary, followed by Poland and Slovenia, while they are less bright for the Czech and Slovak Republics and relatively volatile for Bulgaria and Romania. While in* ***the automotive industry*** *future prospects are quite bright and foreign investment interest is still unbroken, a lower number of cars per 1000 inhabitants exists than in the West, and a long-term income increase is predicted, the industry labelled* ***other transport equipment*** *is handicapped by the widespread neglect of public transport systems and imminent structural problems.*

Part Two *of the study presents a more thorough micro-analysis of the transport equipment sector, containing* ***company profiles*** *of selected domestic enterprises and foreign investors in different industries and sub-branches.*

Shaped by the CMEA-division of labour during the communist regime and former licence agreements with West European companies, the ***automotive industry*** *in the Central and Eastern European Countries forms the* ***major part*** *of the transport equipment sector and is* ***booming*** *today. While in Poland it accounts for approximately 70% of the sector's output, it holds 84% in the Czech Republic and even 97% in Hungary.* ***Foreign investors*** *and their aggressive export strategies have shaped the regional automotive landscape: Germany's Volkswagen in the Czech and the Slovak Republic, France's Renault in Slovenia, Italy's Fiat and South Korea's Daewoo in Poland and Germany's Audi or GM/Opel in Hungary, just to mention the most important. Component suppliers often followed. Romania has recently experienced an inflow of foreign investment, while in Bulgaria, the automotive industry is practically non-existent.*

The industry entitled ***other transport equipment*** *on the other hand, is relatively small, accounting for only 3% of total transport equipment output in Hungary, 16% in the Czech Republic and 32% in Poland. It consists of* ***various problematic sub-branches****, making losses and accumulating debts, including the* ***shipbuilding industry, railway and tramway locomotives production*** *and the* ***aircraft industry.*** *Privatisation and restructuring of the concerned companies is difficult because of their large numbers of employees and hence expected massive labour shedding with any major realignment. In most countries, foreign investors have stepped in steadily, but were sometimes challenged, especially in the sensitive sub-branch of aircraft manufacturing.*

Keywords: *Manufacturing, Transport equipment sector, Automotive Industry, Shipbuilding, Railway and tramway locomotives and rolling stock, Aircraft and spacecraft*

JEL-classification: *L6, L62*

Development and Prospects of the Transport Equipment Sector in the Central and Eastern European Countries

PART I: INDUSTRY SURVEY

Generally, the transport equipment sector plays a major role in an advanced economy, due to its size and foreign trade volumes as well as its links back to the larger economy, into basic metals, electronics, rubber and plastics but even textiles, and its links forward into services and repair. As one of the more sophisticated engineering sectors, it is considered a medium-high technology industry and as one of the most globalized segments of manufacturing world-wide. Growing over-capacities, however, cast a shadow on future prospects. The *automotive industry* is the most important part of the transport equipment sector and can be classified as capital- and scale-intensive. It is dominated by a few large companies, creating an oligopolistic market, supplemented by a large number of smaller companies in the automotive components industry. Demand is generated by millions of private customers – in contrast to the *other transport equipment industry*, where public demand still plays a major role.[1] This industry is more labour- and skill-intensive, with aerospace equipment being also very R&D intensive.

This study gives a thorough two-part picture of the transport equipment sector in the Central and Eastern European Countries (CEECs). The first part provides a more macro-economic survey of the developments and prospects of the sector, while the second part presents detailed further information on industries and sub-branches[2] as well as on company profiles of major domestic and foreign enterprises. In the first part, there are four sections: The first section analyses trends in growth and structure in the transport equipment sector, including characteristics and changes of production and employment. The next section considers indicators of international competitiveness, with information on wage rates, productivity and unit labour costs. The third section examines various aspects of trade performance with the European Union, while section four takes a closer look at foreign direct investment in this sector. A concluding chapter provides an outlook on future prospects. The appendix presents additional tables and figures.

According to the NACE rev. 1 classification system, the transport equipment sector includes the 'automotive industry' and the 'other transport equipment industry'.[3] The

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1 In aircraft and spacecraft, customers are the state military sectors and large airlines, while in railway and shipping, large private and state enterprises are the major customers. See Europäische Kommission (1997), page 14-7.

2 Including the automotive industry, shipbuilding, railway and tramway locomotives and rolling stock, and aircraft and spacecraft.

3 According to the NACE rev. 1 classification the exact title of the automotive industry is 'production of motor vehicles, trailers and semi-trailers' (34). The industry comprises the following sub-branches: 'motor vehicles' (34.1), 'bodies for

subsequent quantitative analysis is based on the WIIW Industrial Database Eastern Europe, which currently includes Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia.[4]

1 Overview: Trends in growth and structure

Transport equipment as a major player in total manufacturing today

In general, the demand for and production of transport equipment mainly depends on the transportation infrastructure, policy and system. In the command economy, a 'collective transportation' system prevailed, comprising predominantly the use of buses and railways, in contrast to individual transportation. The emphasis was hence on mass transportation, which was subsidised for the general population. Cars were regarded as a symbol of the 'Western world',[5] and were readily available only for a small group of party members. Otherwise there was a severe shortage of cars. The use of rail transport was also reinforced by the type of production and distribution prevailing in the command economy, as large quantities of standardised goods were more easily transported by rail.[6]

In addition, the Council for Mutual Economic Assistance (CMEA) division of labour generally shaped the production specialization throughout the region. In the transport equipment sector, buses were produced in Hungary and the former Czechoslovakia, cars in East Germany (GDR), Poland, the former Czechoslovakia (CSFR) and Russia, and locomotives in the former GDR and Czechoslovakia. Bulgaria, did not concentrate at all on the transport equipment sector and politically isolated Romania tried to produce everything.[7]

At the beginning of transition, the transport equipment sector was most important in total manufacturing in Slovenia, where it was second only to the food, beverages & tobacco sector, and in the Czech Republic, with production shares of 14% and 12% respectively, while in the other CEECs the sector was smaller and hovered mostly around 7% (at constant prices 1996, see Table 2). The transport equipment sector faced a severe

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motor vehicles; trailers and semi-trailers' (34.2.) and 'parts and accessories for motor vehicles and their engines' (34.3.).

The 'other transport equipment industry' (35) comprises the following sub-branches: 'ships' (35.1), 'railway and tramway locomotives and rolling stock' (35.2), 'aircraft and spacecraft' (35.3), 'motorcycles and bicycles' (35.4), 'other transport equipment n.e.c.' (35.5).

4 For Bulgaria, however, data are not consistent over the whole time period. Data before 1996 can be compared with those for 1996 and 1997 only to a limited extent. For Romania, production data at constant prices from 1994 on have to be interpreted carefully due to statistical problems.

5 'Cars being a luxurious good which represented almost all what the system was fighting against: wealth, social aspiration, freedom and autonomy'. See Richet, X., Bourassa, F. (1998), page 20.

6 See Hunya (1995), page 5.

7 During the Soviet-era, nine independent producers existed in the automotive industry, including Wartburg and Trabant in the German Democratic Republic, FSM and FSO in Poland, Škoda in Czechoslovakia, Industrije Motonih Vozil (IMV) in Slovenia, and Dacia and Oltcit in Romania. Hungary specialized as a components supplier and Bulgaria did not have an own automotive industry. Romania was not integrated in the CMEA system and thus tried to maintain an independent car industry. See Tulder, R. , Ruigrok, W. (1998), page 202.

Technology was however outdated and hence CEEC producers' product development strategy depended on Western licences since the 1960s, except Škoda in the former Czechoslovakia. See Havas, A. (1998), page 15.

downturn during the transformational recession, not being competitive on Western markets, due to low product quality. Only with the strong inflow of foreign direct investment into the more advanced CEECs[8] did the sector emerge as one of the most successful segments of manufacturing in the region, with exports functioning as the engine of growth. The transport equipment sector thus ranked third in total manufacturing in 1997 in the Czech Republic, Hungary, Poland and the Slovak Republic with shares of 12% in the former two countries and 9% in the latter (at current prices, see Table 1),[9] behind only food, beverages & tobacco and the basic metals sector. Only in Slovenia, did the importance of the sector decline, however, still measuring a share of 9% in 1997. In the less developed countries, Romania and Bulgaria, the transport equipment plays only a minor role in total manufacturing (see Table 1).

Table 1

Production shares of individual industries in total manufacturing (at current prices), 1997, in %

	Bulgaria[1)]	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
D Manufacturing total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DA Food products; beverages and tobacco	20.4	18.6	21.4	24.8	21.9	16.2	15.4
DB Textiles and textile products	6.2	4.5	3.7	5.7	6.3	3.5	7.1
DC Leather and leather products	1.6	0.9	0.8	1.2	1.6	1.1	1.9
DD Wood and wood products	1.1	2.1	1.5	3.4	2.2	1.8	3.3
DE Pulp, paper & paper products; publishing and printing	3.2	4.5	4.4	5.6	2.6	6.4	7.5
DF Coke, refined petroleum products & nuclear fuel	16.1	3.6	6.7	4.7	10.5	9.0	1.0
DG Chemicals, chemical products & man-made fibres	12.5	7.1	9.7	7.5	9.1	9.1	10.5
DH Rubber and plastic products	2.5	3.8	3.6	4.0	2.1	4.4	4.2
DI Other non-metallic mineral products	5.0	6.2	3.3	4.7	5.3	4.3	4.7
DJ Basic metals and fabricated metal products	13.6	17.3	10.0	12.0	17.9	18.3	11.5
DK Machinery and equipment n.e.c.	10.8	9.1	5.2	6.6	5.9	7.8	10.0
DL Electrical and optical equipment	3.8	6.6	16.9	6.6	4.9	6.2	9.1
DM Transport equipment	**2.2**	**12.1**	**11.7**	**8.7**	**6.4**	**9.4**	**9.2**
DN Manufacturing n.e.c.	1.1	3.7	1.2	4.5	3.3	2.4	4.7

Notes: 1) Mechanical engineering includes fabricated metal products and casting of metals, normally included in the basic metals and fabricated metals sector (DJ).

Source: WIIW Industrial database.

'Regional size leader' in the Czech Republic and Hungary – shooting star in the Slovak Republic

Within the region, the transport equipment sector remained large in the Czech Republic over the whole time period from 1989 to 1998 - while in Hungary the sector reached full size only after the transformational recession came to an end. Pushed by the inflow of foreign investment and a continued specialization on automotive components, it became a successful player in the region (see Figure 1). In the Slovak Republic, the transport equipment sector grew continuously since 1995 and showed a dramatic surge by almost

8 Meaning the Czech Republic, Hungary, Poland, Slovakia and Slovenia.

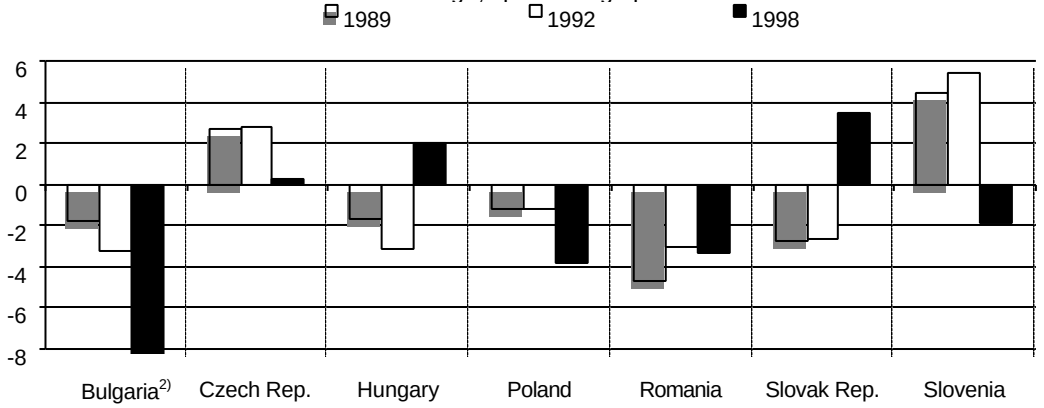
9 In 1998, the Slovak share (at current prices) increased to 14%, largely affected by the change in statistical calculation (see footnote 10).

7% in 1998, however this due mainly to a change in statistical methodology (see Table 2)[10]. Next followed Slovenia, where the collapse of the former Yugoslav market let to a downsizing of the sector. Even the presence of the large foreign investor Renault could not fully compensate for the loss of this market. Calculated at constant 1996 prices, Poland and Romania showed an equally large transport equipment sector in 1998, while in Bulgaria, the sector was still the smallest in the region, handicapped by a relatively low inflow of FDI and a lag in overall economic development.

Figure 1

Transport equipment

Production shares in total manufacturing (at constant prices) relative to CEEC-average,[1)] percentage points



Notes: 1989 and 1992 production shares at constant prices: Bulgaria at 1996 prices, Czech Republic at 1993 prices, Hungary at 1992 prices, Poland at 1992 prices, Romania at 1993 prices, Slovak Republic at 1993 prices, and Slovenia at 1996 prices. 1998 production shares at constant prices 1996 for all countries. - 1) The CEEC-average includes the Czech Republic, Hungary, Poland, Slovakia and Slovenia.- 2) Bulgarian data are not consistent over the whole period. Data before 1996 can be compared with those for 1996 to 1998 only to a limited extent.

Source: WIIW Industrial database.

When compared to the countries of the European Union, the transport equipment sector of the CEECs shows a middle position between the more advanced countries of the 'EU-North'[11] and the less advanced countries of the 'EU-South'[12] in 1998. This means that the CEECs have a smaller transport equipment sector than the former country group, but a larger sector compared to the latter group (see Annex A, Figure A1). However, divisions get blurred, as for example Spain also has a large transport equipment sector while Austria, a more advanced country, has a relatively small one. The largest transport equipment sectors in the European Union can be found in Germany, Sweden, France, Spain and the United Kingdom, while it is practically non-existent in Ireland (1%).

[10] 1989 to 1996 data include only enterprises with more than 25 employees, 1996 data include enterprises with more than 20 employees and 1998 data include enterprises with all employees.

[11] Including France, Germany and the United Kingdom, with an average share of the transport equipment sector in total manufacturing of about 14% in 1996.

[12] Including Greece, Portugal and Spain, with an average share of the transport equipment sector in total manufacturing of about 8% in 1996.

... and 'regional growth leader' in Hungary and Poland

During the first phase of transition, which lasted from 1989 to about 1992, all CEECs experienced a severe transformational recession and production of the transport equipment sector declined along with the larger economy. In fact, its decline was even more pronounced than that of total manufacturing, making the sector what may be called a 'loser' of this period (see Table 3).[13] This was due to the collapse of the former CMEA-market, on which the sector heavily depended, and a lagging export re-orientation to Western Europe, restrained by insufficient quality competitiveness. In addition, domestic demand for transport equipment, being mostly consumer durables (cars, motorcycles), was badly hit in the recession but later made up part of those losses in the recovery period. Thus during the second period, from 1993 on, the situation turned around and growth re-emerged in all countries, with the transport equipment sector becoming one of the most successful segments in manufacturing, except in Slovenia. Hence, the sector was a 'winner' of this period and mostly flourished – again in comparison to total manufacturing - in Hungary and the Slovak Republic, as well as in the Czech Republic and Poland. This outstanding growth is to be attributed to growing domestic demand and the high inflow of foreign investment into the automotive industry, improving the competitiveness of the CEE-transport equipment sector and leading to the emergence of comparative advantages. Only in Slovenia, the sector remained a 'loser' of this period, suffering particularly from the disintegration of the former important Yugoslav market and also from the collapse of the Russian market.

Table 2

Transport equipment

Production shares (at constant prices 1996), in %

Manufacturing = 100

	1989	**1992**	**1997**	**1998**
EU-North[1)]	.	12.9	14.1 [3)]	.
EU-South[1)]	.	8.1	7.9 [3)]	.
Austria[2)]	5.9	6.2	7.3	.
Bulgaria	7.4	4.0	2.5	3.4
Czech Republic	11.7	9.7	13.1	13.5
Hungary	7.0	3.8	12.2	15.2
Poland	7.4	6.7	8.7	9.4
Romania	5.4	5.1	7.7	9.9
Slovak Republic	7.2	5.2	9.9	16.7 [4)]
Slovenia	13.6	12.6	9.1	11.3

Notes: Seperation lines indicate a change in statistical calculation. - 1) 1992 data at 1989 prices, 1996 data at prices 1996.- 2) 1989 and 1992 at 1993 prices.- 3) 1996. - 4) 1989-1996 enterprises with more than 25 employees, 1996 with more than 20 employees, 1998 with all employees.
Source: WIIW Industrial database.

Table 3

Transport equipment

Production growth (at constant prices 1996)

	Average annual changes in %		Relative to total manufacturing in percentage points		Index 1998
	1990-92	**1993-97**	**1990-92**	**1993-97**	**1989=100**
Czech Republic	-19.2	8.5	-5.0	6.2	84.4
Hungary	-30.4	35.7	-15.5	28.3	229.2
Poland	-14.2	17.8	-3.0	6.0	165.3
Romania	-25.3	9.8	-1.2	8.5	74.5
Slovak Republic	-24.3	14.3	-8.3	13.7	153.4
Slovenia	-13.4	-6.1	-2.1	-6.3	61.5

Source: WIIW Industrial database.

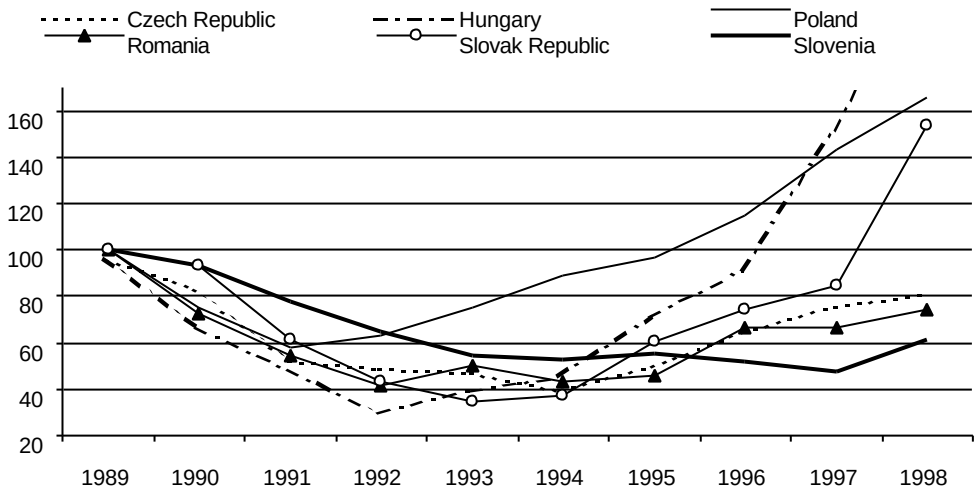
[13] 'Losers' of transition are here defined as industries, that performed worse than total manufacturing in terms of production growth, 'winners' those that performed better, see Urban, W. (1997), page 4.

In 1997, Hungary and Poland were the only two countries where the transport equipment sector had surpassed the 1989 production level - that of the Slovak Republic followed in 1998. The Czech transport equipment sector still remained on a lower level, handicapped by a number of ailing firms (e.g. Tatra, Liaz) and a more mixed sector structure as compared to the Slovak Republic. While in all these countries, including even Romania, production began to recover after an initial drop during the transformational recession, it continued to decline in Slovenia and showed a slight upturn only in 1998 (see Table 3 and Figure 2).

