

WIIW INDUSTRY STUDIES
1999/3

**Development and
Prospects of the
Wood and Wood
Products Sector in
the Central and
Eastern European
Countries**

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Doris Hanzl

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WIIW INDUSTRY STUDIES

In this new series, The Vienna Institute for International Economic Studies (WIIW) publishes results which stem from its research on structural developments in CEEC economies. In 1996/97 the WIIW has started to build up its Industrial Database Eastern Europe which comprises time series for the Czech Republic, Hungary, Poland, Slovakia, Slovenia, Bulgaria and Romania.

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- *Leather and leather products*
- *Wood and wood products*
- *Pulp, paper & paper products, publishing & printing*
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- *Chemicals, chemical products and man-made fibres*
- *Rubber and plastic products*
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- *Basic metals and fabricated metal products*
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- *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.

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Research Director, WIIW*

So far published:

- *1999/1 Development and Prospects of the Mechanical Engineering Sector in the Central and Eastern European Countries (March 1999)*
- *1999/2: Development and Prospects of the Paper and Printing Sector in the Central and Eastern European Countries (May 1999)*
- *1993/3: Development and Prospects of the Wood and Wood Products Sector in the Central and Eastern European Countries (September 1999)*

*For details concerning the new **Industrial Subscription Service** and the **WIIW Industrial Database Eastern Europe** see the back of this report.*

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Executive Summary

*In Central and Eastern Europe, as in all economies, the wood and wood products sector links natural resources to manufacturing – processing forestry products and supplying goods to the furniture industry and the construction sector. It can be classified as a **low-technology, labour intensive** sector mainly consisting of small and medium-sized companies. In all Central and Eastern European countries (CEECs), the wood and wood products sector passed through a transformational recession and - although it showed an over-proportionate export orientation - could not ward off its decline in the domestic economy.*

Part One of the study investigates the development and prospects of the wood and wood products sector in the following countries:

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

*In size, the wood and wood products sector plays only a **minor role** in total manufacturing output today and contributes only between 1% and 3.5% of output, with **Poland** and **Slovenia** having the largest shares of the CEECs analysed. When compared to the average West European country however, the CEECs show a larger weight of the wood and wood products sector. During transition, the importance of the sector declined or remained constant in most of the CEEC economies – with the only exception of **Poland**, which displays an increasing **specialization** in this sector.*

In the first phase of transition, which lasted from 1989 to around 1992, the output of the wood and wood products sector declined along with the larger economy. Only in Hungary and Poland this decline was significantly less than in total manufacturing. From 1993 on, the performance of the sector improved generally but, compared to total manufacturing, its importance declined. This could be seen as an adjustment to West European levels, additionally promoted by an under-proportionate growth in construction and with it a lower demand for furniture.

As an employer, the wood and wood products sector is also of minor importance as employment shares range only between 2% in Bulgaria and Hungary and 5% in Slovenia today. Due to its relatively high labour intensity, employment shares were some percentage points higher than output shares both in 1989 and 1997.

As is typical for all CEECs and all sectors of manufacturing, wages, productivity and unit labour costs in the wood and wood products sector were and are much lower than in Western European countries, for which we used Austria as a point of reference. In general, wages and productivity in the wood and wood products sector were below manufacturing

average in all CEECs and relative unit labour costs were mostly several percentage points above. From 1993 to 1997, wages rose in all countries, while productivity grew only in some and stagnated in others. Hence only in Hungary was the productivity increase larger than the wage increase, so that unit labour costs declined there. In the other CEECs unit labour costs rose, but still remained at a much lower level than in Austria.

Ranges for CEECs' unit labour costs in the wood and wood products sector in 1997 are as follows, calculated as a percentage of the Austrian level of 1996:

Czech Republic	41% - 53%	Romania	12% - 36%
Hungary	21% - 33%	Slovakia	32% - 49%
Poland	24% - 33%	Slovenia	62% - 72%

(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 wood and wood products sector holds a minor position in all CEECs, with shares ranging between 1.6% in Hungary and 6% in Poland. The sector shows, however, a high **export orientation** (export/sales) and a pronounced **revealed comparative advantage** relative to its EU trading partners. By 1996, the quality of exports - measured by relative export unit values - had improved slightly, with the exception of Poland. While Slovenia's wood and wood products exports have become quite **competitive in quality**, the other countries' exports remain mostly **price competitive**.

Wood and wood products do not feature strongly in imports, accounting for less than or 1% of total CEEC-manufacturing imports in all countries in 1997. In fact, higher absolute exports than imports made the sector a **net exporter** in all CEECs. The sectoral trade surplus grew most in Poland and reached over ECU 500 mn in 1997.

On the EU market, CEECs wood and wood products exports had a market share of 4% in 1989, which increased to 10% in 1997 (excluding intra-EU trade). When compared to total manufacturing exports and other sectors of the economy, the wood and wood products sector hence maintained a significant position on the European market – especially in Austria. CEECs' wood and wood products exports accounted for 70% of Austria's non-EU wood and wood products imports in 1997.

The wood and wood products sector has not been a prominent target for **foreign investors** and hence has attracted only an under-proportionate amount of foreign investment inflow. This is probably due to the enterprise structure of the sector, typically existing of small and medium-sized companies not keen on investing abroad.

*In the short run, **future prospects** in the wood and wood products sector depend largely on the cyclical trends in the construction industry – itself influenced by the overall level of economic activity. The forecasts are better for Poland and Hungary, with a slightly negative outlook for the Czech and Slovak Republics. In the medium and long-run however, latent demand for housing and infrastructure should materialize and positively affect the wood and wood products sector.*

Part Two of the study presents a more thorough micro-analysis of the wood and wood products sector, containing **company profiles** of selected domestic enterprises and foreign investors.

Regarding the detailed production structure of the sector, differences prevail throughout the region: While the Slovenian wood and wood products sector concentrates heavily on a higher level of processing – meaning higher value added products– the Hungarian and Polish structure is more mixed and the Czech and Slovak wood and wood products sector focuses on a relatively low level of processing. Throughout the region, a large part of the sector is constituted by small and medium-sized companies, which are exposed to a high level of indebtedness. In general, foreign direct investment in the sector is low – however, Austrian firms are quite active in the CEECs, due to the importance of the wood and wood products sector at home.

Development and Prospects of the Wood and Wood Products Sector in the Central and Eastern European Countries

PART I: INDUSTRY SURVEY

In general, the wood and wood products sector is a relatively small sector of the economy, linking natural resources to manufacturing. It consumes forestry products and supplies its goods mainly to the construction sector and the furniture industry. The wood and wood products sector is dominated by small and medium-sized companies and can be classified as a low technology, labour intensive sector. However, increasingly, automation and mechanization in two sub-branches are increasing capital-intensity and hence concentration.¹ Innovations come into the sector mainly from suppliers of equipment, making this what is called a 'supplier-dominated' sector.

This study gives a thorough two-part picture of the wood and wood products 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 presents detailed further information on sub-branches as well as on company profiles of major domestic and foreign enterprises. In the first part there are four sections: The first section deals with trends in growth and structure of the sector, including characteristics of production and employment. The next section analyses indicators of international competitiveness, in particular wage rates, productivity levels 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 presenting additional tables and figures completes the whole study.

The exact title of the wood and wood products sector according to the NACE rev. 1 classification system is 'manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials'.² The following quantitative analysis is based on the WIIW Industrial Database Eastern Europe, which currently includes Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia.³

¹ The sub-branch of semi-finished wood products, including the production of veneer-sheets, plywood, laminboard, particle board and others, is more concentrated due to transport costs and technical and market-related factors. It is also capital and energy-intensive. Sawmilling is also becoming increasingly automated and hence concentrated.

² In detail the sector contains the 'sawmilling and planing of wood, impregnation of wood' (20.1), 'veneer sheets, plywood, laminboard, particle board, fibre board and other panels and board' (20.2), 'builders' carpentry and joinery' (20.3), 'wooden containers' (20.4), and 'other products of wood; articles of cork, straw and plaiting materials' (20.5). Furniture is not included in this sector, but belongs to manufacturing n.e.c. (36).

³ 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 some problems with the statistics.

1 Overview: Trends in growth and structure

Resources, privatization and size – specialization in the Polish wood and wood products sector

The wood and wood products sector relies on natural resources from forests, which differ considerably in size among the CEECs: The most resource rich country in relative terms is Slovenia, where 55% of total area is covered by forests, followed by Slovakia, with 39% (just the same as in well-wooded Austria, see Table 1). In the other CEECs, forests cover between 26% and 35%, while only in Hungary the forest area is much lower and reaches only 19%. Under communism, all forests in the Central and Eastern European countries with the exception of Poland⁴ and Slovenia, were owned and managed by the state. Prices for wood were centrally decided and held at a low level. Problems, such as inefficiency and over-control, prevailed. In addition, forests were often endangered by environmental pollution from the heavy industry emphasized under the command economy. With the collapse of the communist regimes in 1989, privatization of forests started and took different methods in the region, such as the restitution, compensation, or the sale of state-forests. New forestry legislation has been adopted with surprising speed, now being in

Table 1

Basic indicators on forestry, 1997

	Total area in 1000 ha	Forest area in 1000 ha	Forest area in % of total area
Austria ¹⁾	8386	3271	39.0
Bulgaria ²⁾	11099	3877	34.9
Czech Republic	7887	2632	33.4
Hungary	9303	1767	19.0
Poland	31268	8802	28.1
Romania	23839	6236	26.2
Slovak Republic	4904	1919	39.1
Slovenia	2026	1110	54.8

Notes: 1) According to the Austrian Waldagentur, forests cover 46.2% of the Austrian area. - 2) 1998.

Source: National Statistics.

force in most CEECs.⁵ The new ownership distribution differs among countries today, however, the share of state-owned forests is assumed to decline in the future.⁶ Formerly

⁴ In 1990, 83% of Polish forests were state-owned, 17% privately-owned, belonging to about 1.4 million owners and limiting the average area to less than 1 ha.

⁵ New forest legislation were adopted in Poland in 1992, Slovenia in 1993, the Czech Republic in 1995, Hungary and Romania in 1996. See Cirelli, M. T. (1999), page 20.