Figure 2

Transport equipment

Industrial production index (at constant prices 1996, national currency), 1989 = 100



Source: WIIW Industrial Database.

Transport equipment as a mid-range employer

In total employment, the transport equipment sector in the CEECs is relatively important due to its middle position in total manufacturing employment. In 1997, shares ranged from 9% in Romania and 8% in the Czech Republic, to 5% in Hungary, Slovenia and 3% Bulgaria (see Table 4). During transition, employment was reduced drastically in all countries, so that employment shares were smaller in 1997 than in 1989. The transport equipment sector especially lost size in the Czech Republic (13% in 1989) and also to a lesser extent in Poland (9% in 1989). Overall, employment levels in the year 1997 reached only 40% to 70% of the 1989-employment level (see Table 5).

In 1989, transport equipment output shares were slightly higher than employment shares in most countries, with the exception of the Czech Republic, Poland and Romania. As output shares increased and employment shares decreased in most countries during transition,

Table 4

Transport equipment

Employment shares, in %

Manufacturing = 100

	1989	1992	1996	1997
EU-North	.	12.2	12.0	.
EU-South	.	7.7	6.3	6.2
Austria	4.8	5.0	5.2	5.3
Bulgaria	5.4	6.5	3.4	3.3
Czech Republic	12.6	9.5	9.1	8.0
Hungary	6.3	4.3	4.4	5.1
Poland	9.0	8.4	7.4	7.2
Romania	.	8.3	8.8	8.9
Slovak Republic	.	6.4	6.3	6.3
Slovenia	6.6	6.4	5.4	4.9

Notes: Seperation lines indicate a change in statistical calculation.

Source: WIIW Industrial database.

Table 5

Transport equipment

Employment

thousand persons

	1989	1992	1996	1997	1997 1989=100
Bulgaria	77	58	25	24	.
Czech Republic	210	112	90	93	44.4
Hungary	74	37	28	33	44.0
Poland	301	234	209	204	67.8
Romania	.	232	190	181	52.2 [1)]
Slovak Republic	.	34	28	28	.
Slovenia	24	18	12	10	42.5

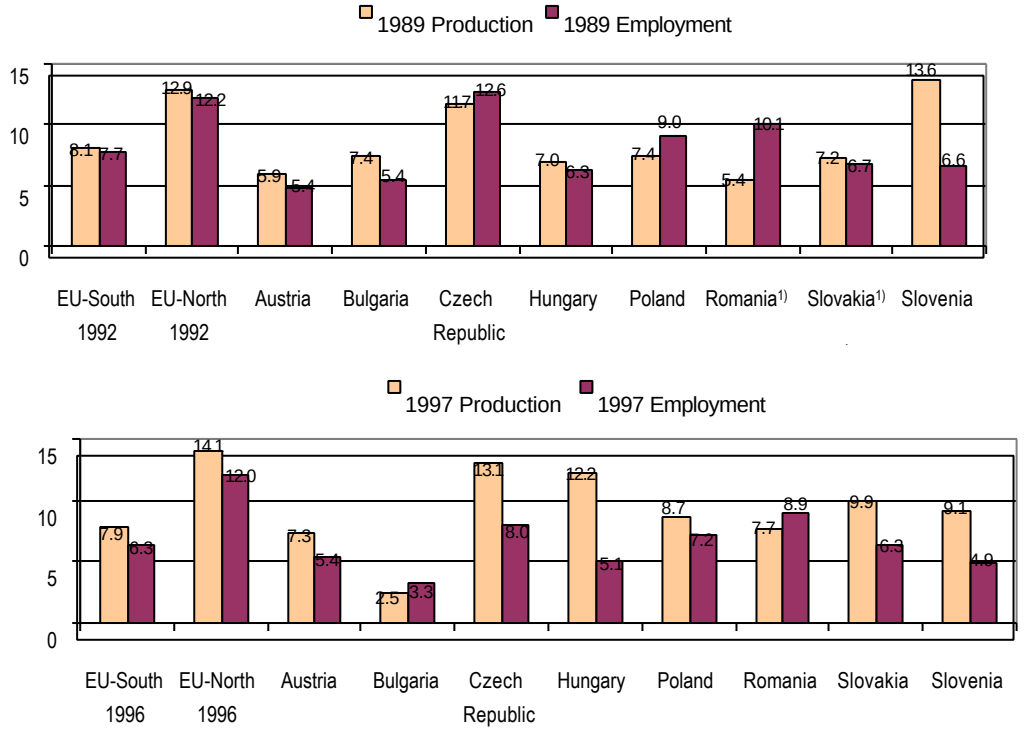
Notes: Seperation lines indicate a change in statistical calculation. 1) 1990=100.

Source: WIIW Industrial database.

Figure 3

Transport equipment

Shares in production (at constant prices 1996) and employment in total manufacturing, in %



Notes: 1) Employment share 1990.- 2) Employment share 1991.

Source: WIIW Industrial database

the former were decisively larger than the latter by 1997, indicating above manufacturing average productivity growth over the period. In comparison to the EU-North, the change

was quite impressive and indicates an advantage of the CEECs in this sector. Only in Bulgaria and Romania, were employment shares in total manufacturing somewhat larger than output shares, pointing to below average productivity levels and hence to the production of more labour-intensive products, such as ships, the use of less capital intensive technology, to labour-hoarding and hence further restructuring needs.

2 International competitiveness

As is typical for all CEECs and all sectors of manufacturing, wages, productivity and unit labour costs in the transport equipment sector were and are generally much lower than in Western countries. In 1997, nominal wage rates (per employee) in the transport equipment sector, for example, hovered around 10% of the Austrian level in the Czech and Slovak Republics, Hungary and Poland, while they reached only about 3% in Bulgaria and Romania, but nearly 25% in Slovenia (see Figure 4). Unit labour costs[14] were also much below the Austrian level in 1997 and ranged between 12% in Hungary, at the lowest, and 40% in Slovenia, at the highest. Productivity[15] was, however, exceptionally high for the Hungarian transport equipment sector and lay above the Austrian level - 112% - in 1997 for the first time, up from about 80% in 1996.[16] In Slovenia, the Czech and Slovak Republics, transport equipment productivity was also relatively high, but still far below the Austrian level. Bulgaria and Romania showed the lowest productivity level,[17] less than 20% of the Austrian level (see Figure 4).[18]

[14] Defines as wages divided by labour productivity.

[15] Defined as output (at constant prices) divided by the number of employees, converted into ECU by purchasing power parities (PPPs).

[16] However, the use of PPPs for GDP makes the comparison of productivity levels on the sectoral level tentative and probably leads to overestimation in this sector. Industry specific PPPs are however not available. The use of the alternative production estimates PPPs for gross capital formation would lead to a lower result (about 50% of the Austrian level in 1997). However, productivity growth of the transport equipment sector was nevertheless impressive.

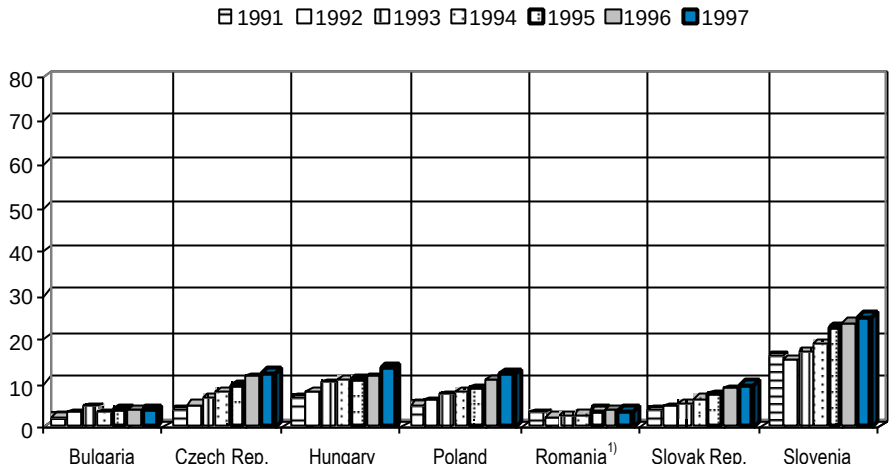
[17] 1994-1996 productivity figures for Romania, and hence also unit labour cost figures, are probably unreliable due to statistical problems in constant production data.

[18] As these figures are strongly affected by different productivity estimates, Table A2 in the Appendix shows the lower and upper range for estimated unit labour costs in 1997, using alternative productivity measurements.

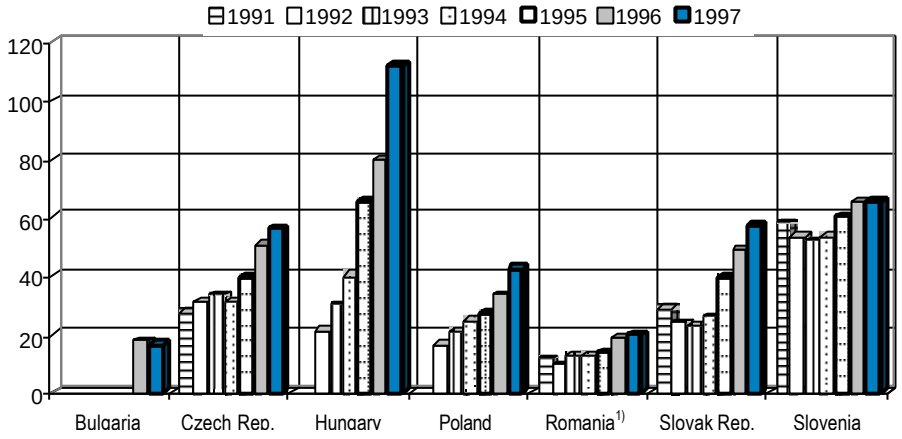
Figure 4

Transport equipment

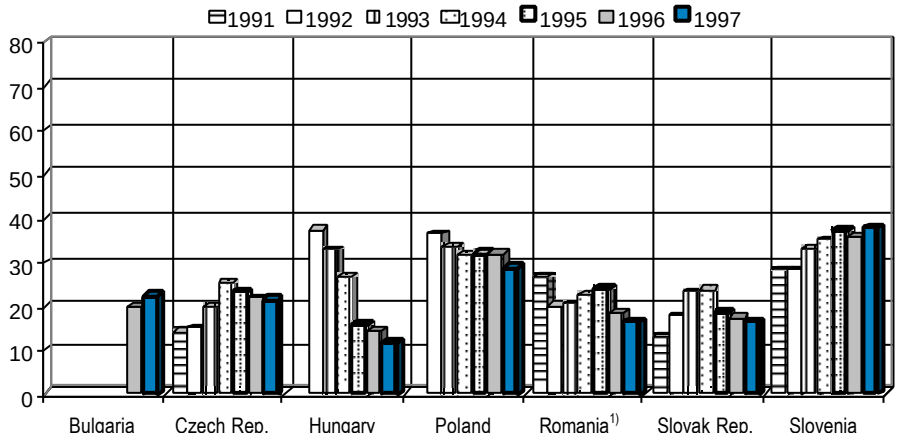
Wages (ECU), Austria 1996 = 100



Productivity (PPP)[2]. Austria 1996 = 100



Unit labour costs (ECU), Austria 1996 = 100



Notes: 1) Net wages; all other countries gross wages.1994-1996 productivity figures for Romania must be interpreted carefully due to some statistical problems regarding production data at constant prices.- 2) PPP=Purchasing Power Parities.

Source: WIIW Industrial database

During transition, wages and productivity in the transport equipment sector grew throughout the region: Between 1993 and 1997, annual average growth rates of wages were about 10% in Hungary, Romania and Slovenia and 21% in the Czech Republic, while productivity grew fastest from a low level in Hungary and slowest in Slovenia from a very high level reflecting the different size of foreign direct investment inflows in the two countries and the continuous fall in output in Slovenia (see Table 6). As the productivity increase was higher than the wage increase, unit labour costs declined in Hungary and Poland from 1992 on, whereas in the Czech and Slovak Republic they increased first, peaked in 1994, and fell only afterwards (see Figure 4). Hence annual average growth rates between 1993 and 1997 were negative for Slovakia only, but positive for the Czech Republic. In Slovenia too, transport equipment unit labour costs grew slightly.

Looking at the relative wage level of the transport equipment sector, wages lay some percentage points above the manufacturing average in most CEECs in 1997, with the exception only of Slovenia. Productivity was way above average relatively speaking, except in Bulgaria and Romania, where productivity lay below the manufacturing average. In 1992, transport equipment unit labour costs mostly measured values above average, while in 1997 they already lay below, again except in Romania and Bulgaria (see Table 7).

Table 6

Transport equipment
Average annual growth rates, 1993-1997
in %

	Output	Employment	Productivity (ECU basis)	Exports to EU (ECU basis)	Wage rates (ECU basis)	Unit Labour Costs (ECU basis)
Czech Republic	8.5	-4.6	13.5	35.6 [1)]	20.8	6.4
Hungary	35.7	-2.4	39.0	72.6	10.2	-20.7
Poland	17.8	-2.7	21.0	29.3	15.1	-4.9
Romania	9.8	-4.8	15.4	21.8	10.6	-4.1
Slovak Republic	14.3	-3.9	18.9	77.5 [1)]	17.3	-1.4
Slovenia	-6.1	-10.7	5.2	17.1 [1)]	10.4	4.9

Notes: 1) 1994-1997.
Source: WIIW Industrial database.

Table 7

Transport equipment
Unit Labour Costs (national currency)
Manufacturing = 100

	1992	1995	1996	1997
Bulgaria	198.5	207.1	159.7	166.9
Czech Republic	97.9	94.2	83.0	69.6
Hungary	117.3	67.0	62.1	52.3
Poland	130.5	111.8	103.9	93.8
Romania	183.1	186.9	144.0	133.3
Slovak Republic	120.0	88.6	76.4	67.5
Slovenia	49.6	56.4	55.6	52.9

Source: WIIW Industrial database.

3 Trade performance with the EU[19]

Significant trade position in the advanced CEECs today and strong export-orientation

At the beginning of transition in 1989, the transport equipment sector recorded small shares within total manufacturing exports to the EU of between 1% and 2% in Bulgaria, Hungary and Romania, while they were slightly higher in Poland and the Slovak Republic (1993)[20] both with 6%. In the Czech Republic, the transport equipment sector accounted for about 9% of total manufacturing exports (1993), while the share was largest in Slovenia, with as much as 14% (also in 1993). In the latter country, exports of transport equipment ranked second only behind the textile industry, signalling the sector's importance already in that year. It was positively influenced by the country's long-term relationship with Renault in the automotive industry.

While export shares remained quite small in Romania and Bulgaria - the less advanced CEECs - export shares grew remarkably during transition in the other countries. Again, export strategies of foreign investors in the automotive industry played a major role in this process. By 1997, the transport equipment sector accounted for 11% of all manufacturing exports to the EU in Poland and 14% in the Czech Republic. It became one of the major export sectors in Slovenia, Slovakia and especially Hungary, with shares around 20% (see Appendix, Table A3 and Figure A2).[21] When compared to shares in production, the transport equipment sector is exceptionally export-oriented in these three countries.[22] In the Czech Republic and Poland, the sector's export-orientation is less pronounced but still evident, while it is missing in Bulgaria and Romania. In the region, Hungarian and Slovakian export shares increased most, which is clearly demonstrated in export volumes as well: In 1997, Hungary's exports of transport equipment (in current ECUs) reached 7,700% of the 1989 level, Slovakia's exports about 1000% of the 1993 level (see Figure 5).

As in exports, CEECs' transport equipment imports to the EU were of minor importance within total manufacturing at the beginning of transition but mostly gained in significance thereafter. In 1989, shares ranged between 2% in Romania and 8% in the Czech Republic (1993). Again, only Slovenia did show a high import share of 20% (1993).

During transition, import shares of the transport equipment sector increased steadily in Poland, the Czech Republic and Slovakia, accounting for 12%, 13% and 17% of total

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[19] Trade with the EU is investigated in more detail because it plays an important role in the CEECs: After the collapse of the CMEA-market, CEEC trade was heavily reoriented towards EU-markets. By 1997, 70% of Hungarian and Slovenian exports went to the EU, for Poland and the Czech Republic the levels were around 60%, and for Bulgaria and Slovakia around 40%. On the import side, the Slovenian imports from the EU accounted for roughly 70%, in the Czech Republic, Hungary and Poland EU imports run for a share of 60%, in Slovakia and Bulgaria for 40%.

[20] In the Czech and Slovak Republics and Slovenia, trade data are starting from 1993 only.

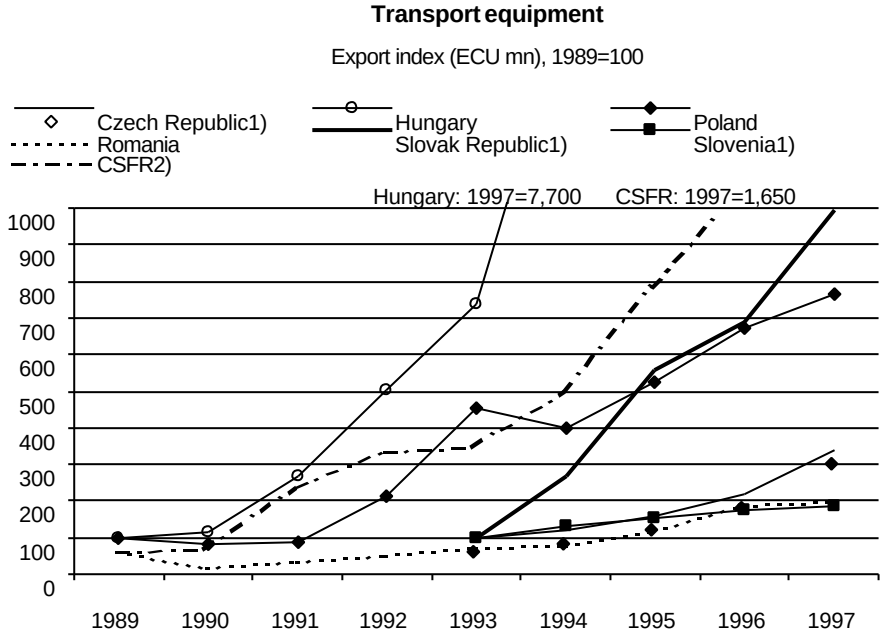
[21] The transport equipment sector ranked first in total manufacturing exports in Slovenia and Slovakia, and second in Hungary only behind the successful electrical and optical equipment sector.

[22] In Hungary, for example, 86% of total sales in the transport equipment sector went to exports in 1997, compared to 49% in total manufacturing, reflecting its extraordinary strong export orientation (see Part II).

manufacturing imports from the EU by 1997. In Hungary, import shares also grew in the first few years but declined from 1995 on, possibly due to the dampening effect of the implemented austerity package, and reached about 9% in 1997. In Slovenia, import shares fell slightly since 1993 but still remained on the very high level of 19%. In these five more advanced CEECs, the size and growth of import shares reflects the increased need of foreign investors for components and their intra-company trade. In the less advanced CEECs, Bulgaria and Romania, import shares remained relatively small and peaked temporarily in 1991/92, because of a high pent-up demand at that time (see Appendix, Figure A2).

In absolute terms, higher imports than exports in the transport equipment sector led to a sectoral deficit in most CEECs. While the deficit remained small in Bulgaria, Romania, Slovakia and Slovenia, it grew slightly in the Czech Republic and reached even ECU 1.2 bn in Poland in 1997. In Hungary, on the contrary, the sector's trade balance turned from deficit to surplus in 1995, and expanded steadily to ECU 1 bn by 1997 (see Appendix, Figure A2).

Figure 5



Notes:1) Export data for the Czech and Slovak Republics and Slovenia since 1993, 1993=100.- 2) Until 1992 CSFR, then exports from the Czech and Slovak Republic's added together.

Source: WIIW Industrial database.

Exports' and imports' concentration on the automotive industry

On a more detailed three digit NACE-level,[23] transport equipment exports of all CEECs into the EU heavily concentrated on automotive exports. This was already true in 1989, with a further increase after the collapse of communism. By 1997, automotive products already accounted for more than 90% of the transport equipment sector's exports in the Czech

Table 8

Detailed export structure of the transport equipment sector, 1993 and 1997

1993		Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
35	**Motor vehicles, motor vehicle parts and accessories**	**30.8**	**86.8**	**88.9**	**65.0**	**28.0**	**54.3**	**89.5**
351	Motor vehicles & motor vehicle engines	2.8	69.2	48.4	57.7	14.5	41.6	71.8
352	Bodies for motor vehicles and of motor-drawn trailers and caravans	6.5	4.0	19.9	3.1	6.4	5.9	7.1
353	Parts and accessories for motor vehicles	21.5	13.6	20.6	4.2	7.1	6.8	10.5
36	**Other means of transport**	**69.2**	**13.2**	**11.1**	**35.0**	**72.0**	**45.7**	**10.5**
361	Shipbuilding	7.0	1.4	7.6	22.4	40.0	30.4	0.8
362	Standard & narrow gauge railway	7.9	4.5	1.9	2.3	23.9	12.2	0.9
363	Cycles, motor-cycles & parts & accessories	0.8	5.7	0.7	1.7	0.2	2.4	4.7
364	Aerospace equipment	53.3	0.8	0.2	8.0	7.2	0.3	4.0
365	Other transport equipment	0.2	0.7	0.7	0.7	0.6	0.4	0.1
DM	**Transport equipment**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
1997								
35	**Motor vehicles, motor vehicle parts and accessories**	**84.1**	**91.4**	**98.3**	**90.5**	**55.7**	**92.1**	**96.0**
351	Motor vehicles & motor vehicle engines	30.7	59.6	81.6	70.2	8.7	66.9	80.2
352	Bodies for motor vehicles and of motor-drawn trailers and caravans	10.0	2.7	3.4	3.8	6.9	2.1	3.5
353	Parts and accessories for motor vehicles	43.5	29.1	13.3	16.5	40.2	23.2	12.3
36	**Other means of transport**	**15.9**	**8.6**	**1.7**	**9.5**	**44.3**	**7.9**	**4.0**
361	Shipbuilding	2.0	0.9	0.1	3.4	29.2	0.8	1.0
362	Standard & narrow gauge railway	8.8	3.4	1.1	0.8	12.0	5.8	0.8
363	Cycles, motor-cycles & parts & accessories	0.8	3.3	0.3	2.4	0.1	1.0	1.2
364	Aerospace equipment	2.2	0.6	0.1	1.0	2.5	0.1	0.9
365	Other transport equipment	2.1	0.3	0.1	1.9	0.4	0.1	0.1
DM	**Transport equipment**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: WIIW database.

Republic, Hungary, Poland, Slovakia and Slovenia, while exports of other means of transport were quite small in these countries (see Table 8). Within the automotive industry, 'motor vehicles and motor vehicle engines' were exported mainly, with 60-80% of the sector's exports, followed by 'parts and accessories for motor vehicles', with 10-30%, and finally 'bodies for motor vehicles and of motor-drawn trailers', with only 2-4%. Especially in

[23] According to the NACE 1970 classification system, division 35 and 36.

Hungary, the share of 'motor vehicles and motor vehicle engines' grew significantly during transition – it rose from 22% in 1989 to 82% in 1997. In Bulgaria, and particularly in Romania, the share of automotive exports reached 84% and 56% respectively and was hence relatively smaller as compared to the former countries. These two countries mainly concentrated on 'parts and accessories for motor vehicles', indicating lower-value added and their role as parts suppliers. In addition, their export structures fluctuate more, due to irregularities in ship exporting (see Table 8).

As in exports, transport equipment imports from the EU mainly concentrated on automotive imports already in 1989, with the concentration process continuing thereafter. By 1997, automotive imports accounted for more than 90% of the sector's imports – hence, the shares were almost the same as in exports.[24]

Automotive exports from Slovenia, Slovakia and Hungary on a high quality level

In 1989, the quality level of transport equipment exports from the CEECs to the EU, as measured by export unit values,[25] was significantly lower than for the other countries' exports of transport equipment (=total EU(12)-imports). By 1996, the quality had improved clearly in almost all CEECs but differed across industries (see Table 9). Exports from the automotive industry were able to catch up to average-import quality standards (always measured by relative export unit values) in Slovenia, Slovakia and Hungary, while exports from other transport equipment lay around the average in the Czech Republic and also in Hungary. In general, the quality of automotive exports was relatively better than that of other transport equipment exports, except in Bulgaria and the Czech Republic. The relatively better performance of the automotive industry in the Slovak Republic in comparison to the Czech Republic is due to the very strong position of one large successful company (Volkswagen Bratislava) in the former country while the latter shows a more mixed company structure including several ailing producers (see Table 9).

[24] Within the automotive industry, 'motor vehicles and motor vehicle engines' were mostly imported, with 60-84% of the sector's exports, followed by 'parts and accessories for motor vehicles', with 6-20%, and finally 'bodies for motor vehicles and of motor-drawn trailers', with 1-15%.

[25] This is reflected in a price/quality gap indicator of less than 1, see Table 9. See also Landesmann, M., Burgstaller, J. (1997) and Landesmann, M., Burgstaller, J. (1999).

Table 9

Transport equipment

Price/quality gap indicator[1)]

Average import quality = 1[2)]

		Bulgaria	Czech Republic[3)]	Hungary	Poland	Romania	Slovak Republic	Slovenia[4)]
34 Motor vehicles, trailers & semi-trailers[5)]	**1989**	0.647	0.508	0.515	0.524	0.498	.	0.861
	1993	0.345	0.599	0.923	0.714	0.385	0.724	1.033
	1995	0.482	0.658	1.075	0.646	0.519	1.032	1.074
	1996	0.402	0.681	1.001	0.789	0.769	1.075	1.138
35 Other transport equipment[6)]	**1989**	0.627	0.485	0.324	0.469	0.623	.	0.630
	1993	0.537	0.470	1.109	0.560	0.459	0.852	0.824
	1995	0.963	0.704	1.298	0.805	0.840	0.782	0.851
	1996	0.771	1.001	0.906	0.621	0.530	0.834	0.757

Notes: 1) The industry-level weighted price/quality gap indicator is defined as:

$$Q_j^c = \sum_{i \in l(j)} (p_i^c / p_i^{EU}) * sx_i^c$$

p_i^c is the price (per kg) at which country c sells exports of the product item i on EU marktets (refers here to the EU 12 markets)

p_i^{EU} is the average price of product item i intotal EU 12 imports

sx_i^c is the share of product item i in country c's exports to the EU 12 market and

$$\sum_{i \in l(j)} sx_i^c = 1$$

where l(j) is the set of product items i belonging to NACE industry j. See Landesmann, M., Burgstaller, J. (1997).- 2) Average of total (extra) EU-imports.- 3) Until 1992 CSFR.- 4) Until 1990 Yugoslavia.- 5) 1989-1994 data from NACE 1970 461-466; 1995-1996 data from NACE rev. 1 20.1-20.5.

Source: Calculations by Burgstaller, J., University of Linz for the WIIW.

Market share developments

In 1989, CEEC(6)[26] transport equipment exports to the EU(12) had a market share in total EU(12) imports (excluding intra-EU(12) trade) of 1%, which increased to 8.5% in 1997. In absolute terms, exports grew even fifteen fold, but reached a higher market share than total manufacturing only in 1996. In 1997, the share was clearly above the total manufacturing average of 6.9%, indicating the successful reorientation of transport equipment exports to the European market. However, the transport equipment sector was still less important than for example the metals sector, with a share of 11.5% on the European metals market in 1996, or the textiles and textile products sector, with 12%. The most important transport equipment exporting countries in 1997 were Hungary, with 3% of EU(12) imports, followed by the Czech Republic and Poland, with both 2%. The Slovak Republic and Slovenia registered shares of 1%, whereas that of Romania and Bulgaria were below 1% (see Table 10).

[26] Bulgaria, the Czech Republic, Hungary, Poland, Romania and the Slovak Republic. Data for Slovenia are available since 1993 only.

Exports from the CEECs(7) to Austria, accounted for a larger share than on the EU import market and reached 14% of Austria's non EU-transport equipment imports (world-wide imports without EU) in 1997, up from 8% in 1995. The volume of exports to Austria more than trebled. In 1997, the largest exporter of transport equipment to Austria was the Czech Republic, with 6% of the Austrian market. It was followed by Hungary and the Slovak Republic, with 4% and 2.5% respectively. The other countries had much smaller shares of below 1% (see Table 11).

Table 10

Transport equipment

Exports to the EU(12) in ECU mn, market shares in extra-EU imports in %

	EU(12) extra-EU imports	Bulgaria		Czech Republic[1)]		Hungary		Poland	
		ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1989	35277.5	2.9	0.01	118.9	0.34	25.2	0.07	166.1	0.47
1992	43620.0	6.8	0.02	439.2	1.01	126.5	0.29	351.5	0.81
1995	47218.0	9.0	0.02	620.4	1.31	1013.3	2.15	875.7	1.85
1996	53185.9	21.4	0.04	855.7	1.61	1179.6	2.22	1118.4	2.10
1997	62175.2	8.9	0.01	1327.8	2.14	1937.6	3.12	1272.5	2.05

	Romania		Slovak Republic		Slovenia		CEEC(6)[2)]		Total Manufacturing CEEC(6)[3)]	
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1989	35.5	0.10	.	.	.	.	348.5	0.99	9303	2.76
1992	31.2	0.07	.	.	.	.	955.3	2.19	16736	4.43
1995	55.1	0.12	351.5	0.74	592.8	1.26	2925.0	6.19	30661	6.44
1996	79.5	0.15	435.3	0.82	662.1	1.24	3689.9	6.94	32301	6.52
1997	83.7	0.13	628.1	1.01	723.1	1.16	5258.5	8.46	39611	6.85

Notes: 1) Until 1992 CSFR. - 2) Including Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovak Republic. - 3) CEEC(6) total manufacturing exports to the EU and their market shares.

Source: WIIW database.

Table 11

Transport equipment

Exports to Austria in ECU mn, market shares in %

	Austria extra-EU(15) imports	Bulgaria		Czech Republic		Hungary		Poland	
		ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1995	960.5 [1)]	0.5	0.05	23.9	2.49	14.5	1.51	5.3	0.56
1996	1479.0	2.2	0.15	66.4	4.49	42.8	2.90	4.3	0.29
1997	1823.5	3.7	0.21	110.2	6.04	72.4	3.97	7.9	0.43

	Romania		Slovak Republic		Slovenia		CEEC(7)[2)]	
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1995	2.4	0.24	21.0	2.18	4.7	0.49	72.3	7.53
1996	0.3	0.02	51.9	3.51	8.7	0.59	176.6	11.94
1997	1.3	0.07	44.9	2.46	13.3	0.73	253.8	13.92

Notes: 1) 1995 data for Austria are not strictly comparable to 1996 and 1997 data. - 2) Including Bulgaria, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic and Slovenia.

Source: WIIW database.

Revealed comparative advantage in the more advanced CEECs

Revealed comparative advantage values (RCAs)[27] in relation to the EU were negative in most CEECs, except in Hungary since 1995, indicating a negative trade balance in the transport equipment sector (see Table 12). When compared to manufacturing as a whole, however,[28] the data displayed a more favourable picture in recent years, showing a small relative comparative advantage for the transport equipment sector in the more advanced CEECs. Hungary had the largest comparative advantage in 1997, followed by Slovakia and the Czech Republic, while Slovenia and Poland had slightly negative values, which showed, however, a distinctive improvement over time. Only in Romania and Bulgaria, transport equipment was at a clear comparative disadvantage (see Table 13).

Table 12

Transport equipment RCAs

	1989	1992	1996	1997
Austria	-0.28	-0.18	-0.11	-0.04
Bulgaria	-0.89	-0.93	-0.71	-0.84
Czech Republic	.	.	-0.24	-0.10
Hungary	-0.71	-0.49	0.30	0.38
Poland	0.18	-0.20	-0.30	-0.32
Romania	0.42	-0.75	-0.24	-0.27
Slovak Republic	.	.	-0.10	0.00
Slovenia	.	.	-0.11	-0.12
Greece	.	.	-0.88	-0.90
Portugal	.	.	-0.22	-0.26
Spain	.	.	0.13	0.11

Measured as: $RCA_i = (exports_i - imports_i) / (exports_i + imports_i)$.

Source: WIIW calculations.

Table 13

Relative position of transport equipment RCAs

	1989	1992	1996	1997
Austria	-0.15	-0.07	0.09	0.13
Bulgaria	-0.35	-0.80	-0.73	-0.92
Czech Republic	.	.	-0.06	0.05
Hungary	-0.61	-0.46	0.35	0.44
Poland	0.25	-0.12	-0.07	-0.06
Romania	-0.04	-0.68	-0.17	-0.24
Slovak Republic			-0.04	0.08
Slovenia			-0.04	-0.01
Greece	.	.	-0.28	-0.29
Portugal	.	.	-0.04	-0.05
Spain	.	.	0.25	0.24

Measured as: RCA (transport equipment sector) - RCA (total manufacturing).

Source: WIIW calculations.

Table 14

Detailed RCA structure of the transport equipment sector, 1997

		Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
35	**Motor vehicles, motor vehicle parts and accessories**	**-0.85**	**-0.11**	**0.41**	**-0.35**	**-0.48**	**-0.01**	**-0.11**
351	Motor vehicles & motor vehicle engines	-0.93	-0.18	0.45	-0.26	-0.86	-0.11	-0.07
352	Bodies for motor vehicles and of motor-drawn trailers and caravans	-0.84	-0.22	0.22	-0.78	-0.40	-0.31	0.33
353	Parts and accessories for motor vehicles	-0.47	0.07	0.21	-0.39	0.21	0.58	-0.35
36	**Other means of transport**	**-0.67**	**0.12**	**-0.34**	**0.02**	**0.56**	**0.15**	**-0.24**
361	Shipbuilding	-0.11	0.77	-0.10	0.84	0.85	0.74	-0.62
362	Standard & narrow gauge railway	-0.43	0.18	0.03	-0.53	0.44	0.34	0.72
363	Cycles, motor-cycles & parts & accessories	-0.81	0.18	-0.42	-0.16	-0.70	0.42	0.04
364	Aerospace equipment	-0.91	-0.42	-0.90	-0.36	-0.27	-0.89	0.07
365	Other transport equipment	0.06	-0.11	-0.07	0.42	0.23	-0.31	-0.45
DM	**Transport equipment**	**-0.84**	**-0.10**	**0.38**	**-0.32**	**-0.27**	**0.00**	**-0.12**

Measured as: $RCA_i = (exports_i - imports_i) / (exports_i + imports_i)$.

Source: WIIW database.

[27] Measured as $RCA_i = (exports_i - imports_i) / (exports_i + imports_i)$.

[28] Measured as RCA (transport equipment) – RCA (total manufacturing).

Within the transport equipment sector most sub-sectors experienced a negative trade balance in 1997, with some exceptions: In Hungary, all sub-branches of the automotive industry showed a trade surplus in 1997, while in the Czech and Slovak Republics the sub-branches of other means of transport mostly did better (see Table 14).

4 Foreign direct investment

The transport equipment sector is a central target for foreign direct investment and shows a high degree of internationalisation. Large foreign investors are actively competing with one another, notably in the automotive industry, where foreign companies dominate the production of passenger cars in the CEECs. Capital-intensity is constraining domestic companies and forcing them to make concessions to foreign companies.[29] In addition, foreign components suppliers have followed their major clients to the CEECs. There were several reasons for foreign investor interest:

- Favourable labour conditions for low-cost production, including relatively low wages and unit labour costs, implying cost-advantages. Relatively good skills and low wages for skilled production workers.
- Improving conditions on the domestic markets. This included unsatisfied domestic demand for western cars as well as replacement demand of old cars, the large size of potential markets, growing disposable income, and extended credit possibilities.
- Re-imports into the West by EU-investors. Through production segmentation, the CEECs would produce cars for the lower end markets.
- Entry to the West European markets, which are protected by trade barriers, and which was especially important for Suzuki and Daewoo, making use of the CEECs' free trade agreements for industrial products with the EU.
- Over-capacity in the European Union automotive industry and keen international competition.
- Government actions to attract foreign investors and to protect producers based in the CEEC countries, such as tariff measures, tax allowances or the improvement of infrastructure.
- Local demand for components that could not be satisfied by domestic companies or by imports, because of high quality requirements, and the importance of geographically close supplier networks in this industry.

The importance of foreign direct investment is clearly visible regarding the share of the transport equipment sector in the distribution of foreign investment enterprises (FIEs)[30] in total manufacturing. In 1996, transport equipment FIEs accounted for nearly 27% of total nominal capital of FIEs in the Czech and Slovak Republics, ranking it first in total

[29] As the last domestic owned automotive company Romania's Dacia was taken over by the French Renault in September 1999.

[30] Firms with any share of foreign ownership, including minority stakes.

manufacturing. Although data for Poland are not perfectly comparable,[31] the share of transport equipment there also recorded 18% of the equity capital of all manufacturing entities with foreign participation, while it reached 16% in Slovenia. In both countries, transport equipment FIEs ranked second in total manufacturing, only behind the food sector in Poland, and the paper and printing sector in Slovenia. Only in Hungary, the share of the transport equipment sector was relatively small and measured 8% in 1996 due to a strong overall inflow of foreign investment into the economy and therefore less concentration on one sector (see Figure 6A).

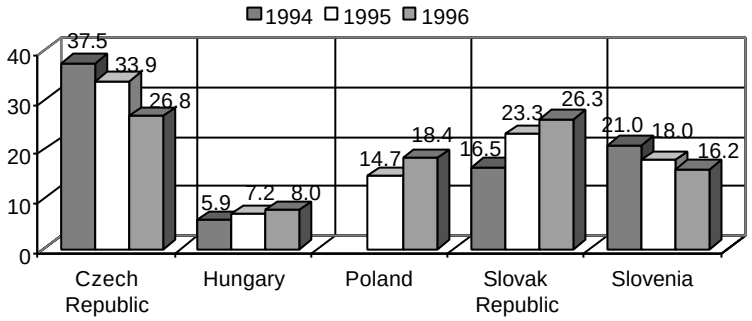
Figure 6

Transport equipment

A. Position of transport equipment in the distribution of foreign capital

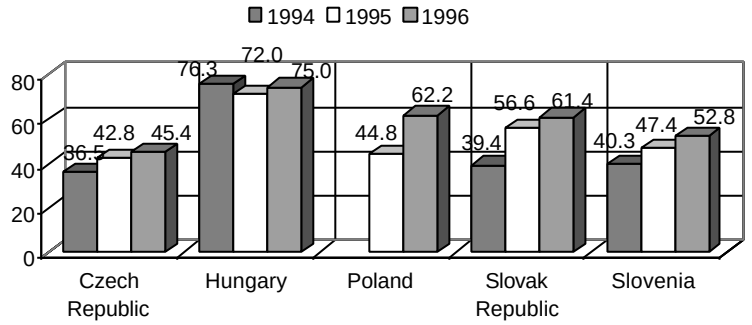
Percentage share of the transport equipment sector in total manufacturing's nominal captial of foreign investment enterprises (FIEs)

Manufacturing = 100



B. Foreign penetration of the transport equipment sector

Share of nominal capital of transport equipment FIEs in the nominal capital of all transport equipment companies (FIEs + all others)



Notes : 1) Own capital.- 2) Polish data from Zagozdzinska, I. (1998) and Polish Statistical Yearbook of Industry (1997).- 3) Output of companies.