⁶ The share of state ownership today ranges from about 83% in Poland, 66% in the Czech Republic, 60% in Hungary, while in Romania considerations about further privatization might lead to a share of probably below 50%, in Slovenia to 20%. See National Statistics and Cirelli, M. T. (1999), page 2.

large vertically integrated socialist enterprises were separated into silviculture and wood processing, whereby new state-owned legal enterprises took control over the former, while the capacities of the latter were privatized.⁷ Wood prices were liberalized and adapted to world market prices. In Slovenia, for example, a raw-materials tax was imposed on wood, the only commodity besides alcohol subjected to tax, thus raising prices, while it was replaced in 1999 by the value added tax, the dampening effect on the sector has remained the same. In Poland, the state-owned forestry agency also increased prices.⁸

The size of the wood and wood products sector in the CEECs was relatively small in total manufacturing at the beginning of the transition and ranged between 2% and 4% in 1989 (at constant prices, see Table 3),⁹ being most important in Slovenia and Romania and least important in Hungary. This corresponds to the afore-mentioned differences in the resource base for Slovenia and Hungary and the labour-intensive nature of the sector for Romania. During transition, however, the importance of the sector declined or remained constant in most of the CEEC economies - except in Poland, where the wood and wood products sector grew. This is perhaps explainable by the shift of furniture processing, a major consumer of wood products, from Romania to Poland.¹⁰ Thus by 1997, shares ranged between 1% and somewhat more than 3% (at current prices, see Table 2), and are now largest for Poland, followed as before by Slovenia. In Romania and the Czech and Slovak Republics the sector reached 2%, while it was slightly smaller in Hungary and Bulgaria.

In the countries of the European Union, the wood and wood products sector also has a relatively small share in total manufacturing, in most cases even smaller than in the CEECs.¹¹ Thus, the declining shares in the CEECs indicate a movement towards West European levels. Only in some resource-rich countries of the EU, including Finland, Sweden, Austria, as well as in Portugal, which is an important cork producer, the sector was comparatively larger than in the CEECs, accounting for approximately 5% of manufacturing output in 1996. This represents a specialization in this sector for these countries, particularly pronounced in Poland, where the share size actually increased.

Currently however, 97% of the Romanian forest surface is administered by Romsilva RA, a state authority managing the public property forestry fund. Only 3% of the forest land is privately owned. See Anton, I., Cimpoeasu, M. (1998), page 31.

⁷ See Csóka, P. (1997), page 181.

⁸ According to Università' Commerciale Luigi Bocconi (1997), page 49, the lack of restructuring may pose a problem for future wood supply in Poland, and foreign investors might prefer other countries, which have better supply conditions. Swedwood, the wood and furniture division of the Swedish company Ikea, for example, already imports about 70% of its wood from the Baltic region, rather than Poland.

⁹ The evolution of shares in total manufacturing depends on whether current or constant price data are used, as significant relative price changes took place after 1989. For this reason we refer here to calculations of constant 1996 prices, which allows us to focus on volume changes.

¹⁰ According to Naujoks, P., Schmidt, K. (1995), page 43, a substantial shift of outward processing of furniture occurred from Romania to Poland. In 1989, Romania was the main processor of furniture, whereas already in 1993 it was Poland. Hence, Romania's furniture exports declined drastically.

¹¹ The average share was 1.5% (current production data for 1996), including Denmark, Spain, France, Germany, Greece, Ireland, the Netherlands and the United Kingdom.

Table 2

**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

Note: 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.

Less growth than in total manufacturing since 1993 – wood and wood products have been most successful regionally in Poland and Hungary

During the first phase of transition, which lasted from 1989 to 1992, all CEECs experienced a severe transformational recession and production in the wood and wood products sector declined along with the larger economy. In Hungary and Poland however, the decline was significantly less than in total manufacturing, revealing an important 'winning' sector in these countries (see Table 4).¹² The relatively good performance in these countries in

¹² 'Winners' of transition are here defined as industries, that performed better than manufacturing as a whole in terms of production growth, 'losers' those which performed worse, see Urban, W. (1997), page 4. Indeed, in Hungary and Poland the wood and wood products sector was the second major winning sector in total manufacturing in this time period, only behind the rubber and plastic products sector.

comparison to total manufacturing is possibly due to the competitiveness of semi-finished goods on Western markets at the beginning of the transition.¹³ During the second period, from 1993 onwards, absolute growth of the wood and wood products sector improved generally but, when compared to total manufacturing, the situation deteriorated and the sector became a relatively strong 'loser' in all countries. This is in line with the adjustment to western levels mentioned above. It could also be caused by incomes that are still well below western levels, setting limits on furniture purchases and resulting in an under-proportionate growth in the construction industry, particularly for non-residential construction.¹⁴

The healthiest growth in the wood and wood products sector appeared in Poland and Hungary, where production had surpassed 1989 levels by 1997/1998 (see Table 4 and Figure 1). In both countries, this trend was supported by an increase of exports, especially in Poland (see Figure 4 below). It also reflects the development in total manufacturing, as well as in construction,¹⁵ where these two countries performed best in the region. In all other countries, however, the sector's production still remained below 1989 levels: In Slovenia, 1998 production reached only about 50% of the 1989 level, caused mainly by the dissolution of the former Yugoslav market. In the Czech and Slovak Republics, production in the wood and wood products sector hovered at about 50% and 40% of the 1989 levels, respectively, combined with stagnating productivity.¹⁶

¹³ See for example, the rise of export shares in Poland until 1994.

¹⁴ Including schools and universities, hospitals, office buildings, industrial buildings and other public and private non-residential buildings.

¹⁵ Between 1993 and 2000, construction output is expected to increase by 53% in Poland, 37% in Hungary, 7% in the Slovak Republic and 6% in the Czech Republic. The relatively worse development in the last two countries might be explained by problems in the availability of investment finance funds. See Hezký, J. (1999), page 7.

¹⁶ Delayed legislation on forest privatisation affecting the local supply of wood might have played a negative role as well.

Table 3

Wood and wood products				
Production shares (at constant prices 1996), in % Manufacturing = 100				
	1989	1992	1997	1998
Austria ¹⁾	5.8	6.5	5.0	.
Bulgaria	2.1	2.6	1.3	1.2
Czech Republic	1.9	1.9	1.5	1.4
Hungary	1.2	1.6	1.5	.
Poland	3.1	3.7	3.4	3.6
Romania	3.1	3.2	2.3	.
Slovak Republic	2.5	2.3	1.7	1.4
Slovenia	3.9	3.8	2.9	2.9

Notes: 1) 1989 and 1992 at 1993 prices.

Source: WIIW Industrial database

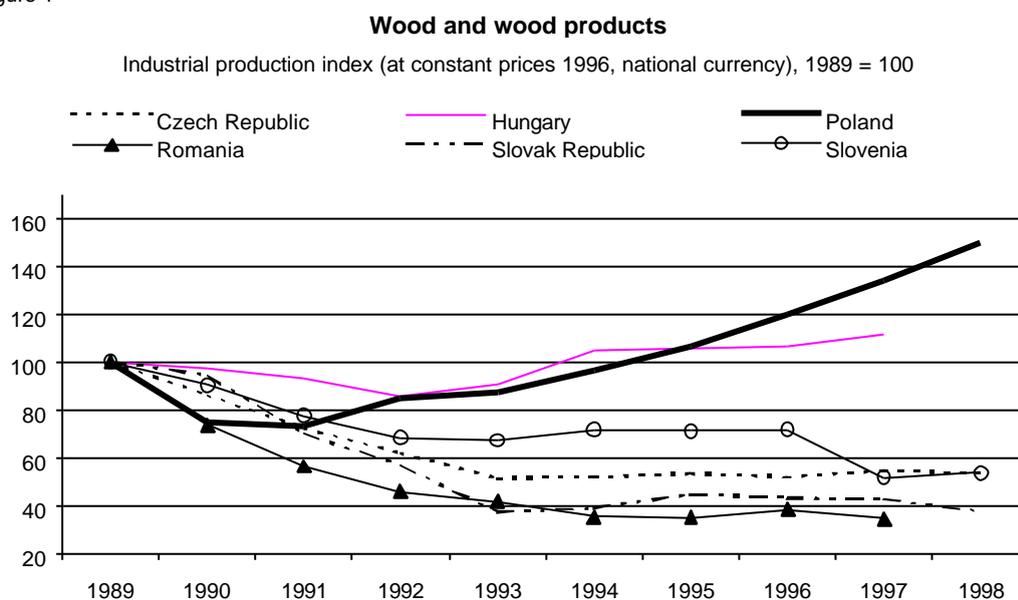
Table 4

Wood and wood products				
Production growth (at constant prices 1996)				
	Average annual changes in %		Relative to total manufacturing, Index 1998	
	1990-92	1993-97	1990-92	1993-97
Czech Republic	-14.8	-2.5	-0.6	-4.8
Hungary	-5.1 ¹⁾	5.4	9.9	-2.0
Poland	-5.6 ²⁾	9.8	5.6	-2.0
Romania	-23.0	-5.5	1.1	-6.8
Slovak Republic	-17.2	-5.7	-1.3	-6.3
Slovenia	-12.0	-5.3	-0.7	-5.5

Notes: 1) At constant prices 1992.- 2) 1990 growth rate at constant prices 1992.- 3) 1997.

Source: WIIW Industrial database.

Figure 1



Source: WIIW Industrial Database.

Labour intensity fostering employment

In total employment too, the wood and wood products sector is relatively small compared with other sectors of manufacturing and hence played only a minor role: In 1997, shares ranged from 2% in Bulgaria and Hungary to about 5% in Slovenia. During the transition, employment was over-proportionately reduced in all countries, so that by 1997

Table 5

Wood and wood productsEmployment shares, in %
Manufacturing = 100

	1989	1992	1996	1997
EU-North	.	4.1	.	.
EU-South	.	4.9	.	.
Austria	7.4	8.3	6.0	6.2
Bulgaria	3.4	3.6	2.3	2.3
Czech Republic	2.0	1.8	1.9	2.8 ¹⁾
Hungary	3.4	2.6	2.5	2.4
Poland	5.0	3.5	4.1	4.1
Romania	.	3.2	3.1	3.4
Slovak Republic	.	3.5	3.3	3.2
Slovenia	4.9	4.8	5.0	4.9

Note: 1) Up to 1996 enterprises with 100 employees or more, 1997 enterprises with 20 employees or more.