Source: WIIW database

[31] Data for the Czech Republic, Hungary, the Slovak Republic and Slovenia come from Hunya, G. (1998), data for Poland from Zagozdzinska, I. (1998) and the Polish Statistical Yearbook of Industry (1997).

Looking at the development from 1994 to1996, shares declined in the Czech Republic and Slovenia because of a stronger inflow of foreign investment into other sectors (other non metallic minerals in the Czech Republic, food and beverages in Slovenia), while in the other countries the shares slightly grew.

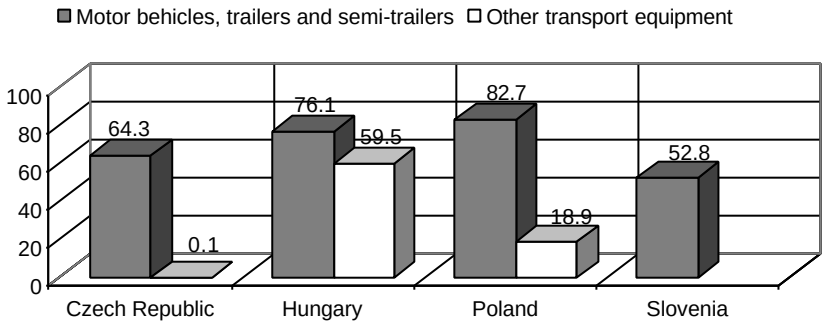
Foreign penetration of the transport equipment sector (as measured by the share of nominal capital of the sector's FIEs in the nominal capital of all transport equipment companies) was above the manufacturing average in all CEECs and reached even the highest level in total manufacturing in all countries in 1996, except in Hungary. When compared to the countries in the region, however, foreign penetration was highest in Hungary, with 75% of the nominal capital in this sector being that of FIEs. Poland and the Slovak Republic followed with a share of about 62%, Slovenia with 53% and the Czech Republic with 45% (see Figure 6B).

Figure 7

Transport equipment

Foreign penetration of individual industries in 1996

Share of nominal capital of FIEs in
the nominal capital of all companies (FIEs + all others)



Notes : 1) Own capital.- 2) Polish data from Zagozdzinska, I. (1998) and Polish Statistical Yearbook of Industry (1997).- 3) Other transport equipment not cited because it is an industry with less than 3 FIEs.

Source: WIIW database

Foreign penetration differed considerably in the two industries of the transport equipment sector, with the automotive industry attracting the bulk of foreign investment (see Part II for individual companies). Hence, foreign penetration was significantly higher in this industry, measuring 83% in Poland, 76% in Hungary and 64% in the Czech Republic in 1996. The share of nominal capital of FIEs in the nominal capital of all companies was very small in the other transport equipment industry, with 0.1% in the Czech Republic and 19% in Poland. Only in Hungary was the foreign penetration relatively high and reached 60%, due

to investment into the sub-branch railway and tramway locomotives and rolling stock production (see Figure 7).[32]

5 Prospects

The transport equipment sector is one of the fastest growing sectors in the Central and Eastern European countries, characterized by extraordinary production and export growth as well as high foreign penetration.

In Hungary, Poland and the Slovak Republic especially, the transport equipment sector emerged as a growth leader between 1993 and 1997 and was already surpassing 1989-production levels. In 1998, growth slowed down somewhat in the first two countries, but was fostered in Slovakia and recovered in Slovenia. The latter country was hard hit by the disintegration of the former Yugoslav market and showed an upturn in production for the first time in that year. Just as in the Czech Republic and Romania, it's production level in 1998 was still below that of 1989.

In export performance, the transport equipment sector is of major importance in the smaller Central and Eastern European Countries, Hungary, the Czech and Slovak Republics and Slovenia, while it plays a smaller role in Poland, which provides a large domestic market. Especially in Hungary and the Slovak Republic, export volumes increased dramatically over the last few years. The inflow of foreign direct investment fostered successful export performance due to the strong export-orientation of investors, except in Poland. In Romania and Bulgaria transport equipment exports are minor partly due to the weaker commitment of large foreign investors in the past.

Future prospects for the *automotive industry* in particular are bright and production of passenger cars increasing steadily (see Table 15): Foreign investment into the sector is still very popular, especially to Poland, follow-up-investment is taking place and components suppliers are following large automotive producers into the region. The number of cars per 1000 inhabitants is still below that of West European countries, hence sales volumes are expected to increase. Today the stock of motorcars is highest in Slovenia and the Czech Republic, with more than 300 cars per 1000 inhabitants, while in the other countries it lies at around 200 cars, with the exception only of Romania, where the stock is still smaller (see Table 16). For comparison, Ireland, Portugal and especially Greece showed a stock of somewhat less than 300 cars per 1000 inhabitants in 1997 on the lower end, while Germany, Italy or Luxembourg had a stock of more than 500 cars on the upper end.[33] However, the purchase of cars, which are consumer goods, is strongly linked to the development of the business cycle and long term income levels. Based on GDP forecasts and 1999 figures for car sales, **short term prospects** for the economic development are exceptionally good for Hungary, good for Poland and Slovenia, while they

[32] In addition, the importance of this sector was relatively small, accounting for only 3% of the output of the transport equipment sector in 1997.

[33] Austria recorded 462 cars per 1000 inhabitants in 1997. See Statistisches Bundesamt (1999), page 100.

are more uncertain for Bulgaria and Romania due to uncertainties in the overall development and less bright for the Czech and Slovak Republics caused by a downswing in the whole economy (see also Table 17 and Table 18). In the **longer term**, decreasing wage competitiveness, anticipated over-capacities in the world-car market and increasing competition may handicap future developments in the CEECs. However, if cost competitiveness can be maintained and productivity increased, the positive trend should not be threatened.

While future prospects are flourishing for the automotive industry, trends for the *other transport equipment industry* are less favourably due to the neglect of public transport systems, handicapped by the curtailment of public expenditures in the CEECs. Problematic areas prevail, state ownership is mostly prevalent and debts accumulating, such as in the Polish aircraft branch, or the Slovak and Bulgarian shipping-production. However, foreign investment is also slowly coming into this industry, particularly into the Hungarian or Romanian railway and tramway locomotives and rolling stock production, thereby improving the performance of the entire industry.

Table 15

Passenger car production in the Central and Eastern European Countries

		1995	1996	1997	1998
Czech Repbulic	Škoda Auto	193,138	239,992	320,566	368,309
	Škoda Auto, incl.vans/pick-ups	208,279	263,193	357,170	403,310
Hungary	Magyar Suzuki	38,567	51,778	63,540	75,000 [1)]
	GM/Opel	12,488	11,255	12,715	9,026 [1)]
Poland	Fiat/FSM	175,000	287,872	343,712	337,000
	Daewoo-FSO	69,000	101,483	119,373	154,407
Romania	Dacia	78,516	88,760	103,221	106,001
	Daewoo	2,512	22,032	22,892	17,016
	ARO	6,680	6,188	4,324	2,406
Slovak Republic	Volkswagen Bratislava	19,688	30,147	40,885	125,089
Slovenia	Revoz (Renault)	46,583	89,229	95,943	126,397

Notes: 1) Standard & Poor's DRI, PlanEcon, Inc. (1998), page 68.

Source: Frank Bessem, Global Car Production Statistics Pages (http://www. geocities.com/MotorCity/Speedway/carprod.html), read November 1999.

Table 16

Stock of motorcars in the CEECs
Per thousand persons
(in use or owned by the population)

	1990	1993	1996	1997	1998
Bulgaria[1)]	147	171	195	209	.
Czech Republic[2)]	233	266	325	344	.
Hungary[2)]	185	204	223	227	220 [3)]
Poland[2)]	138	176	209	221	230
Romania[1)]	55	76	101	110	.
Slovak Republic[1)]	165	187	197	211	.
Slovenia[2)]	289	318	366	385	.

Notes: 1) Motorcars owned by the population.- 2) Motorcars in use, however 1990 data for Hungary stating motorcars owned by the population. - 3) Change of methodology, inluding road motor vehicles having registered plates only and excluding vehicles of military forces.

Source: WIIW Handbook of Statistics (1999).

Table 17

Developments in GDP and gross industrial production

real change in % against preceding year

	Gross domestic product				Gross industrial production			
	1997	1998	1999 forecast	2000	1997	1998	1999 forecast	2000
Czech Republic	0.3	-2.3	-0.7	2	4.5	1.6	-4	3
Hungary	4.6	5.1	3.7	4.5	11.1	12.6	7	10
Poland	6.8	4.8	3.5	4	11.5	4.6	2	3
Slovak Republic	6.5	4.4	2	0	2.7	5.0	.	-1
Slovenia	4.6	3.9	2.5	3	1.0	3.7	0	2
Bulgaria	-7.0	3.5	1	3	5.1	-10.0	-8	4
Romania	-6.9	-7.3	-5	0	6.3	-7.2	-6	0

Source: WIIW (October 1999).

Table 18

New registration of passenger cars, in 1000

	1996	**1997**	**1998**	**1999** (forecast)	**1999/1998** in %
Bulgaria	8	9	11	12	7.3
Czech Repbulic	153	168	141	142	0.6
Hungary	75	80	104	128	22.5
Poland	374	478	515	549	6.6
Romania	97	94	116	107	-7.8
Slovak Republic	75	62	68	64	-6.3
Former Yugoslavia	60	62	67	70	4.7

Source: Financial Times (1999), September 16.

PART II: COMPANY PROFILES

This second part of the study sets out a more detailed micro-analysis of the transport equipment sector, describing important domestic enterprises and major foreign investors in each country and covering the following sub-branches:

1 Automotive industry (and general information, see below)
2 Shipbuilding
3 Railway and tramway locomotives and rolling stock
4 Aircraft and spacecraft

Some *general information* on the whole transport equipment sector is given at the beginning of the automotive industry section and contains the following data categories for each country, as available:

– Output structure of the sector in detail
– Company analysis by company size and type
– Profitability

1 Automotive industry

Bulgaria

The *automotive industry* is practically non existent in Bulgaria. Therefore, the Foreign Investment Agency Bulgaria advises foreign investors first to start with the assembly of imported components and then to gradually increase the local content as the industry develops. Possible capacities in the production of passenger cars include capacities for 'Rover' passenger car assembly in Varna,[34] production halls of 'Mayak' SA in Dobich, as well as possibilities in 'Preslav-AN' in Veliki Preslay or in 'Kenta' SA in Omurtag. The agency furthermore states investment possibilities in the components industry (mostly electrical parts, tires, windows), established in the 70s, due to co-operation with the Russian Volzhika automobile construction plant at that time.[35]

Selected Bulgarian companies in the automotive industry:

- Madara JSC: The Bulgarian truck producer manufactures freight trucks, automobiles and trailers, but also components for agricultural equipment. It employs about 1,400 people and has a contract with the Czech Liaz truck company. In 1999, the loss-making company was acquired by the local detergent maker Fycosota for a token dollar. However, Fycosota also took over the company's debts.[36]

[34] The assembly of cars in the joint venture between the British company Rover and the Bulgarian partner Daru Holding failed. Production started in 1995 and was ceased only one year later in May 1996 due to several reasons, including a plunge in car sales, non-fulfilment of tax concessions as well as the bad situation of the Bulgarian partner. See Déri (1998), page 126.

[35] Bulgarian Foreign Investment Agency (1999).

[36] Business Central Europe (1999), September.

– Chavdar: Bulgaria's only bus producer was said to be liquidated by July 1999 because of its tottering financial condition.

Czech Republic

In September 1998, about 1,400 companies were registered in the Czech *transport equipment sector*, which made up less than 1% of all manufacturing enterprises.[37] Of these, 72% were small private firms and 25% larger business enterprises, including 260 private and 90 public, limited companies. In addition, 9 state-owned enterprises still existed.[38]

In 1998, the transport equipment sector received the largest share of material investment of all of manufacturing, with about 15% or nearly 16 mn Czech Koruna (CZK). Investment remained nearly constant to the previous year.

Within total manufacturing, firms in the *automotive industry* made the largest pre-tax profit in 1998, about CZK 6 bn, while *other transport equipment* was the largest loss maker, with about CZK 4.6 bn. In the former, profits nearly doubled from the previous year, while in the latter, losses increased.

The *automotive industry* was the largest segment in transport equipment, followed by the far smaller segments of rail vehicles and aircraft.[39] The largest *automotive companies* in the Czech Republic, ranked by 1998 revenues, include:[40]

- Škoda Automobilová, a.s.: Škoda Auto is the Czech Republic's only car manufacturer and the country's largest industrial company, as measured by sales and exports. It was founded in 1895 as a bicycle producing company by Mr. Václav Laurin and Mr. Václav Klement. In 1925, it merged with the Škoda company from Plzen, using the brand name Škoda since then. The car company became autonomous in 1930 and was later nationalized as Škoda AZNP (National enterprise of car factories). Today Škoda Plzen and Škoda Auto are two completely unrelated companies.[41] After the collapse of communism, the car company was searching for a strategic foreign investor because of huge debts, reaching about DM 320 mn. On April 16, 1991, the German Volkswagen Group established a joint-venture with Škoda Automobilové Závody, with a share of 31%. The government granted generous tax and trade concessions,[42] as well as

[37] They were responsible for 12% of manufacturing output (at current prices) in 1997.

[38] According to the PP Agency (1997), page G-22, the transport engineering sector is concentrated on large enterprises. In 1996, the share of size groups of organization of transport engineering products and services was distributed as follows: 72% organizations with more than 1000 employees, 15% with 500 to 999 employees, 10% with 100 to 499 employees, 2% with 25 to 99 employees and only 1% with 1 to 24 employees.

[39] The detailed 1996 shares of branches in the sale of transport engineering products and services were as follows: 84% automotive industry (63% motor vehicles, motor vehicle engines and bodies, 21% parts and accessories), 10% rail vehicles, 3% aerospace equipment, 3% shipbuilding, motorcycles and other transport equipment. See PP Agency (1997), page G-22.

[40] See List of Top 100 Czech Republic Companies in Central European Economic Review (1999), July - August, page 21.

[41] For more details concerning the history see Škoda Auto Internet-Homepage (http:// www. skoda-auto.cz/history).

[42] Including a high import tax on imported cars and a rise of the import tax on used cars. Hence, the monopoly position of Škoda was strengthened.

promises for infrastructure improvements. Besides VW, Renault was the second major competitor for such a joint venture but could not compete with VW's offered investment program of DM 7.2 bn during 10 years.[43] Ironically, this investment was drastically reduced in 1993 to DM 3.8 bn.[44] At the end of 1995, VW's share increased to 70%, the remaining 30% stayed in the hand of the state until today. However, negotiations for the remaining 30% got underway in 1999. The company includes three Czech plants in Mladá Boleslav, Vrchlabí and Kvasiny and employs over 20,000 persons, including 3,000 Polish 'guest workers'. It has an assembly plant in Poland, investigates Russian and Belarus sites and discusses further operations in China, India and Egypt.[45] Investment plans for a new engine plant in the Czech Republic were already well-developed in 1999.

The production volume of the company rose from 260,000 units in 1996 to 360,000 units in 1997 and 400,000 in 1998. Revenues reached CZK 106 bn in 1998, which meant a 17% increase from 1997. About 20% of sales were derived on the domestic market, where Škoda Auto held a 50% market share. The company contributed around 9% of all Czech exports in 1998 and reached over 70 countries internationally, up from 23 when VW stepped in. Major export destinations include Germany, Poland and the Slovak Republic, with a market share over 50% in the latter. Although 1998 sales dropped by almost 19% in the Czech Republic and by 22% in Russia, Škoda Auto's financial results were not affected and net profits even increased, thanks to exports to Western Europe, where sales grew by 40%.

- Johnson Controls (US) Automobilove Soucastky: The producer of automotive components reported revenues of CZK 6.3 bn in 1998 and employed about 1,400 persons.
- Daewoo Avia, a.s.: After the failure to create a joint venture between the former Czech lorry producer Avia and Mercedes Benz, the Korean Daewoo Heavy Industries entered Avia in 1995, where it started an ambitious modernization and investment programme. The company produces light and heavy trucks, reported revenues of CZK 5.4 bn in 1998 and employed 2,100 persons. The company's situation worsened as lorry sales dropped by 13% in 1998. About 49% of output was exported, mainly to Hungary, Poland, Slovakia and Uzbekistan.
- Autopal, s.r.o.: The subsidiary of the US Ford Motor Company manufactures luminous and cooling technology for motor vehicles. In 1998, it reported revenues of CZK 4.5 bn and employed 3,500 persons.
- Tatra, a.s.: The highly-indebted, loss-making truck maker Tatra was acquired by the Czech conglomerate Škoda Plzen during its expansion strategy after 1989. In 1998, Tatra reported revenues of CZK 4.4 bn and employed 3,300 persons. Since early this

[43] Becker, P. (1997), page 407.

[44] However, both sides did not fulfil all their promises.

[45] Business Central Europe (1998), April, page 36. In mid 1999, Škoda signed a joint-venture to assemble cars in Udmurtia, a republic in the Urals region. See Business Eastern Europe (1999), August 16.

year, the engineering company Škoda Plzen, which itself is in serious financial troubles, has been trying to sell its 43.5% stake. The most promising investor is the US company SDC International. The sale negotiations is still under way.[46]

- Karosa, a.s.: In 1993, the French company Renault acquired 34% of the former monopoly bus manufacturer Karosa and increased its stake to a majority holding in December 1996. In late 1998, Renault bought out minority stakes and finally held 94% of the Czech company. Since the beginning of 1999, Karosa has been part of the multinational company Iris Bus, formed by the merger of the bus activities of Renault and Italy's Iveco. The company still struggles, as Renault failed to hike production as planned.[47] Karosa reported revenues of CZK 3.7 bn in 1998 and employed nearly 1,700 persons.[48]
- CZ Strakonice: The former specialist in motorbikes is the Czech's twelfth largest engineering company. In 1992, it formed a joint venture with Italy's Cagiva, which however broke up in 1994-1995 when CZ Strakonice was privatized through a management-buyout. In order to survive, it turned to the production of gearboxes, chains and turbofans and was saved by a contract to manufacture gearboxes for Škoda Auto.[49] As a consequence, it was forced to deeply restructure, cutting its workforce from 9,000 persons in 1989 to 2,600 today. However, further changes are necessary and new customers have to be found, as the contract with Škoda expires in 2002. The firm's chances are quite good, as a new order was obtained from the US tractor-maker John Deere.[50]

Car components producers were dependent on the Škoda car company, and when it was threatened with insolvency before the creation of the joint venture in 1991, suppliers too faced bankruptcy. The situation has since changed, but Škoda Auto has remained the principle monopoly parts buyer in the Czech Republic. Reorganization of the Škoda Auto supply chain has had major effects on suppliers and has led to friction over product quality. The situation improved over the course of time with increased productivity, but problems still remain, leaving domestic companies as screwdriver plants or as producers of simpler bits. In 1997, Škoda Auto sourced 60% of its parts and materials from Czech-based firms. A kind of chain reaction in foreign investment into the car parts branch has taken place, because of a need for higher quality products, and some 80 foreign components suppliers have invested in the Czech Republic as a direct result of VW's investment.[51] These included half of the top 25 components manufacturers in the world and over one-third of the Top 100 European components manufacturers. The eight top components producers

[46] For further information see Tatra Internet-Homepage (http://www. tatra.cz).

[47] In 1992, about 950 buses were produced, in 1997 about 980 and in 1998 about 1,150.

[48] For further information see Karosa Internet-Homepage (http:// www. karosa.cz).

[49] This contract accounts for 60% of the company's business.

[50] Business Central Europe (1999), July/August.

[51] Business Central Europe (1998), April, page 36.

were: Lucas Varity, Siemens (3 plants), Robert Bosch (4 plants), Mannnesmann, Delphi, ITT, BTR and Saint-Gobain.[52]

Hungary

The 1997 output of the large Hungarian *transport equipment sector* (12% of total manufacturing output) can be broken down into the automotive industry and other transport equipment, accounting for 97% and 3% of output respectively. Overall, the largest sub-branches were 'motor vehicles', with 71%, and 'parts and accessories for motor vehicles', with 24%. All other sub-branches were very small (see Table 19).

The export orientation of the transport equipment sector was extraordinary high – with an export-ratio of 86% compared to 49% in total manufacturing. The highest export orientation was achieved in the sub-branches of the automotive industry, with, for example, 90% in 'motor vehicles' (see Table 19).

Table 19

Hungary: Gross output, total sales and export sales in the transport equipment sector

		Gross output		Total sales	Export sales	Export sales/ Total sales
		1997	**1997**	1997	1997	1997
		HUF mn	**%**	HUF mn	HUF mn	%
34	**Motor vehicles, trailers and semi-trailers**	**589243**	**96.7**	**575748**	**498573**	**86.6**
341	Motor vehicles	435236	71.4	423638	381987	90.2
342	Bodies for motor vehicles; trailers and semi-trailers	8026	1.3	7878	6706	85.1
343	Parts and accessories for motor vehicles and their engines	145981	24.0	144231	109880	76.2
35	**Manufacture and repair of other transport equipment**	**20139**	**3.3**	**19741**	**10524**	**53.3**
351	***Building and repairing of ships***	203	0.0	203	84	41.4
3511	Building and repairing of ships	163	0.0	163	84	51.5
3512	Building and repairing of pleasure and sporting boats	*	.	*	*	.
352	***Railway and tramway locomotives and rolling stock***	6625	1.1	6166	4495	72.9
353	***Bicyles and motorcycles***	*	.	*	*	.
359	***Manufacture and repair of other transport equipment***	11974	2.0	11997	5136	42.8
3591	Manufacture of transport equipment n.e.c.	*	.	*	*	.
3592	Repair of transport equipment n.e.c.	8863	1.5	8906	2373	26.6
DM	**Transport equipment**	**609382**	**100.0**	**595489**	**509097**	**85.5**

Notes: Hungarian Classification.- * Confidential data.

Source: Yearbook of Industry and Construction Statistics Hungary (1998).

In 1997, there were about 370 companies with legal entity in the whole transport equipment sector, representing 1.6% of all manufacturing corporations in Hungary. Of these, almost two thirds were located in the automotive industry. Overall, small firms with fewer than 11 persons accounted for 64% of all transport equipment corporations, firms with more than 300 persons, 6%, with the rest lying in between. In terms of legal form, 89% of all active corporations in the transport equipment sector were private limited-liability corporations (330 firms) and 7% public limited-liability companies (27 firms). In 1997, an

[52] CzechInvest (1996b).

additional 190 unincorporated businesses (i.e. those without legal entity) existed in the transport equipment sector, including different forms of partnerships, which accounted for about 1% of all unincorporated manufacturing businesses. The number of sole proprietors reached 450 in the whole sector, making up less than 1% of all manufacturing sole proprietors.
Overall, the sector achieved a relatively large gross operating surplus of 49 bn Hungarian Forint (HUF) in 1996, accounting for almost 10% of total manufacturing surplus. Of these, however, 96% were realised by the automotive industry.

Under communism, Hungarian domestic demand of cars was satisfied by imports from other socialist countries, domestic production focused on automotive components and buses. Because of low levels of production, and obsolete existing stock, the collapse of the old regime revealed a significant pent-up demand. The average age of automobiles on the road was 10 years, and high polluting engines prevailed. Foreign investors were attracted to Hungary mainly by export possibilities and a lack of domestic competitors and have invested heavily so far. Today, fierce competition prevails among the largest *automotive companies* in Hungary, which, ranked by 1998 net sales, are as follows:[53]

- AUDI Hungária Motor (AMH) Kft.: Set up in February 1993, Audi Hungária is a wholly owned subsidy of the German Volkswagen group. Its green-field engine factory in Gyõr started production in August 1994. Engine production was extended successfully to other models, so that by now 90% of Audi engines are produced in Gyõr. Following the example of GM, Audi Hungária operates as an off-shore company, importing components duty free. In 1998, the company reported net sales of HUF 483 bn and was thus the 2nd largest Hungarian company in net sales. It achieved a very high - 255% - increase from 1997 in that year. Employment stood at 2,800 persons, up from 450 in 1995. A new sportscar assembly facility in Gyõr opened in 1998 and an 8 cylinder engine plant was completed. Investment in a new engine development shop was also considered, pending a few additional tax brakes, but this will not mean any 'serious design or development work'.[54]
- GM/OPEL Magyarország Járműgyártó Kft.: The car assembly plant began production at Szentgotthárd in 1992, accounting for 25% of total investment. The rest - 75% - was invested in the engine factory. The initial capital of HUF 7.1 bn was subscribed by GM Austria (55.3%), Opel (9.7%), the State Development Institute (14.4%) and the engineering company Rába (20.6%). Opel Hungary assembled Astra cars largely from West European components, with the main Hungarian input being labour. Car assembly is phasing out in 1999, except for an order of 4,000 cars from a Chinese partner. Focus is already placed on the production of car components - the Opel engine factory is one of the most modern and automated factories in the GM/Opel group and mainly delivers to foreign assembly plants. In 1996, about 310,000 pieces were produced, up from

[53] See Central European Business Review (1999), July-August.

[54] See Business Central Europe (1998), page 44.

20,500 in 1992, of which 300,000 were exported. In 1998, the number should exceed 420,000. A new transmission plant is currently under construction and will open in 2001. In 1998, Opel Hungary reported net sales of HUF 183 bn and employed 1,140 persons.

- Magyar Suzuki Rt.: The Articles of Association of Magyar Suzuki, a Japanese-Hungarian joint venture, were signed in April 1990 by a consortium of shareholders: Suzuki Motor Corporation (40%), Itóchú Trading Corporation (11%), the International Finance Corporation, a subsidiary of the World Bank (9%) and Autókonszern Corporation, a consortium consisting of Hungarian commercial and industrial firms (40%). The Suzuki Corporation has regularly increased its stake and as of March 1996 held a share of 78%. In 1992, production of the Suzuki Swift started at a green-field assembly plant in Esztergom, making Magyar Suzuki the only 'real' car manufacturer in Hungary. It wasn't until 1996 however, that the first profits were generated, due to sluggish demand in new car sales.[55] During 1996, the company shifted to an expansive export strategy - 70% of all Swifts and Subarus were exported and from 51,000 units produced just 13,000 were sold locally.[56] Today, the company exports about three-quarters of production. In 1998, Magyar Suzuki reported net sales of HUF 87 bn and employed 1,400 persons, up from 345 in 1992. In this year, the company announced a production deal with Adam Opel, in order to build a car jointly beginning in the year 2000.[57]
- Ford Hungária Kft: In 1992, the green-field pant Ford Alba started production of ignition coils in Székesfehérvár, extended its production-range to fuel pumps and starters later on and now manufactures 11 various components. In 1997, Ford made plans to increase its investment. One year later, it reported net revenues of HUF 56 bn and employed 1,300 persons.

The production of *car components* and part-assemblies has a long tradition in Hungary due to its role in the CMEA-division of labour.[58] Under the communist regime, only lower-quality parts were commandeered to be produced, not however, main parts such as engines or gearboxes. Hence, Hungarian firms took part in the Soviet-led co-operation scheme, supplying parts for VAZ Lada cars. The two most important Hungarian firms included were Bakony Works and MMG Automation Works. After 1989, the co-operation continued on a smaller scale but is expected to come to an end.

After the collapse of communism, major international companies investing in Hungary integrated domestic car components producers into the their supply-chain only when they met quality requirements. More often, high-tech, high value added products were imported

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55 The purchasing power of the Hungarian population was low because of the transformational recession during 1990 to 93 and the government's austerity program between 1995 and 96. Heavy losses occurred in 1993, due to a sharp devaluation of the forint against the yen and a rise in used car imports.

56 Business Eastern Europe (1997), January 13 and Business Eastern Europe (1997), February 17.

57 Business Eastern Europe (1998), June 8.

58 First, Soviet advisors in Hungary influenced the new division of labour informally, while later in 1964, a formal Soviet-Hungarian specialisation agreement was signed. See Havas, A. (1998), page 14.

– mostly from traditional partners or from the mother company's suppliers. Magyar Suzuki represented an exemption: In order to increase its local content,[59] it assigned as much as possible work to local subcontractors, sometimes also providing production technology, know-how or even financial support. Hence, the company exerted a positive influence on product and technological innovation in Hungary.[60] Today, Magyar Suzuki has 40 Hungarian suppliers, and Ford, for example, 100, accounting for 20% of total supplies. Audi Hungária, however, has virtually no domestic suppliers and virtually all components are imported from Germany.

In some cases however, international companies have attracted their foreign suppliers to Hungary, either to make a green-field investment, form joint ventures with domestic companies or acquire them in the course of privatization. These have included the German companies ITT Automotive Europe and Knorr-Bremse, the US companies United Technologies Automotive and Johnson Controls Automotive Systems Group, and the Japan's Denso. Hence, a diverse and rich company structure developed, whereby foreign investment shaped the industry fundamentally.[61]

Major bus and components producers in Hungary, ranked by 1998 net sales, include the following companies:[62]

– Rába Magyar Vagon- és Gépgyár Rt.: Founded in 1896, Rába mainly produces axles and parts, which form 53% of sales, with the USA as a major market.[63] The other two divisions, which make vehicles (trucks, bus chassis, agricultural machinery, other heavy machinery) and engines, are less successful and exhibit major problems. In 1992, Rába was transformed into a shareholding company and in December 1997, it was listed on the Budapest Stock Exchange. Privatisation occurred that year in four steps, with buyers including five financial and strategic investors.[64] The government was thus able to keep the 'national flagship' in domestic hands and also prevented one single dominant investor taking control over the company.[65] Net sales reached HUF 54 bn in 1998 and employment about 9,000 persons. Rába was more successful than Ikarus

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59 According to the Europe Agreements, the home-made content has to be 60% in order to be qualified as a Hungarian product and to be exported to the EU under custom tariff concessions.

60 Local content increased from 25% at the beginning of operation to 53% in December 1996. The ratio of external suppliers increased form a mere 6% to 29%. In addition, 17% of components came from other European countries, 30% from Japan in 1996.

61 For a very detailed description see also Hungarian Ministry of Economic Affairs (1998).

62 The bus and components production is a very labour-intensive segment of the industry in Hungary. Conveyer belts are for example not used in the bus production.

63 Approximately two thirds of sales come from the US market, the main customers being Meritor, Rockwell, Dana, Eaton, AGCO and John Deere. Rába already started co-operation in the axle production with US companies in the 1970s.

64 As of June 30, 1999 the ownership structure is as follows: free float (37%), Municipality of Györ (10%), EBRD (10%), DRB Hicom (10%), Graboplast (10%), Rába Management Invest Ltd. (10%), the First Hungarian Fund (9%), and Rábakoz Ltd. (4%). See Erste Bank (1999), page 30.

65 Neue Züricher Zeitung (1997), November 28.

(see below) and won important orders in 1998 and 1999, including for example the supply of parts to Opel and Magyar Suzuki.[66]

However, in the first half of 1999, sales decreased by over 20% due to the after-effects of the Russian financial crisis and an agricultural recession in the US, leading to lower agricultural machinery sales. The company also has had to handle other problems, including fierce competition and the decreasing advantage of cheap materials. Cost-cutting measures were introduced in the axles division in 1999 and the reorganization of the company into a holding structure also started in order to facilitate the entry of a foreign investor. The company hopes to participate in the upgrading of the Hungarian army and to supply land vehicles.[67]

- NABI (North American Bus Industries) Rt.: In 1992, the First Hungary Fund, acquired the Union Body Company, Inc. in Anniston, Alabama and then a bus body fabricating facility in Budapest from Ikarus Hungary. Both were idle manufacturing and assembly facilities and were no successors to a previously existing company. The Budapest site became NABI Rt., which is publicly traded and majority owned by the First Hungary Fund (56%). The US site became NABI Inc. and is a wholly-owned subsidiary of NABI Rt.. The labour-intensive bus body fabrication takes place in Hungary, final assembly then in the US.[68] Together they employ about 800 persons, with about 350 in Hungary. NABI produces heavy-duty transit buses and bus parts only for the US market, where it is very successful and currently holds a 13% share of the urban public transit bus market. Beside designs acquired from Ikarus Hungary, NABI Rt. launched its own low-floor transit bus in late 1996 and a new environment-friendly, high-tech, light-structure bus, called 'CompoBus' in 1999, the chassis of which is made of glass fiber reinforced plastic. Placed on the Budapest Stock Exchange in July 1999, NABI has been one of the best performing stocks in 1999 and recorded net sales of HUF 29 bn in 1998.[69]
- Ikarus Járműgyártó Rt.: Hungary's ailing bus-maker Ikarus, an industrial giant of the communist regime, formerly produced buses for the whole CMEA market and hence faced a severe plunge in production after 1989 - from 14,000 buses a year in the mid 1980s to only 600 in 1996. In 1992, a minority share was sold to the mysterious Russian trading company ATEX, deterring foreign investors such as Sweden's Volvo from buying the plant.[70] Losses and debts (about USD 40 mn) mounted, the company announced insolvency and hence the government decided to grant credit guarantees in 1995. The management was subsequently changed and the renowned Gábor Széles[71] took over in 1996. Since 1997, the company turned around to some extent, and

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66 New Europe (1999), May 24-30.

67 See also Erste Bank (1999), page 24.

68 Average labour cost is one-quarter to one-third less than that of the US. Costs are also saved through sourcing of raw materials in Hungary (60%) at a discount. Finally the cost advantage is 4-5% in comparison to other North American producers. See ABN-AMRO (1998), June, page 9.

69 For further information see also NABI Internet-Homepage (http://www. nabiusa.com) or Erste Bank (1999).

70 ATEX had an option to acquire a majority stale.

71 He rescued the bankrupt Videton electronics company.

reported net sales of HUF 28 bn in 1997, while employing 1,260 persons. In November 1997, a privatization tender failed due to harsh conditions and kept the 'national silver' still in state ownership. Finally, in the beginning of 1998, a management-buyout occurred, placing a majority stake in the hands of the holding MT-Liz. Mainly targeting its old Central Eastern European market, and here mainly Russia, Ikarus faced heavy losses following the Russian crisis in 1998. Production had to be stopped at the two plants and the workforce was reduced by 15%. In June 1999, a joint venture with Iris Bus, a consortium of France's Renault and Italy's Iveco (Fiat's truck unit), was set up. It is majority owned by the consortium and will again produce buses. Ikarus brought in two plants to the venture and its brand name.[72]

- Mezogep: Founded in 1948, Mezogep established business contacts to the West already in the 1980s and produced agricultural equipment for the German company Claas and for other West European partners. In 1992, the Canadian company Linamar Corporation acquired 100% of Mezogep, but floated about 40% on the Budapest Stock Exchange in March 1997. Linamar is a very successful company, producing parts and equipment for the automotive industry. In 1998, Mezogep reported net sales of about HUF 9 bn, of which 65% came from agricultural sales, 35% from the automotive industry. In the beginning of 1999, sales decreased due to low agricultural sales world-wide. In the future, the company's structure will shift in the direction of automotive components, strengthened by the two key contracts with GM signed in the beginning of 1999.[73]

Poland

Also in Poland, the *automotive industry*[74] was confronted with massive restructuring needs at the beginning of the 1990s: Producers faced not only new market conditions, but also sudden trade liberalisation and harsh import competition from both new and used cars. Since 1992, the industry has undergone significant ownership changes: At first, large foreign companies came into the country and acquired existing factories, e.g. Fiat bought FSM (Fabryka Samochodow Malolirazowych) in 1992, Daewoo FSO (Fabryka Samochodow w Warszawie) in 1995, or established assembly plants, e.g. General Motors in Warsaw. In 1995, around 80% of all enterprises were privately owned, with companies

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72 Business Central Europe (1999), September.

73 Erste Bank (1999), page 6.

74 In Poland, the automotive industry accounted for 68% of the production of the total transport equipment sector in 1996, the other transport equipment industry only about 32%. However, with 54% and 47% the automotive industry had slightly smaller shares in the number of manufacturing enterprises (with more than 50 employees) and employment than the other transport equipment with 46% and 53% respectively.

In 1996, the 'production of motor vehicles' accounted for 82% of total automotive production, the 'production of bodies of motor vehicles, trailers and semi-trailers' together with 'parts and accessories for motor vehicles and their engines' only 18%. The latter one was larger and contributed about 16%. In terms of the number of companies, 'motor vehicles' accounted for only 21%, with production being concentrated in large (foreign) companies. By contrast, 'parts and accessories for motor vehicles and their engines' are generally produced by small firms and hence accounted for 65% in the total number of companies. 14% of companies were producers of bodies of motor vehicles, trailers and semi-trailers.

with foreign participation playing a greater role than in other sectors of the economy. State-owned enterprises accounted for only 3% all of companies in the transport equipment sector.[75]

Net profitability in the automotive industry was negative until 1995. For the first time in 1996, with a profitability rate of 3.5%, the automotive industry generated higher profit rates than the whole manufacturing industry. Fiat, the largest producer which had lost money until 1995, weighed heavily in this composite figure.[76] However, in 1997 and 1998 net profitability was again smaller than in total manufacturing and even slightly negative in 1998 (see Table 20). The industry of *other transport equipment* did comparatively worse and recorded negative net profitability rates from 1995 to 1998.

Investment growth in the automotive industry was better than for total manufacturing between 1995 and 1998, but comparatively worse for other transport equipment (see Table 20).

Table 20

Poland: Net profitability in the enterprise[1)] sector and real growth rates of investment outlays, in %

	Net profitability[2)]				Investment growth rate			
	1995	1996	1997	1998	1995	1996	1997	1998
21 Pulp and paper	12.7	1.5	0.4	1.1	-13.8	-15.7	23.9	17.6
22 Publishing and printing	0.7	3.0	5.5	4.2	-30.0	49.2	63.6	40.9
D Total manufacturing	2.3	2.3	2.3	1.2	19.0	32.7	38.2	30.9

Note: 1) Firms with 50 or more employees.- 2) Ratio of net profits to all revenue.
Source: Podkaminer, L. (1998) and Central Statistical Office (1998,1999).