Source: WIIW Industrial database.

Table 6

Wood and wood productsEmployment
thousand persons

	1989	1992	1996	1997	1997 1989=100
Bulgaria	48	32	17	17	.
Czech Republic	34	22	19	33 ¹⁾	97.4
Hungary	40	22	16	15	37.5
Poland	165	96	116	117	70.8
Romania	.	89	66	69	73.4 ²⁾
Slovak Republic	.	18	15	14	.
Slovenia	18	13	11	11	57.8

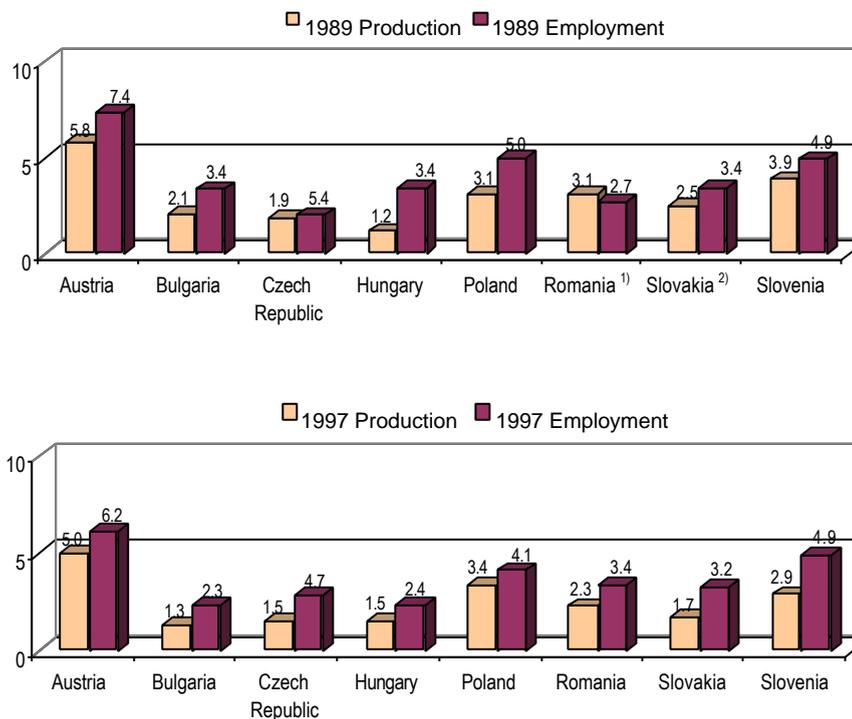
Notes: 1) Up to 1996 enterprises with 100 employees or more, 1997 enterprises with 20 employees or more.- 2) 1990=100.

Source: WIIW Industrial database.

Figure 2

Wood and wood products

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

employment shares were smaller than in 1989 in most CEECs (see Table 5 and Table 6).

Due to its labour intensity, the wood and wood products sector was more important in terms of employment than of production – in general, employment shares were some percentage points higher than production shares both in 1989 and 1997. Thus productivity of the sector was below the manufacturing average. By 1997, the gap had narrowed only in Bulgaria, Hungary and Poland (see Figure 2).

2 International competitiveness

As is typical for all CEECs and all sectors of manufacturing, wages, productivity and unit labour costs in the wood and wood products sector were and still are much lower than in Western countries. In 1997, nominal wage rates (per employee) in the wood and wood products sector, for example, hovered around 10% of the Austrian level in the Czech and Slovak Republics, Hungary and Poland, while they reached only 3% in Bulgaria and Romania, but about 30% in Slovenia (see Figure 3). Productivity levels measured 50% of the Austrian level in most countries, but stayed below this value in the Slovak Republic, Romania and especially Bulgaria.¹⁷ Unit labour costs were hence also lowest in Bulgaria and Romania, with about 10% of the Austrian level. In the Czech Republic,¹⁸ Hungary and Poland they were around 20%, in the Slovak Republic about 30%. Only in Slovenia were unit labour costs in the wood and wood products sector relatively high, measuring 60% of the Austrian level.¹⁹

During the transition, wages in the wood and wood products sector grew throughout the region: Between 1993 and 1997, annual average growth rates of wages in this sector were lowest in Hungary and highest in the Czech and Slovak Republics (see Table 7). While productivity increased in Hungary, Poland and Slovenia,²⁰ it almost stagnated in the Czech and Slovak Republics and Romania. In Hungary, alone, the increase in productivity was higher than the wage increase, so that unit costs declined, while in the other countries, unit labour costs increased (see also Figure 3).

Compared with the manufacturing average (=100%), wages in the wood and wood products sector were some percentage points lower in all countries in 1997 while productivity of the sector lay several percentage points further below manufacturing.

¹⁷ For Romania, 1994-1996 productivity figures have to be interpreted carefully due to some statistical problems in the constant production data.

In the Czech Republic, the decline in 1997 productivity level and hence the surge in 1997 unit labour costs is due to a change in the statistical basis of employment data from companies with more than 100 employees to companies with more than 20 employees. It caused the recorded employment level to rise dramatically (see Table 5).

¹⁸ See footnote above.

¹⁹ 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.

²⁰ In Slovenia, the negative average growth rate between 1993 and 1997 is due to the enormous decline of 24% in 1997.

Hence, unit labour costs were mostly several percentage points above average, except in Poland, where unit labour costs hovered around the average (see also Table 8).

Table 7

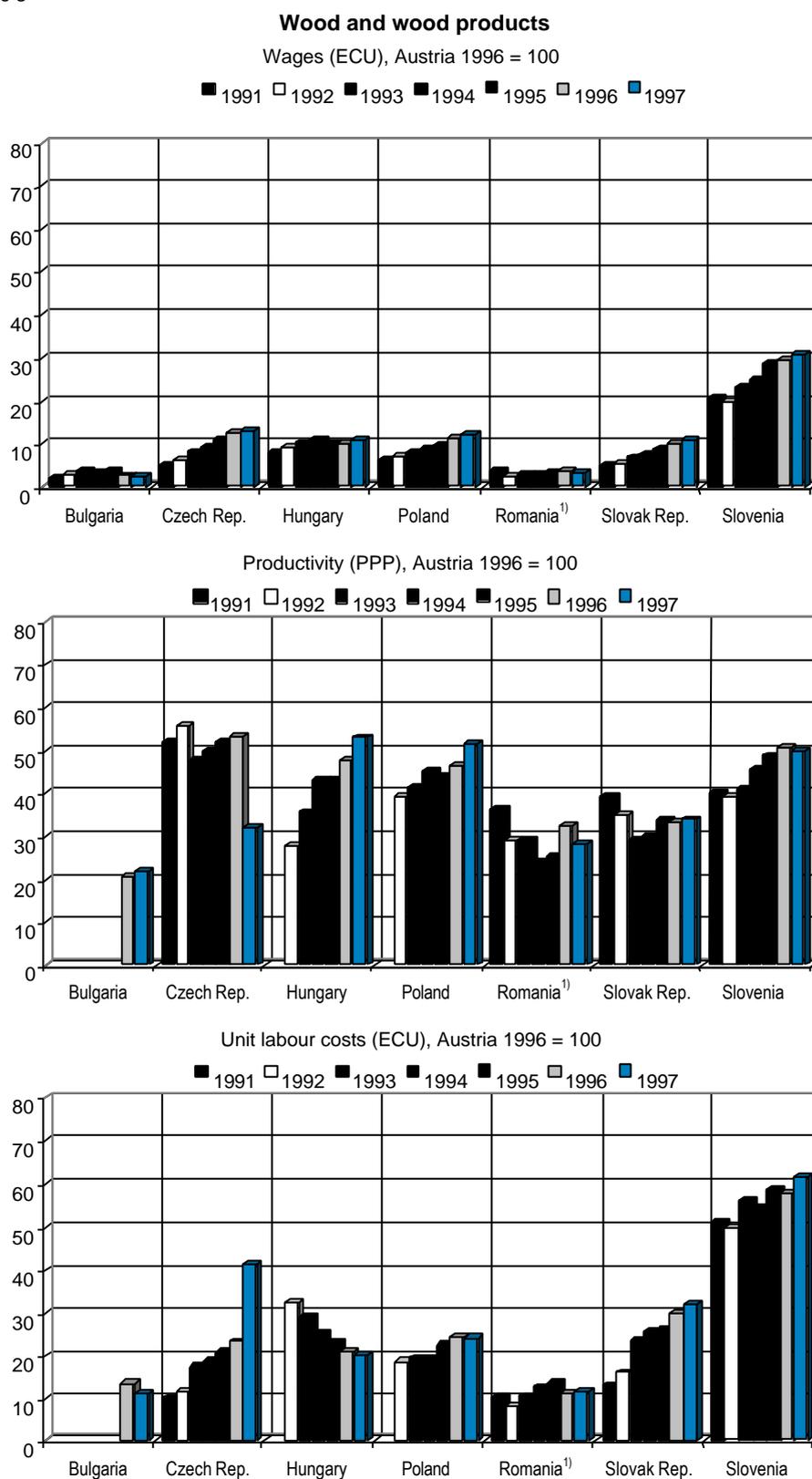
Wood and wood products
Average annual growth rates, 1993-1997
in %

	Output	Employment	Productivity	Exports to EU (ECU basis)	Wage rates (ECU basis)	Unit Labour Costs (ECU basis)
Czech Republic	-2.5	-3.1	0.3	18.2 ¹⁾	16.2	15.8
Hungary	5.4	-7.3	13.7	12.8	3.5	-9.0
Poland	9.8	4.0	5.5	13.2	11.2	5.4
Romania	-5.5	-5.0	-0.5	20.1	6.2	6.7
Slovak Republic	-5.7	-5.9	0.2	22.5 ¹⁾	14.5	14.2
Slovenia	-5.3	-5.0	-0.3	0.6 ¹⁾	9.4	9.7

Notes: 1) 1994-1997.