The transport equipment sector received about 24% of all foreign direct investment in manufacturing, as of June 30,1999, only behind the food, beverages and tobacco sector. The main foreign investors into the automotive industry included:[77]

- Fiat, Italy (1): With the invested amount of USD 1,400 mn Fiat was the largest foreign investor in Poland as of June 1999. The Fiat group (FSM Bielsko-Biala) comprises Fiat Auto Poland S.A., Teksid Poland S.A. and Magneti Marelli Poland S.A. (car-parts producers). In addition to automotive production, Fiat is also active in banking (Fiat Bank Polska) and car-insurance.
- Daewoo, South Korea (2): The Korean company not only makes cars and electrical machinery and apparatus, but is also involved in construction and insurance. It has invested USD 1,400 mn so far and has plans to invest a further USD 500 mn. It holds

[75] PAIZ (1997), page 5.

[76] The whole manufacturing industry showed positive profits already in 1994. PAIZ (1997), page 3

[77] See PAIZ (1999). The number in brackets indicate the rank of the company in the List of the Top 50 of Major Foreign Investors in Poland as of June 30, 1999, according to the sum of foreign investment. This includes contributed equity, medium- and long-term loans granted by foreign investors to companies established by them and the value of re-invested profits reduced by the dividend exported.

shares of over 30 companies, such as Daewoo-FSO Motor (manufactures passenger cars in Warsaw), Daewoo Motor Polska (commercial vehicles in Lublin) or Daewoo Electronics & Machines in Pruszków.

- Adam Opel AG, Germany (11): The German company has invested USD 500 mn so far and plans another USD 200 mn. The formal opening of a car-manufacturing plant in Gliwice took place at the end of 1998. The green-field factory will produce Astra cars and employ about 3,000 people.[78]
- Volkswagen AG, Germany (36): The German company had invested USD 190 mn so far and plans another USD 70 mn. It includes Volkswagen Poznan Sp.z.o.o. and Volkswagen Elektorsystemy Sp.z.o.o. in Gorzów Wielkopolski.

Further foreign investors include, as of December 1997:[79]

- Ford Motor Company, USA (73): Car assembly takes place in an assembling plant in Plónsk.
- Isuzu, Japan (97): Assembly and sale of light trucks takes place in Warsaw, while a new diesel engine factory in Tychy opened in 1999.
- Delphi Automotive Systems (105): The company Delphi Chassis Systems Poland S.A. produces car components.
- GKN, Great Britain (110): The British company engages in car components.
- Volvo Bus Corporation, Sweden (138): Investment was made into Volvo Bus Poland Sp.z.o.o., a joint venture with the Finnish company Carrus (Volvo 55%); into Volvo Truck Poland Sp.z.o.o., Volvo Truck Finance Poland Sp.z.o.o. and into Volvo Auto Polska Sp.z.o.o..
- Krzysztof Olszewski, Germany (151): Assembly of buses takes place in Neoplan Polska Sp.z.o.o. in Warsaw and Bolechowo near Poznán.

In 1996, Fiat had the largest market share of new car sales, with 42.7%, but declining to 34.8% in 1997. Daewoo followed on the second place with a market share of 21.2% in 1996 and 24.8% in 1997. On the third place GM/Opel was located with 7.5% in 1996 and 9.1% in 1997.[80] In the first four months of 1999, Fiat still held the leading position, with 29%, followed by Daewoo, with 27%, Opel, with 8%, VW Škoda, with 7%, and Renault, with 5%.[81]

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78 Business Eastern Europe (1998), November 9.

79 PAIZ (1998).

80 Followed by Renault (6.9% and 5.2%), Škoda (3.5% and 4.4%), Ford (3.0% and 3.9%), Volkswagen (2.8% and 3.2%), SEAT (2.5% and 3.1%), Peugeot (2.0% and 2.3%) and Citroen (1.4% and 2.1%). Business Eastern Europe (1997), September 1.

81 Handelsblatt (1999), 25. Mai.

Romania

The main automotive producers in Romania include:

- Automobile Dacia Pitesti SA: In 1968, Romania's largest car manufacturer Dacia, started the production of cars under the licence of the French company Renault, and produced the same cars under its own name later on. Until 1989, the company enjoyed a quasi-monopoly on the domestic market, as the second major Romanian car producer, Oltcit (see below), was mainly export-oriented. After 1989, output dropped significantly and hit the bottom in 1992. Dacia undertook restructuring efforts and achieved some impressive improvements: It developed a new car, together with a new assembly line, and narrowed the gap relative to minimum Western standards: 'In 1989, it was 48% behind minimum Western standards, in 1997 only 8%'.[82] Its success on the domestic market[83] is mainly based on the price of the car, which is very low and reaches about USD 4,000.[84] These price advantages again, depend largely on cheap labour, the average wage being USD 100 per month, and on bad quality. For a very long time, Dacia remained the only locally owned car-maker in the whole region. However, the plant was obsolete and badly needed restructuring, before it would be able to make it without a strategic foreign investor or heavy government subsidies. In October 1997, it signed a licensing contract with Hyundai to produce a planned 50,000 units of its Accent passenger car model annually and 100,000 Hyundai engines. Finally in September 1999, Renault acquired a 51% stake in the company, with the rest remaining in the hands of the Romanian public.[85] Generous tax incentives granted for the French company were widely debated in the country and contested by the main competitor Daewoo. Renault now wants to implement a strict modernization and cost reduction program, including the reduction of employees from currently 28,000 persons to 16,000. Lay-offs will take place during five years in 20 phases. The first stage of the overall development plan aims for an improvement of technological standards and product quality by the year 2000. In the second phase, from 2000 to the end of 2003, they will launch a new low priced car – below USD 6,000. Finally, in the third phase, Dacia should become Renault's cheaper secondary brand, with production reaching 200,000 units per year by 2010.[86] Of these, about 80,000 cars - 40% of the production - is earmarked for export.[87]
- Daewoo Automobile Romania S.A.: In 1976, the Romanian company Oltcit was established as a joint venture between the government and the French company Citroen, which held a 36% stake then. After the collapse of communism, Citroen

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82 Business Central Europe (1997), November.

83 It still holds 75% of the Romanian car market (64% Dacia Standard, 10% Dacia Nova). See ABN-AMRO (1999), June.

84 Daewoo's locally produced car sells for about double the price in Romania. See Business Central Europe (1997), November.

85 Which they received in 1995 in the course of the mass privatization programme.

86 In 1998, Dacia produced 106,000 cars.

87 ABN-AMRO (1999), June.

withdrew from the company, but finally, Daewoo Heavy Industries from South Korea stepped in. In 1994, it completed the acquisition of a 51% stake in Rodae Automobile SA Craiova (later Daewoo Automobile Romania S.A.), a joint venture set up with Oltcit. It agreed to commit USD 156 mn to the registered capital and supplemented sales with vehicles imported from South Korea. In 1997, the company procured a modest 17% of parts locally because of huge problems with the low quality of products from potential Romanian suppliers. In order to qualify for the European market, it needs however, as much as 60% of local content. In 1997, the company suffered from the recession on the domestic market, which resulted in a huge drop of Romanians' disposable income. Sales plummeted from 22,800 units in 1996 to just 7,000 in 1997.[88] However, the Romanian market is not of primary interest – the company exports three in four cars, mainly to Russia and Poland. Today it employs about 5,000 persons. In 1998, Daewoo acquired 51% in the Romanian carmaker Mecatim S.A., which it intends to turn into a components supplier.

- ARO S.A: Formed in 1957, as an assembler for Soviet-designed off-road cars, ARO has faced a severe fall of output since 1989. Production declined from 17,300 units in 1998, to 11,700 in 1992, and only 2,400 in 1998. At the end of 1998, the State-Ownership Fund put up its 70% stake for sale. East European Imports, a subsidiary of Worldwide Equipment from the USA, won the tender for the struggling company, but the offer was dismissed later because the price was too low and investment commitment deemed inadequate. The company will now again go on the block.[89]
- Roman S.A.: Established in 1921, the formerly called ROMLOC Factory produced locomotives and wagons. In 1971, the company started producing trucks equipped with Diesel engines under Germany's MAN licence. In 1990, the company became a joint stock trading company, which failed to adapt to the new market environment. Today it produces trucks, diesel engines, axles and other devices. At the end of 1998, the government was looking for an investor in the company.
- Rocar S.A.: Established in 1951, Rocar (**Ro**manian **Car**s) manufactures buses, trolley buses and light commercial vehicles. In 1991, it was transformed into a commercial company under state-ownership but did not manage to adapt quickly to market changes.

Slovak Republic

At the end of October 1998, there were about 120 companies in the *transport equipment sector* as a whole in Slovakia, accounting for only 1.4% of all manufacturing companies. Of these 95% were in private hands, 42% had fewer than 10 employees, 17% between 10

[88] Business Eastern Europe (1994), October 31, Business Eastern Europe (1997), April 21, Business Eastern Europe, (1997), September 1, Business Eastern Europe (1998), July 27.

[89] Business Eastern Europe (1999), February 8, Business Eastern Europe (1999), March 1.

and 49, 19% between 50 and 249, 12% between 250 and 999, and the rest above 1000 employees.[90]

The development of the profit situation was different in the two transport equipment industries: In 1995, the *automotive industry* recorded a profit before taxation of 120 mn Slovak Koruna (SKK), that turned to a loss of SKK 640 mn in 1996, but improved to SKK –160 mn in 1997. The category *other transport equipment* also recorded a profit of SKK 307 mn in 1995, which diminished to SKK 190 mn in 1996 and SKK –790 in 1997.

The Slovak *automotive industry* is dominated by the largest foreign investor in Slovakia– the German Volkswagen AG. Overall, Volkswagen Bratislava's car production rose from zero in 1990 to 19,700 units in 1995, 40,900 in 1997 and 125,000 in 1998 (see also Table 15). The relatively large components industry employs about 18,000 persons. In 1997, the best selling cars were supplied by the Czech Škoda, which had a market share of 44% (up from about 30% in 1996), Daewoo with 14%, Volkswagen with 8% and Fiat with 5%, followed by Opel with 4%, and Seat and Renault with both 3%. Most successful automobiles were small cars, which had a market share of 47%, followed by compact and mid-sized cars, with shares of 25% and 20% respectively.

The largest automotive companies in Slovakia, ranked by 1997 net revenues, include:[91]

- Volkswagen, s.r.o., Bratislava: In May 1991, Volkswagen Bratislava was founded as a joint venture between the German company Volkswagen (VW) and the Slovakian components producer BAZ (Bratislavské Automobilové Závody a.s.), which was originally established in 1975 but never brought fully into use. The Volkswagen AG first acquired 80% of the joint venture, but by December 1994, already owned 100%.[92] Assembly of the VW Passat started in December 1991, that of VW Golf in 1994/95. VW Bratislava is the sole manufacturer for Golf Synchro but also produces transmissions and cable sets, the latter in the VW Elektricke Sytemy Nitra plant. In the beginning of 1999, new investment was considered – including a new production facility in Martin, due to the very success of Volkswagen Bratislava. Output of Volkswagen Bratislava trebled to 125,000 units in 1998 - after a two-year investment programme became effective - with plans to double this number to 250,000 units by 2000. In 1997, the company employed about 3,400 persons and reported net revenues of SKK 22 bn, which increased to SKK 56.7 bn (+161%) in 1998.[93] Employment is also said to rise. About 99% of the output was exported, mainly to Germany (40%) and other West European destinations. Less than one percent remained on the Slovak domestic market. Hence it was the second largest Slovak exporter, only behind the steelworks VSŽ Holding a.s. Košice.

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90 3% of all companies not classified according to this ranking.

91 Trend Top' 98 (1998), page 47.

92 Gács, J. (1996), page 300.

93 Making Volkswagen Bratislava the second largest Slovakian company only behind the VSŽ Holding a.s. Košice. 'List of Top 50 Slovak Companies' in Central European Economic Review (1999), July-August, page 23.

- VAB Sipox, a.s., Bánovce nad Bebravou: The producer of components for the car industry reported net revenues of SKK 1.2 bn in 1997 and employed 2,300 persons.
- AVC Cadca, a.s., Cadca: AVC reported net revenues of SKK 950 mn in 1997 and produced components and assembly units for Tatra, and Peugeot Citroen.
- Sachs Slovakia, s.r.o., Trnava: The producer of clutches and other car components reported net revenues of SKK 800 mn in 1997, employed 320 persons and belongs to the Mannesmann Sachs Group of Germany.
- Presskam, s.r.o, Bratislava: The components producer reported net revenues of SKK 500 mn in 1997 and employed 200 persons.

Slovenia

At the end of 1997, about 100 legal, active companies[94] were registered in the *transport equipment sector*, accounting for 2% of total manufacturing enterprises. Of these 80% employed fewer than 100 persons, 18% between 100 and 500 persons, and only 2 enterprises had more than 1000 employees. In addition, there were 11 natural persons registered as doing business in the transport equipment sector, accounting for a very small share of the total.

Slovenia's *automotive industry* is dominated by the following companies:

- Revoz d.d.: Revoz is the subsidiary of the French car company Renault and its largest producer outside France. The Slovenian company started in 1954, as a repair shop for agricultural machinery. In 1959 the company changed its name to Industrija Motornih Vozil (Motor Vehicle Industry) and signed a co-operation contract with Renault in the 1970s. From 1973 to 1992 the company produced Renault 4 cars. In January 1989 the firm Revoz (**Re**nault and **Voz**il) was created, with 54% held by Renault, 34% by the state and 12% by Ljubljanska Banka. It begun producing the Renault 5 and later, in 1993, Renault Clios. In 1998, the production of a new generation of Clios, the Clio II, started. In 1992, and again from 1994 until today, Revoz Novo Mesto was Slovenia's highest income company (in 1993 it lay on the second place behind Petrol Trgovina Ljubljana only), reaching revenues of 208 bn Slovenian Tolar (SIT, USD 1.2 bn) in 1998. Revoz is also Slovenia's largest exporter, with 95% of its production going to its key markets Italy (40%), Germany (30%) and France (20%) in 1998 (SIT 176 bn). However, imports were also large, amounting to SIT 162 bn in 1998, and resulting in an export-import ratio of 109%. It employs about 2,600 persons, with labour costs being only a fraction of that in France, and has a leading-share of 22% on the Slovenian car market.
- Former TAM MARIBOR: Once a reputable Slovenian manufacturer of vehicles, trucks and coaches, TAM was the highest income company in Slovenia in 1983 and 1984. TAM was also an important producer of military equipment – accounting for up to 40%

[94] Legal business entities without inactive companies and without companies with no employed persons according to the Statistical Register of Labour Force.

of total output. Of that, more than two thirds went to the Yugoslav market. Thus, after the break-up of the former Federation, the company suffered huge market losses; the number of employees shrank from close to 9,000 in 'Yugoslav times' to 1,300. In 1996, TAM itself went into liquidation, but 13 small companies developed out of the company, including for example M.P.P. RAZVOJ d.o.o., a small-size company for production, trading and services or M.P.P. Vozila d.o.o., also engaging in the development, manufacture and marketing of vehicles and providing after-sales service.[95] In the beginning of 1999, a tender for the bankrupt TAM failed, because of a lack of interest in the entire property. It was then supposed to be sold piece-meal – unless were bought completely either by MTI Europe, a local company, or a consortium of buyers formed under the Development Corporation of Slovenia.[96] At the end of August, the consortium remitted SIT 794 mn to TAM - showing its interest in purchasing the whole company. As of yet, no final decision has been made.[97]

2 Shipbuilding

Bulgaria

The Bulgarian shipbuilding industry has gone through hard times, and although the yards are not unattractive, continues to struggle. After the collapse of the East European market, it had to radically reorient its exports and now supplies 85-90% of its output to countries like Greece, Singapore and the United Arab Emirates. Still it operates around half capacity and has severe financial problems due to the long construction periods.[98] The largest Bulgarian shipyards include:

- Varna Shipyard SPJSCo.: Employing 4,000 persons it is the country's largest shipyard. It received state guarantees and orders from the merchant marine. Nevertheless, it is heavily indebted, loss-making and operating at 20% capacity. In April 1999, the shipyard was on the verge of liquidation after a failured management-employee buyout. Now a new consortium has possibly been found, including the Italian company Econaval and British Venture Management Shipping, which is said to provide the necessary funding.[99]
- Burgas Shipyard: 'Bourgaskakorabostroitelnitza SPJSCo.' employs about 1,200 persons and mainly concentrates on repair work, which accounts for 70% of sales and requires less working capital. Its shape is poorer than Varna's and it is still on the list for privatisation.

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95 Other companies are: M.P.P. Gonila (gearings), M.P.P. Karoserije (body making), M.P.P. Motor (engines), M.P.P. Tehnološka Oprema (manufacturing equipment), M.P.P. Livarna (foundry) and M.P.P. Inženiring (engineering).

96 Slovenia Weekly (1999), May 25.

97 See Slovenia Weekly (1999), October 5.

98 See Business Eastern Europe (1998), February.

99 See Business Eastern Europe (1999), July 12.

– Rousse Shipyard: The river-yard 'Rusenska Korabostroitelnitza SPJSCo.' is loss-making, heavily in debt and operating at just a quarter of capacity. It employs about 1,800 persons. Rousse had to operate on credit because customers have been reluctant to provide money up-front. It was put on the 'isolation list' in 1996 after debt accumulated, protected from bank creditors but cut off from taking out new loans. However, the company is considered to be in reasonably fair shape needing only some new investment capital. The plant seems functional, and the workforce has a good skill base.[100] The shipyard has suffered considerably from wars in the region and connected embargoes, disturbing the Danube river transport. The Slovak shipmaker Slovenské Lodenicé Komárno was interested in buying the yard, but finally, the German consortium Rousse Shipyard Beteiligungsges.m.b.H. acquired 80% of Rousse in February 1999.[101]

Poland

During the transformational recession, the Polish shipbuilding industry went through a severe crises. After the bankruptcy of the famous Gdansk shipyard a private enterprise was organized in its stead and today the Polish shipbuilding industry seems healthy and competitive.[102] In September 1999, for example, it received the largest amount of orders of all European countries. However, overall it accounts only for 3% of the total world's ship production.[103]

– Gdansk-shipyard: The cradle of the Solidarity movement refused a restructuring proposal by a foreign investor in 1989. It remained state-owned, relying on state subsidies, kept existing wage and staff levels and made no efforts to improve productivity. In August 1996 the yard, which employed 6,000 people and had accumulated debts of Polish Zlotys 414 mn (PLN, USD 153 mn), was declared bankrupt. A new company, New Gdansk Shipyard was created by the former management. It took over profit-generating contracts and negotiated loans with banks to resume production, but they were unwilling to offer further credits. In the meantime the government went on searching for an investor. By March 1997, the liquidator had failed to find an investor to save the yard and to build five contracted container vessels for Schoeller. Overseers had even begun to dismiss the remaining 3,800 workers. However, in May 1997 the yard signed a new contract to build three ships for

[100] Business Central Europe (1997/1998), December/January.

[101] See 'List of privatizations with foreign participation', concluded in the period 1993 to October 6, 1999. See Privatization Agency Bulgaria Internet-Homepage (http:// privatisation. online.bg) read on October 11, 1999.

[102] In 1996, the 'shipbuilding industry' had an important share in the production of the other transport equipment industry, with 60%. In terms of the number of companies (with more than 50 employees) and in employment, shares were lower but still significant, accounting for 48% and 43% respectively.

[103] Central Eastern Business Weekly (1999), November 9.

Schoeller.[104] In mid 1998, the assets of the bankrupt Gdansk shipyard were acquired by the Gdyna shipyard, a deal that included the remaining 2,000 to 2,500 employees.[105]

- Stocznia Szczecinska S.A.: The most backward in communist times, the Szczecin-shipyard was privatised in 1993 by a management-employee buyout and debt-equity swap with local banks, reduced employees and imposed stringent financial controls. It turned into a modern business, focusing on its core activity and specialising on low value added ships, mainly container vessels. By 1995, it was employing more workers than in 1989 and exported all of its ships, mostly to Germany, while wages and productivity were higher than elsewhere in the sector. This success is attributable largely to its integration into the international production network, including both downstream and upstream networks, and projects like the modernisation of the Polish marine engine producer H. Cegieski Poznan.[106] The shipyard reported revenues of about USD 600 mn in 1998 and had 8,200 employees.
- Stocznia Gdynia S.A.: Besides the Szczecin-shipyard, Gdynia is the second leading shipyard in Poland, on its way to becoming the sectoral leader after purchasing the Gdansk assets in 1998 and its acquisition plans for Kvaerner's Masa yards in Finland in 1999. After a tight cut of production schedules and a rebuilding of links with local and foreign banks, among others, the shipyard returned to profits in 1997 for the first time after six years of losses. The state still holds 34% of the yard, while suppliers own 13%, and employees and management control 51%.[107] The shipyard reported revenues of about USD 400 mn in 1998 and employed almost 8,500 persons.

Romania

After the collapse of communism, the Romanian shipbuilding industry was hit hard by the subsequent systemic change and the break-up of the Comecon-market, having supplied over 85% of the domestic production to the national fleet and exporting mainly to the former USSR. Recovery started in 1992 and 1993 and was led by exports, which reached 84% of production in 1996, and about 65% in 1997.[108] Orders mainly came from the Netherlands, Greece, Norway, and Belgium and involved ship hulls and ship repairs. West European shipyards, in particular, have not been able to cope with strong competition from Japan and Korea and got into troubles, forcing them to sub-contract to East-European countries. Today, the shipbuilding industry, in general, has to face declining transport by water.

The Romanian shipbuilding industry consists of 12 shipyards - which implies strong rivalry - and focuses on the repair market.[109] Labour productivity and wage rates in the industry are

[104] See East West (1996), August 15, East West (1997), March 14 and Business Central Europe (1997), May 26.

[105] Financial Times (1998), September 9.

[106] Business Central Europe (1998), February, page 42 and Bitzer, J., Hirschhausen C. (1998), page 33.

[107] Financial Times (1998), September 9.

[108] Fluctuations are due to the imminent feature of the shipbuilding industry, which has long production processes.

[109] By 1994, there was one shipyard with more than 5,000 employees, three shipyards with 3,000 to 5,000 employees, four shipyard with 1,500 to 2,000 employees and four shipyards with less than 1,500 employees.

extremely low, labour intensity very high. The industry struggles with equipment from the 1970s, making production processes inefficient, and suffers from a lack of the financial resources needed to modernize. The shipbuilding industry has to cope with excess capacity and a slow privatisation process (see below). The main Romanian competitors are shipyards from Poland, Croatia, Germany and the Far East.[110]

Romanian shipyards, which attracted foreign investor include:

- Daewoo Mangalia-Heavy Industries: After two years of negotiations, the South Korean Daewoo Heavy Industries Co. finally acquired a 51% stake in the Romanian Mangalia Shipyard in May 1996. The deal was worth USD 53 mn and will increase production from less than one ship a year to more than six and lift the number of ships repaired to over 100 a year (now 40). Funds are also spent for technological upgrading and the transfer of know-how. The shipyard employs 3,500 people.[111]
- Santierul Naval Galati S.A.: At the beginning of 1999, the Dutch Damen Shipyards acquired a 51% stake in the Danube-based shipyard. The purchase price plus future investment pledges totalled USD 25 mn. The Dutch company wants to modernise the shipyard to withstand international competition.[112]
- Santierul Naval Braila: At the beginning of 1999, the US company Trinity Industries (see also chapter on Railway and tramway locomotives and rolling stock) showed interest in the Romanian Danube River shipyard.[113]

Slovak Republic

– Slovenské Lodénice, a.s., Komárno: Lodénice is the country's largest shipbuilder and Europe's biggest river-yard. The company shed labour, replaced its production range from river-going ships to sea-going vessels and found Western markets, so that it managed the transition crisis impressively well. It also invested in new equipment and modern technology. The company successfully turned around Yugoslavia's Macvanska Mitrovica yard, considered co-operation with Greek shipbuilders and also showed interest in the Bulgarian Rousse yard.[114] In 1998, Lodenicé reported net revenues of SKK 3.3 bn and employed 2,600 persons.

  Today, however, the shipyard is again in trouble because of the Yugoslav war and its negative effects on Danube shipping. In addition, new EU-regulations forced the shipyard to invest into catalytic converters for engines of commercial ships and demand for river shipping is generally going down. Hence the Lodenicé is losing money and

[110] Anton, I., Cimpoeasu, M. (1998), page 6.

[111] East West (1996), May 31.

[112] Business Eastern Europe (1999), May 3.

[113] Business Eastern Europe (1999); May 24.

[114] Business Central Europe (1997/1998), December/January.

piles up debt. To ease the difficult situation, extensive loan guarantees will be provided by the state-owned import-export bank.[115]

3 Railway and tramway locomotives and rolling stock

Hungary

Selected producer in Hungary include:

- Adtranz MAV Dunakeszi Kft: The railway coach manufacturer and repair facility is majority owned by DaimlerChrysler Rail Systems, 25% belong to the MAV Hungarian Railways. It employs 900 people.[116]

Czech Republic

Production and development of wheeled vehicles is concentrated in the following companies:

– CKD Dopravní Systémy (Transport Systems), a.s. : Belonging to the second largest Czech engineering company, the CKD Holding, a.s., CKD Dopravni Systémy includes a group of rolling stock manufacturers, such as CKD Tatra, CKD Lokomotiva and CKD Trakce. In August 1999, the state, through Konsolidacni Banka, took control over 50% of the company,11% belong to the National Property Fund. The largely troubled, highly indebted company looks for a strategic investor, the only interest being shown by Siemens at the moment.[117]

– Škoda Dopravní Technika, s.r.o., Plzen: The transport systems unit belongs to the largest Czech engineering company Škoda Plzen. Besides its traditional electric locomotive manufacturing, it has added trams, metro train sets and suburban transport system to its existing product line in order to overcome the negative effects of the collapse of the CMEA-market.

– Moravskoslezská Vagónka, a.s., Studénka: The wagon-making unit is 45% owned by CKD since February 1997. It has debts amounting to USD 45 mn but is set to make a profit in 1997, after a deficit in 1996.[118]

- Vagónka, a.s., Ceská Lípa: In mid-1996, the German company Deutsche Waggonbau AG (DWA) Berlin acquired a majority stake in the Czech producer of wheeled vehicles and of other components.

Poland

Selected producers of railway and tramway locomotives and rolling stock in Poland include:[119]

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[115] See Business Central Europe (1999), October.

[116] NewsBase Central European Business Daily (1999), July 28.

[117] New Europe (1999), September 13-19.

[118] East West (1998), January 19.

– Cegielski-Group: It is the biggest producer of railway and tramway locomotives and carriages as well as ship-engines in Poland. As part of the 1998 privatisation, these branches were supposed to form independent companies under a holding company. Siemens is said to be interested in the locomotive branch.[120]
- Pafawag: In mid 1996, the troubled Polish rolling-stock producer was sold to Adtranz, a joint-venture between Asea Brown Boweri from Sweden-Switzerland and Daimler-Benz from Germany. Adtranz acquired a 75% stake for USD 3.7 mn and planned to invest USD 28 mn over the coming six years. Counting on orders from the Polish State Railway, its plans were upset when it did not win a tender for 16 fast trains in 1998.[121]
- Konstal: In 1996, the British-French company GEC Alsthom UK/France acquired a 60% stake in the rolling-stock producer from the National Investment Funds.
- Swidnica: In 1998, the US company Greenbrier bought 60% of the Polish rolling-stock manufacturer and announced ambitious plans for carriage production.[122]

Romania

Selected producers in Romania include:

- Astra Vagoane Arad S.A.: In the beginning of 1999, the US Trintiy Industries company acquired 70% of Astra Vagoane Arad, a producer of freight, passenger and subway carriages. The US company wants to invest heavily in Astra, in order to manufacture railway accessories.[123]
- MEVA S.A.: In the second half of 1999, the US Trinity Industries company also showed interest in 70% of the Romanian railway tank and freight carriage maker Meva S.A.. The US company intends to make Romania the centre for its European operations. The Romanian company is currently held by the State Ownership Fund and employs 1,350 workers, down from 1,900 two years ago.[124]

– FAUR S.A.: During the communist regime, Faur led Romanian heavy industry under the name '23 August' Works and exported its locomotives to communist as well as Western countries. In 1990, it was renamed 'FAUR' S.A. and today comprises seven factories, producing locomotives, diesel engines, brake equipment, complex equipment, tools, and castings and forgings. It has a workforce of some 8,000 employees. In 1994, it formed a strategic alliance with Anglo-French GEC Alsthom, who holds a 51% stake in the joint-venture company GEC Alsthom Faur Transport (GAFT).[125]

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[119] In 1996, the share of the railway and tramway locomotive production accounted for about 20% in the other transport equipment industry. About 28% of all companies accounted for this sub-branch, which had an employment share of 30%.

[120] Handelsblatt (1998), 27. Jänner.

[121] New Europe (1998), August 30 – September 5.

[122] Business Eastern Europe (1998), March 23.

[123] Business Eastern Europe (1999), May 3.

[124] Business Eastern Europe (1999), September 27, and New Europe (1999), July 19-25.

[125] See also Faur Internet-Hompage (http:// www. starnets.ro/ faur).

Slovak Republic

Railway and tramway locomotives and rolling stock producers in the Slovak Republic, ranked by 1997 net revenues, include:

- Tatravagónka, a.s., Poprad: The producer of railway freight cars reported net revenues of SKK 3.4 bn in 1997 and employed 2,100 persons. It exported 78% of its products, including to Belgium, Austria, Germany and has an assembly plant in Israel.
- ŽOS, a.s., Trnava: The railway repair shop reported net revenues of SKK 1.9 bn in 1997 and employed 1,250 persons.
- ŽOS, a.s., Vrútky: The railway repair shop reported net revenues of SKK 900 mn in 1997 and employed 1,700 persons.

4 Aircraft and Spacecraft

During the communist era this sub-branch mainly produced military equipment and hence faced big problems when the demand for military planes collapsed thereafter. In the last couple of years however, it has attracted a lot of attention thanks to the recent accession of East European countries to NATO, requiring the upgrading of military and aircraft equipment. In order to gain an advantage in bidding these military contracts, foreign companies made arrangements with local aircraft producers, as offset deals are common in this industry. Targeted companies are located in Poland, the Czech Republic and Romania, the last of which also hopes for a NATO-accession.

Czech Republic

Foreign direct investment took place in the following Czech companies:

- Aero Vodochody, a.s.: The partial privatization of the main Czech producer of military training and combat aircraft (L-159) has finally come to an end in 1998. After Boeing won the tender for a 34-40% stake in May 1997, it took another year to negotiate the contract. The main issues were the restructuring of Aero's debt, provision of state guarantees for future borrowings and accelerated payment for a big state order. Boeing-Ceská, a joint venture between the US company Boeing (90%) and the local Czech Airlines CSA, finally acquired a 35% stake in Aero in 1998. It promised to stay as a strategic partner for at least ten years.
- In order to boost their chances in the Czech military upgrading, foreign investors have forged ties with local companies. The Czech government expects offset deals for the high procurement costs of military aircraft, which should help to revive the domestic industry. Foreign companies are offering investment, sub-contracting and trade packages. In mid September 1997, Lockheed Martin tied up with CKD, a large engineering company. In late September 1997, a deal was signed between Boeing and Škoda Plzen, the largest Czech engineering conglomerate. British Aerospace and the Swedish Saab aircraft group signed in early October 1997 a memorandum of understanding with Czech's Chemapol Machinery, part of the Chemapol Group.[126] In

[126] East West (1997), October 21.

1999, Saab signed a contract with the Czech aircraft components maker Jihlavan, to supply airbrake parts for the Gripen jet fighter. British Aerospace teamed up with the Czech army's research centre for a feasibility study.[127]

- Let Kunovice, a.s.: Since 1952, Let Kunovice has been manufacturing short-distance passenger planes but suffered heavily from the loss of the Russian and East European markets after 1989, its main export destinations. The company accumulated debts, which brought it close to bankruptcy. In April 1998, the Ayres Corporation from the US bought Let Kunovice, which employed about 1,700 persons. After a transfer of technology, Let will probably take over parts of Ayres' components business and produce parts for major aircraft manufacturers, such as Boeing and Lockheed.[128]

Poland

The Polish aircraft production has undergone deep organisational changes. Enterprises were corporatized and half the employees dismissed during transition. A long list of sub-contracting projects with foreign enterprises characterises the production, which still faces major problems. The huge indebtedness of companies makes financial restructuring basic for the survival of this sub-branch. Sideline production, such as car parts, diesel engines, injection apparatus and subway carriages as well as government support keep the enterprises afloat.[129]

– WSK PLZ-Mielec S.A.: The largest Polish aircraft manufacturer slumped into severe problems after the collapse of communism. A restructuring programme announced in 1993 was impossible to implement, and a debt cancellation between 1994 and 1997 of PLN 137 mn did not help. Government mismanagement and quality problems, for example with aircraft doors for Boeing, aggravated the situation.[130] In 1997, the aircraft company reported revenues of PLN 260 mn and still employed 5,500 persons.[131] In March 1999, PLZ-Mielec was declared bankrupt, not being able to service its debts. A new plant, called Polish Aircraft Plants (PLZ) was formed, which took over only 1,200 workers from the formerly 2,700 employed.[132]

– PZL-Swidnik S.A.: Founded in 1951, PLZ Swidnik is the only manufacturer of helicopters in Eastern Europe, including the PZL-Sokol helicopter or its modified version the Huzar. Currently, 25% of its income stem from exports of helicopter parts, going to France, Italy and Germany. This share is planned to be increased to almost 70%.[133] The company reported revenues of PLN 230 mn in 1997 and employed 4,000 persons.

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127 Financial Times (1999), July 6.

128 Press release from April 23, 1998, see CzechInvest Internet-Homepage (http:// www.czechinvest.com/news/press-reases).

129 Van Zon, H. (1996), page 89.

130 Business Central Europe (1999), page 29.

131 According to Nowe Zycie Gpospodarcze (1998)

132 Business Eastern Europe (1999), April 5.

133 NewsBase Central European Business Daily (1999), October 15.

Co-operation agreements with foreign companies exist, e.g. with the US company Bell Helicopter Textron.

– WSK PLZ-Rzeszów S.A.: In 1997, the company reported revenues of PLN 230 mn and employed 5,200 persons.

Romania

Foreign direct investment took place into the following Romanian companies:

- Intreprinderea Aeronautica Romana (IAR) Ghimbav S.A. in Brasov: In May 1997, Bell Helicopters, a unit of Textron (USA), agreed to sign a contract for the purchase of a 70% stake in the Romanian military aircraft manufacturer, pledging an investment sum of USD 50 mn. The deal should also have positive effects on other companies. The Romanian Turbomecanica S.A. would produce the helicopters' engines under licence of the US General Electric, avionics would be provided by the joint venture of the local Aerostar and Elbit (Israel). However, the deal was exposed to heavy domestic and international criticism, as the contract included the purchase of 96 Dracula helicopters by the Romanian Defence Ministry – worth USD 1.5 bn – and financing was missing. In addition, the accession to NATO was put on hold, discarding the need to align military equipment with NATO standards and moreover, the ambitious procurement policy was cut by IMF orders to lower military spending.[134] After two years, the deal has still not been finally settled. After it seemed to have failed in mid-1999, Bell still shows interest and so does the French-German joint-venture Eurocopter recently.[135]
- ROMAERO: In January 1999, the UK company Britten Norman signed a contract to acquire 73% of the local aircraft manufacturer Romaero. The two companies have had a 35-year relationship, with Romaero building aircraft frames for the British company. However, disputes emerged in mid-1999, as Britten Norman refused to pay the purchase price following the government's suspension of tax and customs exemptions for foreign investors.[136]

[134] Business Eastern Europe (1997), June 2 and Business Eastern Europe (1998), August 3.

[135] Business Eastern Europe (1999), July 5.

[136] See Romanian Economic Daily (1999), August 30.

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Appendix of Tables and Figures

Table A1

Key data on total manufacturing

		1989	1992	1993	1995	1996	1997	Average growth in % 1993-1997
BULGARIA								
Industrial production (at current prices)	in BGL mn	59320	189449	212700	681827	1527399	13510638	.
Industrial growth (at constant prices)	in %	.	-17.2	-12.6	4.6	.	-12.0	.
Employment	in 1000	1420	883	767	654	741	720	.
Employment growth	in %	.	-16.3	-13.2	-6.0	.	-2.7	.
Wage growth (ECU basis)	in %	.	46.0	44.5	18.6	.	-1.9	.
Productivity growth	in %	.	-1.0	0.7	11.3	.	-9.5	.
ULC growth (ECU basis)	in %	.	47.5	43.6	6.6	.	8.4	.
Total exports to EU	in ECU mn	394	757	779	1563	1447	1772	18.5
Total imports from EU	in ECU mn	1316	971	1158	1700	1401	1492	9.0
Trade balance with EU	in ECU mn	-921	-214	-380	-137	46	280	.
Exports to the EU: Market shares	in %	0.12	0.20	0.20	0.33	0.30	0.31	.
CZECH REPUBLIC								
Industrial production (at current prices)	in CZK mn	558351	652893	655289	810383	894694	1330877	15.3
Industrial growth (at constant prices)	in %	.	-8.0	-8.4	8.4	4.7	7.6	2.3
Employment	in 1000	1658	1181	1098	1018	983	1161	.
Employment growth	in %	.	-13.2	-7.0	-2.4	-3.4	-2.5	-4.1
Wage growth (ECU basis)	in %	.	20.0	33.7	16.5	17.0	8.2	18.1
Productivity growth	in %	.	6.0	-1.5	11.1	8.3	9.2	6.4
ULC growth (ECU basis)	in %	.	13.2	35.7	4.9	8.0	-0.9	11.0
Total exports to EU	in ECU mn	.	.	4385	7367	7950	9660	21.8 [1)]
Total imports from EU	in ECU mn	.	.	5613	9472	11409	12885	23.1 [1)]
Trade balance with the EU	in ECU mn	.	.	-1228	-2105	-3460	-3225	.
Exports to the EU: Market shares	in %	.	.	1.13	1.56	1.61	1.68	.
HUNGARY								
Industrial production (at current prices)	in HUF mn	146110	1497321	1721479	2945435	3827038	5197367	28.3
Industrial growth (at constant prices)	in %	.	-17.4	3.0	6.6	3.0	15.9	7.4
Employment	in 1000	1171	857	747	652	633	637	.
Employment growth	in %	.	-14.5	-12.9	-4.0	-2.9	0.7	-5.8
Wage growth (ECU basis)	in %		14.5	18.4	-6.6	3.7	10.8	6.2
Productivity growth	in %	.	.	18.2	11.1	6.2	15.2	14.0
ULC growth (ECU basis)	in %	.	.	0.2	-16.0	-2.4	-3.8	-6.8
Total exports to EU	in ECU mn	2177	3548	3522	5945	6605	8981	20.4
Total imports from EU	in ECU mn	2665	3738	4585	6377	7382	10092	22.0
Trade balance with the EU	in ECU mn	-488	-189	-1063	-432	-778	-1111	.
Exports to the EU: Market shares	in %	0.65	0.94	0.90	1.25	1.33	1.55	.
POLAND								
Industrial production (at current prices)	in PLN mn	.	78975	104441	211533	244193	299825	30.6
Industrial growth (at constant prices)	in %	.	4.9	10.2	11.8	9.8	13.3	11.8
Employment	in 1000	3326	2767	2700	2809	2803	2821	.
Employment growth	in %	.	-13.1	-2.4	4.3	-0.2	0.7	0.4
Wage growth (ECU basis)	in %	.	2.6	13.8	14.9	18.2	11.1	13.2
Productivity growth	in %	.	.	12.9	7.2	10.1	12.5	11.4
ULC growth (ECU basis)	in %	.	.	0.8	7.3	7.3	-1.3	1.6
Total exports to EU	in ECU mn	2835	5910	6497	9994	10133	11828	14.9
Total imports from EU	in ECU mn	3289	6952	8658	12394	16030	20465	24.1
Trade balance with the EU	in ECU mn	-454	-1043	-2161	-2400	-5897	-8637	.
Exports to the EU: Market shares	in %	0.84	1.58	1.68	2.12	2.06	2.06	.