Source: WIIW Industrial database.

Figure 3



Notes: 1) Net wages; all other countries gross wages. 1994-1997 productivity figures for Romania must be interpreted carefully due to some statistical problems regarding production data at constant prices.
 Source: WIIW Industrial database

Table 8

Wood and wood products				
Unit Labour Costs (national currency)				
Manufacturing = 100				
	1992	1995	1996	1997
Bulgaria	113.4	124.1]	135.4	103.7
Czech Republic	89.4	104.9	109.1	162.8
Hungary	126.7	121.3	112.4	112.9
Poland	82.0	97.3	98.7	98.3
Romania	91.7	131.0	106.5	114.0
Slovak Republic	131.0	155.3	159.7	159.4
Slovenia	109.0	110.2	111.1	147.4

Source: WIIW Industrial database.

3 Trade performance with the EU²¹

Wood and wood products being export-oriented and a net-exporter

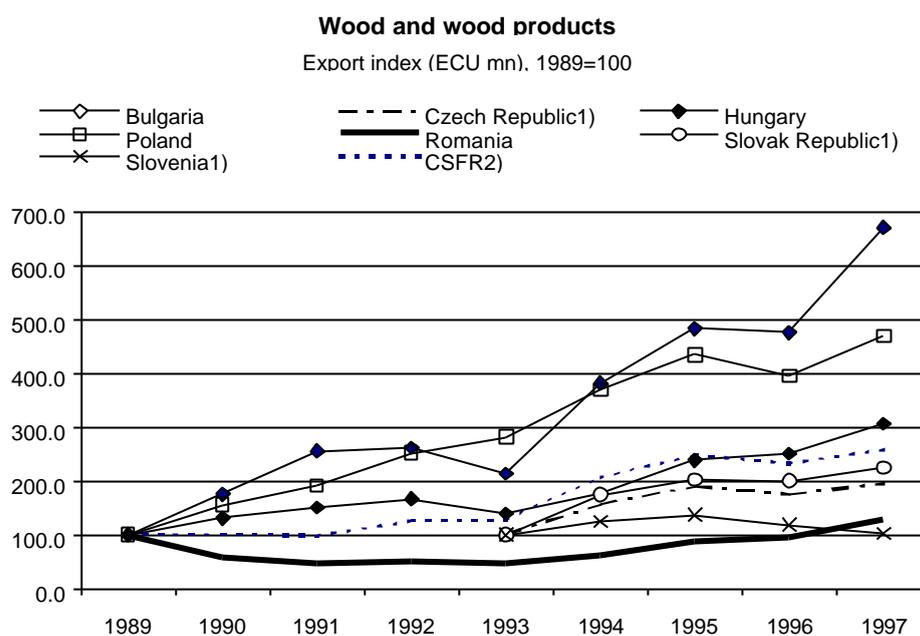
As an exporter to the EU, the wood and wood products sector plays only a minor role in total manufacturing due to its overall small size. However, when compared to its share in production, export shares were slightly larger in all CEECs, reflecting an export specialisation in this sector.²² In the region, Poland showed the highest share of wood and wood products exports in total manufacturing in 1997, with almost 6%. It was followed by Slovenia and the Czech Republic, with 4% and 3.5% respectively. In the Slovak Republic, Bulgaria and Romania the sector had a share of about 2.5%, while in Hungary it reached only 1.6% (see Appendix, Table A3 and Figure A1). Export shares were smaller in 1997 than in 1989 in most countries and declined from 1994 on, mainly because of slower growth than in other sectors. Only in Bulgaria and Poland were shares slightly larger in 1997 over 1989. Here exports grew fastest and reached about 670% of the 1989 level in 1997 (in current ECUs) in Bulgaria (from a very low level) and almost 500% in Poland (see Figure 4).

Wood and wood products imports from the EU amounted to a very small share of imports from the EU: In 1997, the highest share was recorded in Slovenia, with the sector accounting for 1% of total manufacturing imports. In all other countries, shares lay below one percent and remained mostly constant on the whole during transition (see Appendix, Figure A1).

²¹ 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%.

²² The relatively high export orientation in this sector can be seen in Hungary for example, where the share of total export sales (to the EU and all other countries) to total sales of wood and wood products was 39% in 1997 – compared to an industry average of about 49% however.

Figure 4



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 Republics added together.

Source: WIIW Industrial database

In absolute terms, higher exports than imports in the wood and wood products sector led to a sectoral trade surplus over the whole period from 1989 to 1997 in all CEECs. The surplus grew most in Poland and reached over ECU 500 mn in 1997, showing the importance of the sector as a net exporter. It was followed by the Czech Republic with ECU 250 mn, and Slovenia, with about ECU 100 mn. In the other countries the trade surplus ranged between ECU 30 mn and 90 mn (see Appendix, Figure A1).

Changing export and import structures

At a more detailed three-digit NACE-level,²³ exports of the CEECs' wood and wood products sectors were mostly concentrated on 'sawing and processing of wood' at the beginning of the transition in 1989 – reaching the highest shares in the former Czechoslovakia and Poland, with 75% and 61% of the total sector's exports. Exports of 'semi-finished products' and 'other wood manufactures' followed, but with smaller shares. Slovenia was an exception, in that it concentrated on 'carpentry and joinery components', which made up 57% of exports (in 1993). By 1997, all countries exported products mainly from four sub-branches: 'sawing and processing of wood', 'semi-finished products' and 'other wood manufactures', including wood-wool, and a new emphasis on 'carpentry and

²³ NACE 1970 classification, codes 461-465.

joinery components', including parquet floor blocks. Only in Bulgaria was there an observable concentration in the first two sub-branches of 41% and 44% (see Table 9).

On the import side, imports of 'articles of cork, straw and other plaiting materials' played a principle role in all countries in 1989, with the heaviest concentration being on this sub-branch in Bulgaria (83%), Romania (64%) and Hungary (49%), while concentration was on 'semi-finished wood products' in Slovenia (56%), Slovakia (47%) and the Czech Republic (36%) in 1993. In Poland, 'other wood manufactures' played the most important role, with 29% of all the sector's imports. By 1997, the largest share of imports was generally reached by 'semi-finished wood products', while Bulgarian imports were still concentrated on 'articles of cork, straw and other plaiting materials' (73%).²⁴

Table 9

Detailed export structure of the wood and wood products sector, 1993 and 1997, in %

1993	Czech				Slovak			
	Bulgaria	Republic	Hungary	Poland	Romania	Republic	Slovenia	
461 Sawing and processing of wood	36.0	33.9	30.6	36.6	17.4	41.4	17.1	
462 Manufacture of semi-finished wood products	40.1	11.3	13.6	11.5	21.9	19.4	15.1	
463 Manuf.of carpentry and joinery components	3.0	27.4	27.9	11.2	11.2	27.5	57.0	
464 Manufacture of wooden containers	4.9	3.3	1.6	1.7	6.6	0.9	0.3	
465 Other wood manufactures (except furniture)	13.0	20.7	17.9	35.8	18.2	9.8	10.3	
466 Manuf.of art.of cork,straw,oth.plaiting materials	3.0	3.5	8.4	3.2	24.6	1.1	0.2	
DD Wood and wood products	100.0							
467 Wooden furniture ¹⁾	81.3	66.8	115.4	105.4	646.7	93.3	93.5	
1997								
461 Sawing and processing of wood	41.0	36.2	26.0	20.2	31.5	48.3	20.3	
462 Manufacture of semi-finished wood products	44.4	13.9	18.2	11.8	11.2	15.2	16.9	
463 Manuf.of carpentry and joinery components	1.5	23.8	30.6	21.5	25.5	20.8	47.2	
464 Manufacture of wooden containers	1.8	3.3	3.3	1.8	1.6	2.4	0.2	
465 Other wood manufactures (except furniture)	9.9	18.6	17.4	42.0	23.5	12.5	15.0	
466 Manuf.of art.of cork,straw,oth.plaiting materials	1.3	4.2	4.5	2.8	6.6	0.8	0.3	
DD Wood and wood products	100.0							
467 Wooden furniture ¹⁾	33.6	40.0	49.1	112.3	281.9	70.6	74.0	

Note: 1) Wood and wood products = 100.

Source: WIW database.

²⁴ In the other countries, imports also came from 'carpentry and joinery components', 'other wood manufactures' and 'articles of cork, straw and other plaiting materials'.

Price increase reflecting quality improvement

In 1989, the export unit values of wood and wood products from the CEECs to the EU were significantly lower than that of total EU imports of wood and wood products.²⁵ The comparatively highest value was reached by Romania and Slovenia in that year. Quality (as measured by export unit values) improved slightly during transition, except in Poland, and a more diversified picture emerged until 1996. Slovenian exports were able to catch up to average EU import-quality standards by 1993 already, pointing to *quality*

Table 10

		Wood and wood products							
		Price/quality gap indicator ¹⁾							
		Average import quality = 1 ²⁾							
			Czech Bulgaria Republic ³⁾	Hungary	Poland	Romania	Slovak Republic	Slovenia ⁴⁾	
20.1	Sawmilling & planing of wood, impregnation	1996	0.634	0.700	0.726	0.754	1.025	0.747	0.866
20.2	Veneer sheets, plywood, laminboard, particle board, fibre board & other	1996	0.810	0.725	0.878	0.998	0.790	1.029	0.895
20.3	Builders' carpentry and joinery	1996	0.649	0.826	0.962	0.675	0.640	0.771	1.214
20.4	Wooden containers	1996	0.359	0.666	0.601	0.633	0.404	0.676	1.340
20.5	Other products of wood; articles of cork, straw and plaiting materials	1996	0.633	0.799	0.739	0.534	0.720	0.939	1.843
Wood and wood products⁵⁾		1989	0.633	0.617	0.645	0.679	0.741	.	0.733
		1993	0.575	0.659	0.775	0.581	0.727	0.763	1.029
		1995	0.674	0.712	0.833	0.661	0.747	0.749	1.107
		1996	0.708	0.740	0.828	0.679	0.801	0.806	1.167

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

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

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

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

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

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

where I(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.

²⁵ This is reflected in a price/quality gap indicator less than 1, see Table 10. See also Landesmann, M., Burgstaller, J. (1997) and Landesmann, M., Burgstaller, J. (1999).

competitiveness, while in the other countries export unit values lay still below the EU average import unit values, implying *price competitiveness*. By 1997, export unit values were relatively close to average EU imports in Hungary, Slovakia and Romania, and somewhat below in the Czech Republic, Bulgaria and Poland. They differed slightly across sub-branches of the wood and wood products sector (see Table 10).

Significant exporter to the European market – especially to Austria

In 1989, CEECs(6)²⁶ wood and wood products exports to the EU(12) had a market share of 4% which increased to about 10% in 1997 (all shares without intra-EU trade). Although shares decreased slightly in the last few years, wood and wood products had a significant position on the European market – shares were already above the CEEC shares in total manufacturing by 1989, measuring 3% in that year and increasing to 7% in 1997. The sector has a significant position in EU imports, similar to the important export sectors of textile and textile products or basic metals.²⁷ The most important wood and wood products exporting country in 1997 was Poland, with 5% of the EU import market, followed by the Czech Republic, with almost 3%. Slovenian and Hungarian exports still reached a 1% market share, while Romanian, Slovakian and Bulgarian exports remained below 1% (see Table 11).

Exports from the CEECs(7)²⁸ to Austria, accounted for an enormously larger share than on the EU(12) market, reaching 64% of Austria's imports of non EU wood and wood products (world-wide imports from outside the EU)²⁹ in 1995 and climbing to 70% in 1997. In 1997, the largest exporters of wood and wood products to Austria was the Czech Republic, with a market share of 30%, followed by Slovenia, with 17%. Hungarian, Slovakian and Polish wood and wood products reached somewhat smaller shares, with 8%, 7% and 4% respectively and Romanian and Bulgarian exports were comparatively small (see Table 12). In 1997, Czech wood and wood product exports mainly consisted of 'sawed and processed wood' (54%), 'carpentry and joinery components' (18%), 'other wood manufactures' (15%) and 'semi-finished wood products' (11%), whereas Slovenian exports concentrated on 'carpentry and joinery components' (nearly 80% of all its wood and wood exports to Austria).

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

²⁷ These reached an import share of 12% and 11% respectively on the EU market in 1996.

²⁸ CEEC(6) plus Slovenia.

²⁹ Keeping in mind, that the EU is still Austria's major importer, with about 62% of total imports in 1997.

Table 11

Wood and wood products										
Exports to the EU(12) in ECU mn, market shares in %										
	EU(12) extra-EU imports	Bulgaria		Czech Republic ¹⁾		Hungary		Poland		
		ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%	
1989	9991.0	6.4	0.06	163.1	1.63	47.6	0.48	144.9	1.45	
1992	10048.9	16.6	0.17	206.8	2.06	79.7	0.79	364.8	3.63	
1995	11563.5	30.7	0.27	332.3	2.87	113.4	0.98	630.1	5.45	
1996	11085.5	30.2	0.27	305.7	2.76	119.7	1.08	572.6	5.17	
1997	13237.4	42.6	0.32	340.1	2.57	145.7	1.10	679.3	5.13	
	Romania		Slovak Republic		Slovenia		CEEC(6) ²⁾		Total Manufacturing CEEC(6) ³⁾	
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%
1989	73.7	0.74	435.6	4.36	9303	2.76
1992	38.3	0.38	706.3	7.03	16736	4.43
1995	64.4	0.56	74.1	0.64	204.4	1.77	1244.9	10.77	30661	6.44
1996	69.4	0.63	73.0	0.66	177.2	1.60	1170.6	10.56	32301	6.52
1997	95.9	0.72	82.0	0.62	153.2	1.16	1385.6	10.47	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 12

Wood and wood products										
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	227.5 ¹⁾	0.7	0.30	63.4	27.86	19.5	8.56	15.5	6.81	
1996	305.7	0.5	0.17	98.7	32.27	26.7	8.74	15.5	5.08	
1997	356.6	0.9	0.26	107.7	30.20	28.9	8.10	15.7	4.41	
	Romania		Slovak Republic		Slovenia		CEEC(7) ²⁾		ECU mn	%
	ECU mn	%	ECU mn	%	ECU mn	%	ECU mn	%		
1995		4.0	1.74	14.2	6.23	28.6	12.57	145.8	64.07	
1996		5.7	1.88	20.4	6.66	39.7	12.98	207.2	67.78	
1997		7.0	1.97	26.4	7.41	59.9	16.80	246.6	69.16	

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 of wood and wood products in all CEECs

Revealed comparative advantage values (RCAs)³⁰ in relation to the EU were positive in all CEECs, indicating a positive trade balance in the wood and wood products sector (see Table 13). When compared to manufacturing as a whole,³¹ data showed an extraordinary comparative advantage for the sector in Poland, followed by the Czech Republic. In the

³⁰ Measured as $RCA_i = (exports_i - imports_i) / (exports_i + imports_i)$.

³¹ Measured as $RCA(\text{wood and wood products}) - RCA(\text{total manufacturing})$.

Slovak Republic, Romania and Slovenia, there was a slightly smaller but still pronounced advantage, which was followed by that in Hungary and Bulgaria (see Table 14). Within the wood and wood products sector, most sub-branches experienced a positive trade balance and there were only a few exceptions to this pattern, notably in 'articles of cork, straw and plaiting materials' in some countries due to the lack of natural resources. In most CEECs the best results were achieved in 'sawing and processing of wood', only in Poland 'other wood manufactures' and in Slovenia 'carpentry and joinery components' did better than the other sub-branches (see Table 15).

Table 13

Wood and wood products RCAs				
	1989	1992	1996	1997
Austria	0.54	0.54	0.37	0.41
Bulgaria	0.06	0.65	0.43	0.55
Czech Republic	.	.	0.63	0.59
Hungary	0.68	0.65	0.41	0.42
Poland	0.93	0.85	0.73	0.64
Romania	0.90	0.83	0.59	0.61
Slovak Republic	.	.	0.56	0.58
Slovenia	.	.	0.61	0.51
Greece	.	.	-0.84	-0.85
Portugal	.	.	0.58	0.56
Spain	.	.	-0.14	-0.15

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

Source: WIIW calculations.

Table 14

Relative position of wood and wood products RCAs				
	1989	1992	1996	1997
Austria	0.66	0.65	0.57	0.58
Bulgaria	0.60	0.78	0.42	0.46
Czech Republic	.	.	0.81	0.73
Hungary	0.78	0.67	0.46	0.48
Poland	1.01	0.93	0.95	0.91
Romania	0.44	0.90	0.66	0.64
Slovak Republic	.	.	0.63	0.65
Slovenia	.	.	0.68	0.61
Greece	.	.	-0.25	-0.25
Portugal	.	.	0.77	0.77
Spain	.	.	-0.02	-0.02

Measured as: $RCA(\text{wood and wood products sector}) - RCA(\text{total manufacturing})$.

Source: WIIW calculations.

Table 15

Detailed RCA structure of the wood and wood products sector, 1997

	Czech				Slovak			
	Bulgaria	Republic	Hungary	Poland	Romania	Republic	Slovenia	
461 Sawing and processing of wood	1.00	0.86	0.79	0.87	0.97	0.95	0.62	
462 Manufacture of semi-finished wood products	0.81	0.15	0.01	0.07	-0.10	0.03	0.05	
463 Manuf.of carpentry and joinery components	0.03	0.70	0.76	0.64	0.71	0.68	0.78	
464 Manufacture of wooden containers	0.42	0.78	0.56	0.78	0.87	0.79	-0.31	
465 Other wood manufactures (except furniture)	0.80	0.61	0.52	0.89	0.86	0.43	0.64	
466 Manuf.of art.of cork,straw,oth.plaiting materials	-0.88	0.06	-0.34	0.05	0.25	-0.44	-0.81	
DD Wood and wood products	0.55	0.59	0.42	0.64	0.61	0.58	0.51	
467 Wooden furniture	-0.02	0.38	0.18	0.81	0.84	0.45	-0.02	

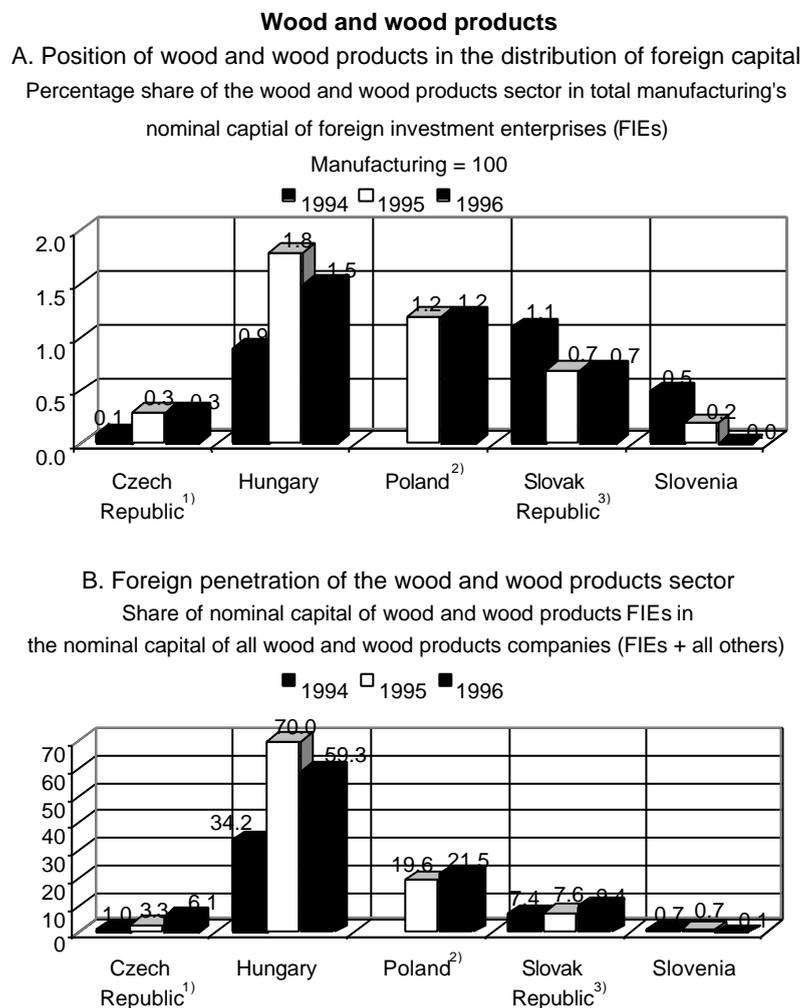
Notes: RCA measured as: $RCA_i = (exports_i - imports_i) / (exports_i + imports_i)$.