Table A1 (continued)

Table A1 (continued)

		1989	1992	1993	1995	1996	1997	Average growth in % 1993-1997
ROMANIA								
Industrial production (at current prices)	in ROL bn	.	5484	15302	50567	76198	171363	99.1
Industrial growth (at constant prices)	in %	.	-23.1	-1.2	9.8	2.1	-6.9	1.3
Employment	in 1000	.	2811	2590	2192	2148	2032	.
Employment growth	in %	.	-12.5	-7.9	-9.7	-2.0	-5.4	-6.3
Wage growth (ECU basis)	in %	.	-37.0	34.5	16.6	5.8	-6.5	10.4
Productivity growth	in %	.	-12.1	7.2	21.6	4.2	-1.5	8.1
ULC growth (ECU basis)	in %	.	-28.3	25.5	-4.1	1.5	-5.0	2.2
Total exports to EU	in ECU mn	1654	1333	1582	3081	3275	4012	24.6
Total imports from EU	in ECU mn	611	1545	1958	3274	3747	4254	22.5
Trade balance with the EU	in ECU mn	1043	-211	-376	-193	-472	-242	.
Exports to the EU: Market shares	in %	0.49	0.35	0.41	0.65	0.66	0.69	.
SLOVAK REPUBLIC								
Industrial production (at current prices)	in SKK mn	.	.	266525	362939	390233	419028	12.0 [1)]
Industrial growth (at constant prices)	in %	.	-15.7	-11.9	8.9	2.6	2.6	0.6
Employment	in 1000	.	527	472	452	447	439	.
Employment growth	in %	.	-12.6	-10.4	1.0	-1.1	-3.6	-3.9
Wage growth (ECU basis)	in %	.	11.3	23.6	14.4	14.8	13.0	15.5
Productivity growth	in %	.	-3.6	-1.6	7.8	3.8	6.5	4.7
ULC growth (ECU basis)	in %	.	15.4	25.6	6.1	10.7	6.1	10.3
Total exports to EU	in ECU mn	.	.	1069	2521	2748	3221	31.7 [1)]
Total imports from EU	in ECU mn	.	.	1084	2516	3125	3729	36.2 [1)]
Trade balance with the EU	in ECU mn	.	.	-15	5	-378	-508	.
Exports to the EU: Market shares	in %	.	.	0.28	0.53	0.56	0.56	.
SLOVENIA								
Industrial production (at current prices)	in SIT mn	.	809602	998161	1423672	1597863	1868671	18.2
Industrial growth (at constant prices)	in %	.	-13.9	-4.1	2.3	-0.4	-2.6	0.2
Employment	in 1000	370	282	257	232	220	213	.
Employment growth	in %	.	-10.1	-9.0	-5.1	-5.5	-4.0	-5.7
Wage growth (ECU basis)	in %	.	-4.8	14.6	16.5	3.2	5.3	9.8
Productivity growth	in %	.	-4.2	5.4	7.9	5.4	1.5	6.3
ULC growth (ECU basis)	in %	.	-0.6	8.7	8.0	-2.0	3.8	3.4
Total exports to EU	in ECU mn	.	.	2808	3736	3684	3960	9.0 [1)]
Total imports from EU	in ECU mn	.	.	2852	4065	4217	4886	14.4 [1)]
Trade balance with the EU	in ECU mn	.	.	-44	-329	-534	-926	.
Exports to the EU: Market shares	in %	.	.	0.72	0.79	0.74	0.69	.

Notes: 1) 1994-1997.
EU : European Union (12)
Bulgaria: 1989-1995: Total manufacturing excluding petroleum refineries; Industrial production at 1993 prices.
From 1996: Industrial production at 1996 prices.
Czech Republic: Up to 1996 enterprises with 100 employees or more, 1997 enterprises with 20 employees or more.
Industrial production at constant prices: 1997, industrial output index calculated from production statistics of businesses with 20 employees or more.
Hungary: Enterprises with more than 25 employees, from 1997 enterprises with more than 10 employees.
Poland: Industrial production at current prices: From 1993 excluding VAT; including import duties; from 1996 basic prices, the years before producer prices. Average monthly gross wages: Enterprises with more than 5 employees.
Slovak Republic: Enterprises with 25 and more employees, from 1997 enterprises with 20 and more employees.
Slovenia: Employment in enterprises, companies and organizations: 1989-1996 private enterprises are included only if they have 3 or more persons in paid employment and armed forces staff. From 1997 including private enterprises with 1 and 2 employees. Wages in enterprises, companies and organizations.
Source : WIIW database

Table A2

Transport equipment

Estimated ranges for Unit Labour Costs in 1997, Austria 1996 = 100

	Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
PPP for GDP (lower range)	23	22	12	29	17	17	38
PPP for fixed capital formation (upper range)	51	33	21	40	57	27	45

Notes: PPP=Purchasing power parities; gross wages used for calculation.
Source: WIIW

Table A3

Exports of individual industries in total manufacturing exports to the EU, 1997, in %

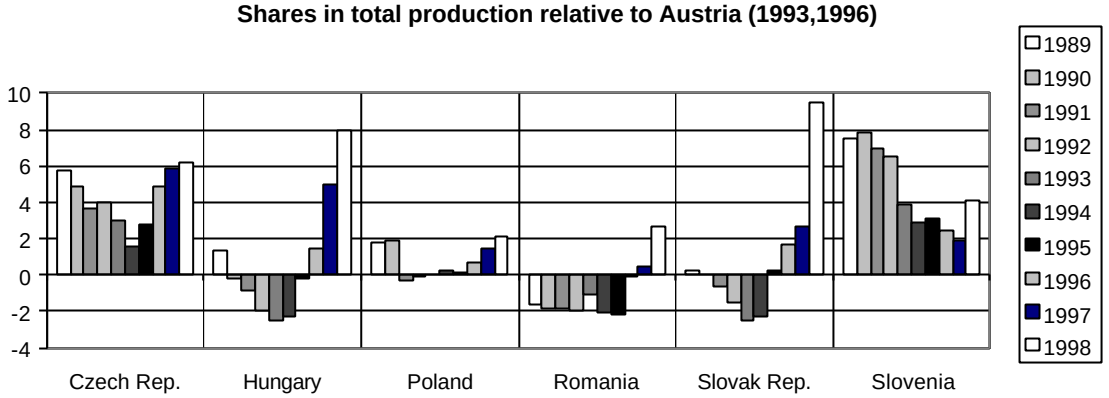
		Bulgaria	**Czech Republic**	**Hungary**	**Poland**	**Romania**	**Slovak Republic**	**Slovenia**
D	Manufacturing total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DA	Food products; beverages and tobacco	4.9	1.7	5.5	6.2	1.0	1.5	1.4
DB	Textiles and textile products	25.5	9.1	10.2	16.5	37.9	11.5	14.3
DC	Leather and leather products	7.6	1.6	3.5	1.7	13.0	4.6	2.7
DD	Wood and wood products	2.4	3.5	1.6	5.7	2.4	2.5	3.9
DE	Pulp, paper & paper products; publishing and printing	1.8	2.6	0.8	2.3	0.3	3.6	3.5
DF	Coke, refined petroleum products & nuclear fuel1)							
DG	Chemicals, chemical products & man-made fibres	15.3	7.0	6.0	5.9	5.0	9.1	4.0
DH	Rubber and plastic products	1.3	5.0	2.2	2.7	1.2	3.3	3.1
DI	Other non-metallic mineral products	2.7	5.0	1.4	3.4	2.5	3.3	2.6
DJ	Basic metals and fabricated metal products	26.1	17.8	8.7	18.2	17.5	18.1	17.2
DK	Machinery and equipment n.e.c.	5.4	12.8	7.9	6.2	5.1	7.2	12.9
DL	Electrical and optical equipment	3.1	15.4	28.2	11.3	4.3	12.8	11.7
DM	**Transport equipment**	**0.5**	**13.7**	**21.6**	**10.8**	**2.1**	**19.5**	**18.3**
DN	Manufacturing n.e.c.	3.3	4.7	2.4	9.1	7.8	3.1	4.3

Notes: 1) Coke, refined petroleum products & nulcear fuels not termed manufacturing in the trade statistics.
Source: WIIW Industrial database

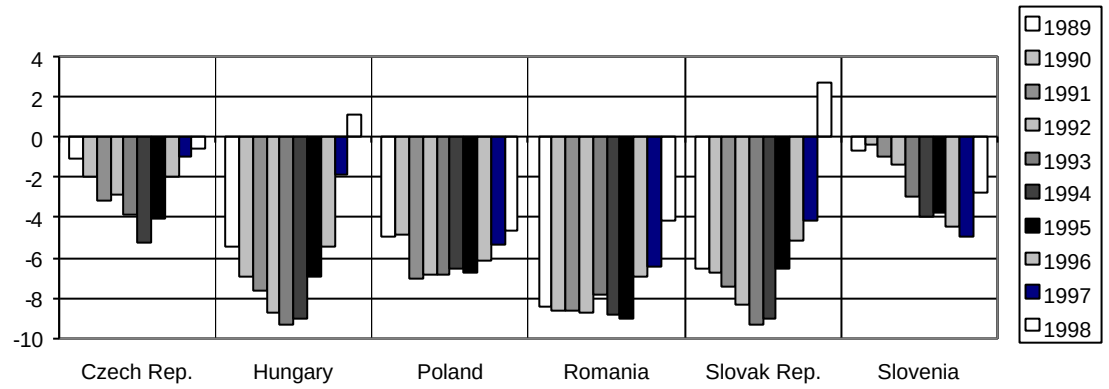
Figure A1

Transport equipment
Shares of CEECs (at constant prices) relative to other countries

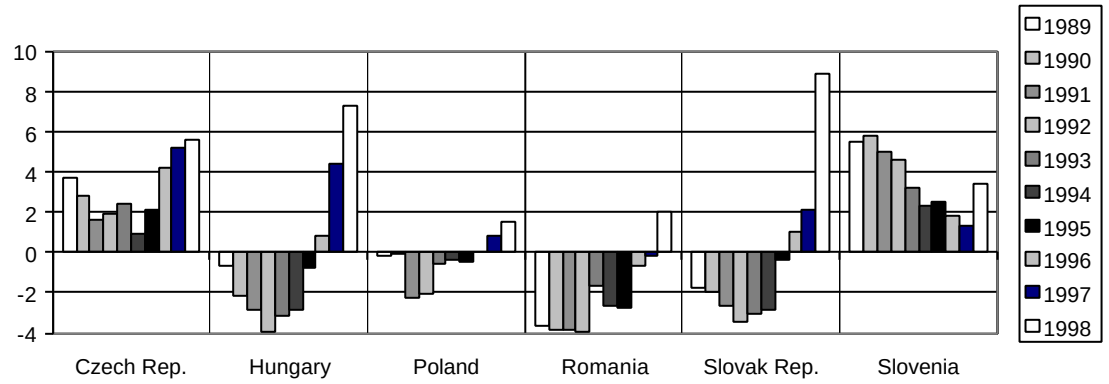
Shares in total production relative to Austria (1993,1996)



Shares in total production relative to EU-North (1992,1996)



Shares in total production relative to EU-South (1992,1996)

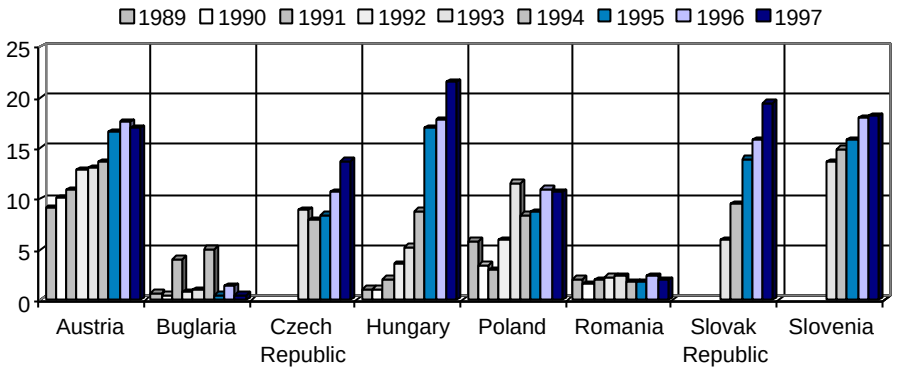


Notes : 1989-1992 production shares at constant prices: Czech Republic at 1993 prices, Hungary at 1992 prices, Poland at 1992 prices, Romania at 1993 prices, Slovak Republic at 1993 prices, and Slovenia at 1996 prices. 1993-1998 production shares at constant prices 1996 for all countries.
Source: WIIW Industrial database

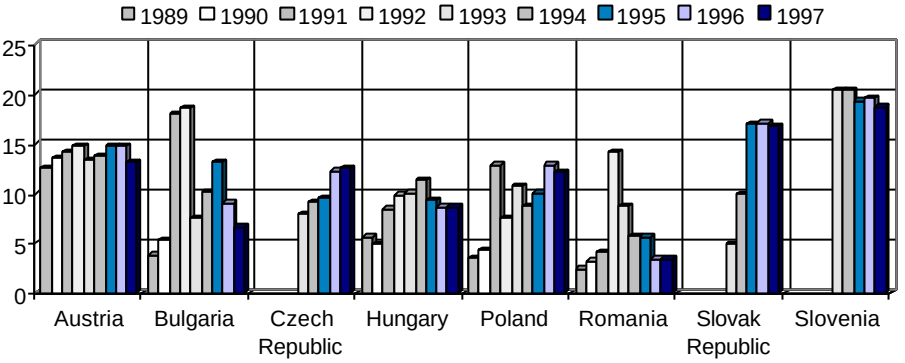
Figure A2

Transport equipment

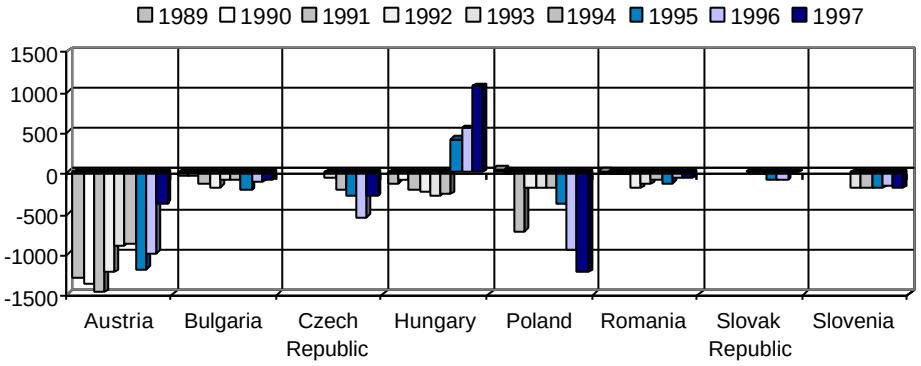
Share in manufacturing exports, in %



Share in manufacturing imports, in %



CEECs trade balance with the EU, ECU mn



Source: WIIW database

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Production structure (current prices), manufacturing = 100
Industrial production (constant prices), national currency mn
Production structure (constant prices), manufacturing = 100
Production growth, annual changes in %
Employment, thousand persons
Employment structure, manufacturing = 100
Employment growth, annual changes in %
Average monthly gross wages (national currency)
Average monthly gross wages (ECU)
Average monthly gross wages (DEM)
Average monthly gross wages (USD)
Average monthly gross wages, manufacturing = 100
Average monthly gross wages, annual changes, real (deflated with CPI)
Labour productivity, manufacturing = 100
Labour productivity, annual changes in %
Unit Labour Costs (national currency), manufacturing = 100
Unit Labour Costs (national currency), annual growth rates in %
Unit Labour Costs (ECU), annual growth rates in %
Unit Labour Costs (DEM), annual growth rates in %
Unit Labour Costs (USD), annual growth rates in %
Unit Labour Costs ECU, Austria = 100
Exports to the EU, 1000 ECU
Imports from the EU, 1000 ECU
Foreign trade with the EU, Balance, 1000 ECU

WIIW Industrial Database Eastern Europe

Tables contained in the database:

	By NACE industries	**Dimension**
D	Manufacturing total	Countries X 1989-98
DA	Food products; beverages and tobacco	Countries X 1989-98
DB	Textiles and textile products	Countries X 1989-98
DC	Leather and leather products	Countries X 1989-98
DD	Wood and wood products	Countries X 1989-98
DE	Pulp, paper & paper products, publishing & printing	Countries X 1989-98
DF	Coke, refined petroleum products & nuclear fuel	Countries X 1989-98
DG	Chemicals, chemical products and man-made fibres	Countries X 1989-98
DH	Rubber and plastic products	Countries X 1989-98
DI	Other non-metallic mineral products	Countries X 1989-98
DJ	Basic metals and fabricated metal products	Countries X 1989-98
DK	Machinery and equipment n.e.c	Countries X 1989-98
DL	Electrical and optical equipment	Countries X 1989-98
DM	Transport Equipment	Countries X 1989-98
DN	Manufacturing n.e.c.	Countries X 1989-98

By country	**Dimension**
Czech Republic	NACE X 1989-1998
Hungary	NACE X 1989-1998
Poland	NACE X 1989-1998
Romania	NACE X 1989-1998
Slovak Republic	NACE X 1989-1998
Slovenia	NACE X 1989-1998
Bulgaria	NACE X 1989-1998

By year	**Dimension**
1989	NACE X Countries
1990	NACE X Countries
1991	NACE X Countries
1992	NACE X Countries
1993	NACE X Countries
1994	NACE X Countries
1995	NACE X Countries
1996	NACE X Countries
1997	NACE X Countries
1998	NACE X Countries

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