Source: WIIW database.

4 Foreign direct investment

The wood and wood products sector being relatively small, it was not a prominent target of foreign investment and - compared to its size - attracted an under-proportionate amount of foreign investment inflow. This is probably due to the enterprise structure of the sector, typically consisting of small and middle sized companies, which are usually not so keen to invest abroad. Foreign investors chose on the whole to establish joint ventures in the neighbourhood and played an important role as a provider for technology and personnel training. They were drawn primarily by the available resources and the access to new markets.³²

Figure 5



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

Source: WIIW database

³² Università' Commerciale Luigi Bocconi (1997), page 47.

The share of the wood and wood products sector in the distribution of the nominal capital of all foreign investment enterprises (FIEs)³³ in total manufacturing was very small in all CEECs and remained constant or fell from 1995 to 1996. In 1996, wood and wood products FIE's accounted for only 1.5% of total nominal capital of FIEs in Hungary. Although data for Poland are not perfectly comparable,³⁴ the wood and wood products sector there recorded only a 1.2% share of total nominal capital of FIEs, while for the Czech and Slovak Republics shares were below 1% and for Slovenia, it was a negligible amount approaching zero percent (see Figure 5A).

More important, foreign penetration of the wood and wood products sector (as measured by the share of the nominal capital of the sector's FIEs in the nominal capital of all wood and wood products companies) was below the average levels of foreign penetration for total manufacturing, except for Hungary in 1995. In 1996, foreign penetration in the region was highest in Hungary, with almost 60% of the nominal capital in the sector being that of FIEs, followed by Poland, with 22%. In the Slovak Republic foreign penetration reached 9%, in the Czech Republic 6% and in Slovenia only 0.1% (see Figure 5B).

5 Prospects

In summary, the Polish wood and wood products sector showed the most favourable overall development in the region. This is expressed in growing specialization in this sector, stable production growth rates over the last few years, high export growth, its improving position as a net exporter to the EU and its high comparative advantage. Although the wood and wood products sector is relatively small in Hungary, its development was also positive, supported by growing productivity, falling unit labour costs and the inflow of foreign investment.

In the other CEECs, the decline in production during the transformational recession from 1989 to about 1992 was not followed by an upswing since 1993 but rather by stagnation. In Slovenia, this development was connected with stagnation in exports and with the highest unit labour costs in the region. Yet, the wood and wood products sector holds an important position in the country, as a producer, as an employer, and also as a net exporter of relatively high quality products. In the Czech and Slovak Republics, growth was handicapped by rising wages and unit labour costs with no accompanying increase in productivity. However, the Czech wood and wood products sector is an important exporter to the EU, in particular to Austria and shows a high trade surplus and a high level of comparative advantage. Although wages and unit labour costs are comparatively very low in Bulgaria and Romania, production stagnated and exports to the EU increased only in Bulgaria.

³³ Firms with any share of foreign ownership, including minority stakes.

³⁴ Data for the Czech Republic, Hungary, the Slovak Republic and Slovenia come from Hunya, G. (1998), data for Poland from Zagozdzińska, I. (1998) and the Polish Statistical Yearbook of Industry (1997).

Short-term **future prospects** of the wood and wood products sector depend on the cyclical downstream sectors of furniture³⁵ and construction, the latter of which is particularly dependant on the overall domestic economic development. Forecasts for the construction sector predict future growth for Poland and Hungary of between 15% and 17% for the period 1998 to 2000, while at the same time a decrease of 1% to 3% for the Czech and Slovak Republics.³⁶ Forecasts for gross industrial production and gross domestic product (GDP) also imply better future prospects for the wood and wood products sector in Poland and Hungary, whilst slower growth is expected for the rest of the CEECs (see Table 16). On the European markets, export opportunities may exist due to lower prices, but could be constrained by slower growth in construction.

In the medium and long-run, however, recovery of the CEECs will possibly offer growth perspectives in the wood and wood products sector. The number of dwellings per inhabitants is still lower than in the West European countries³⁷, suggesting growth potential in the construction of housing and mixed use buildings, and the need for infrastructure in telecommunications or energy and water supply is high. As the general income level rises, demand for buildings and furniture will increase and positively affect the wood and wood products sector. Higher wealth and living standards may also raise environmental consciousness and the substitution of unhealthy, artificial materials by renewable wood products.

Table 16

Developments in GDP, gross industrial production and construction output and outlook
real change in % against preceding year

	Gross domestic product				Gross industrial production				Construction output ¹⁾			
	1997	1998	1999 forecast	2000 forecast	1997	1998	1999 forecast	2000 forecast	1997	1998	1999 forecast	2000 forecast
Czech Republic	1.0	-2.7	-1.5	2	4.5	1.6	0	3	-3.6	-6.4	-3.7	0.7
Hungary	4.4	5.1	3.7	4	11.1	12.6	8	10	6.0	4.0	8.0	8.0
Poland	6.8	4.8	3.5	4	11.5	4.8	6	6	12.2	9.0	6.5	7.8
Slovak Republic	6.5	4.4	0	-2	2.7	5.0	2	-1	8.4	-3.3	-9.3	9.2
Slovenia	4.6	3.9	2.5	3	1.0	3.7	1	2	.	.	.	.
Bulgaria	-7.0	3.5	-2	2	-10.0	-12.7	-6	3	.	.	.	.
Romania	-6.9	-7.3	-5	0	-7.2	-16.8	-6	0	.	.	.	.

Note: 1) Data from Hezký, J. (1999).

Source: WIIW (June 1999) and Hezký, J. (1999).

³⁵ The furniture industry also mainly depends on the development in construction.

³⁶ See Hezký, J. (1999), page 7.

³⁷ Hezký, J. (1999), page 10, shows that there are 1.72 dwellings per thousand inhabitants in the CEECs (Czech Republic, Hungary, Poland and Slovakia) as compared to 4.86 in Western Europe.

PART II: COMPANY PROFILES

This second part of the study sets out a more detailed micro-analysis of the wood and wood products sector³⁸ and contains the following data for each country, as available:

- Structure of the sector in detail (output, employment)
- Company analysis by company size and type
- Profitability
- Important domestic enterprises
- Major foreign direct investors

However, as the sector mainly contains small and medium-sized companies, information is difficult to access, in particular with respect to the latter two points. Therefore, the below-mentioned companies may sometimes represent only a selected glimpse into the company sphere.

Bulgaria

At the end of 1997, there were about 3,800 enterprises in the Bulgarian wood and wood products sector, accounting for 8% of all manufacturing enterprises. Important companies in the Bulgarian wood and wood products sector, ranked by 1998 net sales, thereby include:³⁹

- Lesoplast, Troyan: The company reported net sales of 32 mn Bulgarian Lev (BGL) and employed 950 persons in 1998 (see also below).
- Fazerles, Silistra: The company reported net sales of BGL 15 mn and employed 430 persons in 1998.
- Darvoobrabotvane-VT, Veliko Tarnovo: The company reported net sales of BGL 7 mn and employed 400 persons in 1998.
- Swedish match Plam – Bulgaria, Kostenetz: The company reported net sales of BGL 5 mn and employed 300 persons in 1998.
- Sokola, Peshtera: The company reported net sales of BGL 5 mn and employed approximately 200 persons in 1998.
- Ticha-Dolni Chiflik, Dolni Chiflik: The company reported net sales of BGL 2 mn and employed almost 500 persons in 1998.
- Gabrovnitza, Gorno Sahrane: The company reported net sales of BGL 2 mn and employed over 300 persons in 1998.
- Slivnitza-1968, Slivnitza: The company reported net sales of BGL 2 mn and employed about 250 persons in 1998.
- Elitza-Berkovitza, Berkovitza: The company reported net sales of BGL 1 mn in 1998.
- Kapitan Voynovski, Tcherni Vit: The company reported net sales of almost BGL 1 mn.

³⁸ Not meant to cover furniture production. If otherwise, it is mentioned explicitly, as in the case of Slovenia.

³⁹ According to the Bulgarian Enterprises Information System (<http://www.bic.bia-bg.com/finamrket/erezbeis.html>) read on September 20, 1999.

In 1998, the total number of enterprises ready for privatisation in the wood and wood products sector included approximately ten medium-sized companies, employing between 30 and 160 persons. In 1999, only three small companies were ready for privatisation, with 3 to 24 employees.⁴⁰

- Orfino, SP Ltd. Co.: The company's main products are softwood boards, it employs 24 persons and has a turnover of BGL 81 mn annually.
- Chadom, SP JSCo.: The company produces sawn timber, plywood, wood containers and furniture, employs 3 persons and has a turnover of BGL 67 mn.
- Izkustvo, SP Ltd. Co.: The company mainly fabricates furniture but also has a line of wood products. Izkustvo has 6 employees and a turnover of BGL 39 mn.

Foreign investors in the sector include:⁴¹

- Gibu, Ltd., Italy: In September 1994, the Italian company acquired 80% of the Bulgarian Eskos Dograma company, which produces wood window- and door-frames, furniture panels and other wood products.
- Evrotech Ltd., USA-Bulgaria: In November 1995, the company acquired 67% of Pirinska Mura.
- Kaindl/Kronospan, Austria: In May 1997, the company acquired a 51% stake in the local timber manufacturer Bules in Bourgas, which produces sawn timber, wood products, veneers and furniture. At that time Bules employed about 940 persons, which increased to slightly more than 1,100 employees in 1998.
- Welde GmbH, Austria: In July 1997, the Austrian company acquired a minority stake of 24% in the Bulgarian Lesoplast company, which produces hard and varnished wood-tread-like plates, plywood, plain sawing materials and packaging. The remaining 67% of stocks were sold through a mass privatisation scheme. In 1996, Lesoplast recorded a turnover of USD 3.3 mn, with 66% of its production exported.

Czech Republic

In total receipts of sales of own products, the 'wood-based panels, plywood and veneer sheets' sub-branch had the largest share in the Czech wood and wood products sector in 1997, followed by 'saw milling and planing of wood and impregnation'. For the most part privatisation of the sector has been completed, with the exception of the Research and Development Institute of the Wood Processing Industry in Prague and the unit Ergos in Brno. Since 1994, enterprises have faced financial difficulties and increased their outstanding debt to timber exporters. But instead of upgrading the level of processing, output and exports of sawn wood have been increased. The inflow of foreign investment into the sector is generally low. High costs and low yields as well as high energy intensity

⁴⁰ See 'List of hot projects or enterprises ready for privatisation' on the Bulgarian Ministry of Industry Internet-Homepage (<http://www.nacid.nat.bg/micpwo.htm>) read on September 1, 1999.

⁴¹ 'List of privatizations with foreign participation', concluded in the period 1993 to June 30, 1999. See Privatization-Agency Bulgaria Internet-Homepage (<http://privatisation.online.bg>) read on September 1, 1999.

are plaguing a lot of enterprises, which still have to fulfil EU standards and environmental requirements.⁴²

Selected domestic enterprises and foreign investors in the Czech wood and wood products sector include:

- Lesní Společnost Jihomoravské Lesy, a.s.: Founded in 1992, the company's main activity is forestry products. In 1997, it reported revenues of 1 bn Czech Koruna (CZK) and employed over 2,100 persons. Ownership of the company is held by Bioce and Forestinvest.
- Kronospan, Austria: In 1995, the company acquired the largest Czech chipboard producer Drevarské Závody Jihlava, now called Kronospan CR, Spol.s.r.o., in Jihlava.
- Afrifina, Belgium: The wood-processing company set up a green-field project in Nymburk in December 1995, investing about USD 23 mn.
- Schweighofer, Austria: The largest family owned sawmill in Europe has been active in the Czech Republic since 1995 and has two plants there. It acquired the largest Czech sawmill in Zdirec then and bought the sawmill Plana in 1997.⁴³

Hungary

In 1997, output of the relatively small Hungarian wood and wood products sector (1.5% of total manufacturing) consisted of 'other products of wood' and 'sawn timber, veneer sheets and plywood', with 51% and 49% respectively. The largest sub-branches were 'builders' carpentry and joinery', accounting for one third of the sector's output, followed by 'veneer sheets and plywood' and 'sawn articles', with 29% and 20%. 'Made-up products of wood' were also relatively important and held a share of 11% (see Table 17).

The export orientation of the Hungarian wood and wood products sector was relatively strong, with about 39% of total sales exported as compared to 49% in total manufacturing. Sub-branches with an above average export-ratio included 'builders' carpentry and joinery' and 'made-up products of wood', while 'wooden containers' and 'articles of cork, straw and plaiting materials' showed a below average export-ratio (see Table 17).

In 1997, about 1,400 companies with legal entity were in the wood and wood products sector, representing about 6% of all manufacturing corporations in Hungary. In size, small companies with less than 11 employees prevailed, accounting for 73% of all companies. About 26% of all companies had between 11 and 300 employees and only 1% had more

⁴² See Manufacture of Wood and Products of Wood and Cork, excluding Furniture on the Internet Homepage of the Czech Ministry for Industry and Trade (<http://www.mpo.cz/english/p/20a.htm>) read on September 7, 1999.

⁴³ See also Schweighofer Internet-Homepage (<http://www.schweighofer.at>) read on September 6, 1999.

Table 17

Hungary: Gross output, total sales and export sales in the wood and wood products sector

	Gross output		Total sales 1997 HUF mn	Export sales 1997 HUF mn	Export sales/ Total sales 1997 %
	1997 HUF mn	1997 %			
201 Sawn timber, veneer sheets and plywood	37839	48.6	37285	14301	38.4
2011 Sawn articles	15328	19.7	15065	5708	37.9
2012 Veneer sheets and plywood	22510	28.9	22220	8593	38.7
202 Other products of wood	40019	51.4	39782	15783	39.7
2021 Builders' carpentry and joinery	25962	33.3	25752	10959	42.6
2022 Wooden containers	5103	6.6	5159	1085	21.0
2023 Made-up products of wood	8796	11.3	8712	3704	42.5
2029 Articles of cork, straw and plaiting materials	158	0.2	158	36	22.8
DD Wood and wood products	77858	100.0	77067	30084	39.0
361 Furniture	43153	55.4	42962	18617	43.3

Notes: Hungarian Classification.

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

than 300. In terms of legal form, 94% of all active corporations in the sector were private limited-liability companies (1,300 firms) and 1% public limited-liability companies (20 firms). In addition, approximately 1,200 unincorporated businesses (without legal entity) existed in the wood and wood products sector, which accounted for 7% of all unincorporated manufacturing businesses. The number of sole proprietors reached 6,600 in 1997, making up 13% of all manufacturing sole proprietors.

Overall, the wood and wood products sector belonged to the sectors of manufacturing with the smallest gross operating surplus in both 1995 and 1996. It reached only about 7 bn Hungarian Forint (HUF) in the latter year, accounting for 1% of total manufacturing surplus.

Selected domestic enterprises and foreign investors in the Hungarian wood and wood products sector include:

- Kecskemét Parquet Co. Ltd.: Once part of the Building Carpentry and Wood Processing Enterprise, Kecskemét Parquet was privatised in 1992 through an employee buyout and became a limited liability company. The transformational recession hit the company's major customers, particularly construction companies, Tüzép, a retailer for construction and fuel materials, and ÁFÉSZ, a customer co-operative. Hence, sluggish domestic demand caused a major shift to export markets. The company's product portfolio remained the same however, including products from semi-finished parquets to lacquered wood panels. Expansion of production is limited by a shortage of assets and suitable labour.⁴⁴
- Jazbar Spa, Italy: In 1992, the Italian company formed a joint venture with the Hungarian Hungarolegno company.

⁴⁴ Gács, J. (1996), page 117.

- Homogenholz, Austria: In 1995, the subsidiary of the Austrian Constantia Industrieholding acquired 51% of the Hungarian chipboard producer Falco, which is based in Szombathely. It promised to repay Falco's debt and to increase its foundation capital.⁴⁵

Poland

After the collapse of communism, the Polish wood and wood products sector profited from rapid growth in furniture production, which was not entirely state-owned in 1989 – only 65% was in state hands. Wood based panels especially experienced a rapid recovery from the transformational recession, as they are mainly sold to the furniture industry. Furniture production is very export-oriented and gained from a strong inflow of foreign direct investment from Germany.

Net profitability of the wood and wood products sector compared favourably to total manufacturing in 1995 and 1997, but did worse in 1996 and 1998. Investment growth rates were mostly better than in total manufacturing, especially in 1997, when they reached more than 190% in the sector (see Table 18).

Table 18

**Poland: Net profitability in the enterprise¹⁾ sector and
real growth rates of investment outlays, in %**

	Net profitability ²⁾				Investment growth			
	1995	1996	1997	1998	1995	1996	1997	1998
20 Wood products	3.3	1.7	2.9	0.5	40.6	4.3	193.4	63.0
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).

Important Polish companies in the wood and wood products sector, according to 1997 revenues, include:⁴⁶

- ZPW 'Prospan', Wieruszów (54): The company is located in the sub-branch of 'veneersheets, plywood and other boards', recorded revenues of 525 mn Polish Zloty (PLZ) and employed about 960 persons.
- 'Kronopol' Sp.z.o.o., Zary (76): The company is located in the sub-branch of 'veneersheets, plywood and other boards', recorded revenues of PLZ 407 mn and employed about 670 persons (see also below).

⁴⁵ Business Eastern Europe (1995), March 6.

⁴⁶ The number in brackets indicates the rank in the Lista 500 in Nowe Zycie Gospodarcze (1998), page 38.

- ZPW Grajewo SA, Grajewo (102): The company is located in the sub-branch of ‘veneers-sheets, plywood and other boards’, recorded revenues of PLZ 290 mn and employed 990 persons.
- Z-D Stolarki Budowlanej Wolomin SA, Wolomin (151): The company is located in the sub-branch of ‘builders’ carpentry and joinery’, recorded revenues of PLZ 207 mn and employed over 1,200 persons.
- ‘Stolbud’ SA, Włoszczowa (213): The company is located in the sub-branch of ‘builders’ carpentry and joinery’, recorded revenues of PLZ 145 mn and employed over 1,200 persons.
- ‘Stolbud’ SA, Sokółka (275): The company is located in the sub-branch of ‘builders’ carpentry and joinery’, recorded revenues of PLZ 109 mn and employed about 960 persons.
- Koszalinские Przed. Przem. Drzew. SA, Szczecinek (280): The company is located in the sub-branch of ‘sawmilling and planing of wood’, recorded revenues of PLZ 107 mn and employed over 1,100 persons.

Foreign investors in the wood and wood products sector include:⁴⁷

- Kronospan, Austria (39): As of December 1997, the group had invested USD 106 mn in the Polish furniture and wood production, one year later this sum had increased to USD 234, ranking it 25th in the new list then.⁴⁸ It still has further investment plans of USD 40 mn. By 1989, the group had already acquired a chipboard, melamine facing and etc. products plant in Szczecinek, now called Kronospan Sp.z.o.o.. The group also includes Kronopol Sp.z.o.o. (Żary), Melnox Sp.z.o.o. (Mielec), Krono-Wood Sp.z.o.o. (Mielec, wooden board plant) and Malta Poznan (paper).
- Steffen Pionki, Germany (373): The investment sum going into the wood sector and into furniture production amounted to USD 3.5 mn (Steffen Pionki Sp.z.o.o.).
- TLH, Austria (395): The company has invested USD 3 mn in the Polish wood industry and has plans for another USD 2 mn (TLH Polska Sp. z.o.o.).

Romania

The wood and wood products sector has faced a steady decline in efficiency in the last few years due to several negative factors. First, a decline in the domestic wood supply for industrial use led to a decrease in production capacities of the wood and wood products sector. Second, this trend was aggravated by a sharp increase of wood prices, an increase in raw wood exports and hence a decline in the resource base for the wood and wood products sector. Third, a main customer, the furniture industry, is still mostly state-owned

⁴⁷ The number in brackets indicates the rank in the List of Major Foreign Investors in Poland from PAIZ, according to the sum of foreign investment as of 31 December 1997. This includes equity, medium- and long-terms loans granted by foreign investors to companies established by them and the value of re-invested profits reduced by the dividend exported. Transactions above USD 1 mn are included only. The list includes 535 foreign investors. See PAIZ (1998).

⁴⁸ This list includes the largest 50 foreign investors. See PAIZ (1999).

and faces huge financial problems. The wood sector, however, is still regarded as viable but needs further improvement. New government measures for the wood sector and BIFE-TIMB, an international fair of the sector, may contribute to this goal.⁴⁹

Selected domestic enterprises and foreign investors in the Romanian wood and wood sector include:

- Inprelg: The wood-processing company went through a process of modernization in 1995, ordering veneer cutting and drying lines and a press line from Finland's Raute.⁵⁰
- International Bois Srl, Italy: In 1994, the Italian company formed a joint venture with the local wood enterprise Natural Est SA.
- Tenneco, USA: The company was said to be building a woodworking factory in Romania in 1996, in order to support its local forestry and lumber venture.⁵¹

Slovak Republic

In 1996, about 40% of the total output in the wood and wood products sector came from the 'sawmilling and planing of wood', followed by 'veneer sheets, plywood and boards', with almost 34%. The sub-branches 'builders' carpentry and joinery' and 'other wood products' accounted for 13% and 12% of the sector's output respectively, while 'wooden containers' had a share of only 2%. The structure regarding the number of employees was quite similar to that of output - the ranking of the sub-branches remained the same. However, 'veneer sheets, plywood and boards' had a somewhat smaller share of 28% of all sector's employees, while 'builders carpentry and joinery' had a larger share of 18%.⁵²

At the end of October 1998, about 920 companies were located in the wood and wood products sector, accounting for 10% of all manufacturing companies. Almost all (99%) were in the private sector, of which nearly 70% had less than 10 employees. Only two companies had more than 1000 employees.⁵³

Since 1995, losses before taxation in the wood and wood products sector increased from year to year. In 1997, it already amounted to 1.3 bn Slovak Koruna (SKK) and ranked the sector as the fourth largest loss maker in total manufacturing in that year.

Important wood companies in Slovakia ranked by 1997 (individual) net revenues and foreign investors include:⁵⁴

⁴⁹ Romanian Economic Daily (1999), September 3-5.

⁵⁰ Business Eastern Europe (1995), August 28, page 11.

⁵¹ Business Eastern Europe (1996), June 10, page 11.

⁵² Covering 121 enterprises with more than 25 employees (half of them in 'sawmilling and planing of wood', 21% in 'builders carpentry and joinery', 17% in 'other wood products', 10% in 'veneer sheets, plywood and boards', and 3% in 'wooden containers'). Data from UNIDO (1999).

⁵³ Slovak Statistical Office (1998), page 27.

⁵⁴ Trend Top' 98 (1998), page 11.

- Bucina, a.s., Zvolen: The largest Slovakian wood processing company recorded net revenues of SKK 1.6 bn in 1997 and employed 1,820 persons. Expansion and reorganization of the company followed with the quality improvement of production. The company also expands abroad.⁵⁵
- Stredoslovenské Lesy, š.p., Banská Bystrica: The wood-cutting company recorded net revenues of SKK 1.5 bn in 1997 and employed about 5,140 persons, hence it belongs to the largest employers in Slovakia.
- Kronospan, Austria: In 1997, the company acquired an existing chipboard manufacturing plant in Prešov.

Slovenia

Wood-processing (including furniture) has a long tradition in production and exports in Slovenia. It experienced its heydays in the early 1980s when it recorded similar trends as the entire Slovenian economy, but has faced a steady decline since then. At the beginning of 1990, this has been aggravated by the dissolution of the former Yugoslav market. Structural adjustment followed, including the successful reorganization of former large companies and the change from mass production to small-batch and made-to-order production. Today the Slovenian wood-processing can be characterised as an extremely export-oriented sector, which is mostly operating at a loss due to high interest payments, caused by an above-average indebtedness level.

In 1997, the largest income share in wood-processing - besides furniture - was generated by 'builders joinery', followed by 'sawn goods' and 'veneers and boards'. The sub-branches of 'packaging' and 'other products' were relatively small (see Table 19). Employment shares were very similar and only larger than income shares for 'builders joinery' and 'sawn goods'. On the whole, income per employee was 30% lower in the sector (7.8 mn SIT) compared to total manufacturing (10.9 mn Slovenian Tolar SIT) and recorded the highest level in 'packaging'.

The *wood and wood products sector* recorded some 470 commercial companies in 1997, accounting for approximately 7.6% of total manufacturing enterprises. It mainly consisted of small companies, averaging 4 employees, which accounted for 89% of the sector's enterprises, while medium-sized firms, averaging 78 employees, accounted for 6%, and large companies, averaging some 280 employees, represented about 5% (see Table 20). Most companies were recorded in 'sawmilling', followed by 'builder's joinery' and 'other products of wood'.

⁵⁵ See also Bucina Internet-Homepage (<http://www.bucina.sk>) read on September 1, 1999.

Table 19

**Slovenia: Structure of income and employment in wood processing
according to production types, 1997**

	Income structure in %	Employment structure in %	Income per employee in 1000 SIT
Sawn goods	10.8	11.3	7487
Veneers and boards	10.3	9.0	8965
Builders' joinery	28.0	29.1	7537
Packaging	1.4	1.2	9139
Other products	2.8	2.5	8773
Furniture	46.7	46.9	7800
Total	100.0	100.0	7833
<i>Total, bn SIT, persons</i>	<i>156.9</i>	<i>20,030</i>	

Source: Chamber of Commerce and Industry of Slovenia (1998), page 4.

Table 20

**Slovenia: Number and size of commercial companies
in the wood and wood products sector, 1997**

	Number of companies				Average number of employees			
	total	small	medium	large	total	Small	medium	large
20.1 Sawmilling and planing of wood, impregnation	180	166	10	4	12.6	4.6	77.7	179.8
20.2 Veneer sheets and plywood	22	13	2	7	81.7	15.2	109.0	197.4
20.3 Builders' carpentry and joinery	127	102	13	12	45.9	4.2	75.6	368.4
20.4 Wooden containers	38	37	1	0	6.3	5.2	50.0	0.0
20.5 Other products of wood; articles of cork straw and plaining materials	101	98	2	1	5.0	1.9	75.0	171.0
DD Wood and wood products	468	416	28	24	22.7	4.2	77.8	278.9
36.1 Furniture	329	274	38	17	28.6	5.0	96.4	257.7

Source: Chamber of Commerce and Industry of Slovenia (1998), page 6.

Important Slovenian wood and wood products companies, ranked by 1997 revenues, and foreign investors:⁵⁶

- Lip Lesna Industrija Bled, d.d.: Lip Bled reported revenues of SIT 6.4 bn in 1997 and employed about 900 persons. It produces mainly doors, furniture and construction plywood in one of its three factories for doors and frames, panelling and furniture and entrance doors. About 25% is sold on the Slovenian market, the remaining 75% go abroad to Western and Central Europe (former Yugoslavia).⁵⁷ LIP Bled reported a loss of SIT 13 mn in 1998.
- Inles, d.d.: Slovenia's largest producer and exporter of doors and windows reported revenues of SIT 5.5 bn in 1997 and employed about 700 persons. It's secondary activity

⁵⁶ Slovenian Business Report (1998), Fall and Slovenian Business Report (1998), Winter, page 50.

⁵⁷ See Internet Homepage (<http://www.randburg.com/si/lip.html>) read on July 20, 1999.

includes the production of other wood products and architectural and engineering activities. Over 80% of production is exported. Inles reported a loss of SIT 500 mn in 1998 and has huge debts.

- Jelovica d.d.: Based in Škofja Loka, Jelovica produces building joinery, including windows, shutters and doors as well as prefabricated houses. It employs about 800 people and exports more than half of its production (54%).⁵⁸
- Novoles Lesna Industrija Straža, d.d.: The company reported revenues of SIT 4 bn and employed about 700 persons. It mainly produces furniture, but also has lines of veneer sheets, other boards and panels, chairs and seats and sawmilling as secondary activities. The share of exports reached 60% to 80%.
- Kli Logatec, d.d.: Kli Logatec reported revenues of SIT 3.8 bn and employed more than 500 persons. It produces doors and windows (in both wood and plastic) as well as chairs and dining-room suites. Over 80% of sales are exports to the US, Austria, Germany and other West European countries.⁵⁹
- Marles Hiše, d.o.o.: Marles Hiše reported revenues of SIT 3.7 bn and employed about 470 persons. Its main activity is the production of builders' carpentry and joinery, of which 80% and more is exported.
- Seva, d.d.: Seva is Slovenia's largest kitchen furniture manufacturer but also counts sawmilling and planing of wood to its secondary activities. It employs about 260 persons and exports 20% to 40% of its products.
- Javor Pivka, d.d.: Javor Pivka produces plywood, all kinds of panels, veneer sheets, furniture, pallets and woodworking machines. It employs 1,200 people and consists of 11 dependent companies, of which 7 are production units. Up to 90% of production is earmarked for export markets.⁶⁰ In 1998, Javor Pivka was the 45th largest Slovenian exporter, with SIT 5 bn of exports, ranking even before LIP Bled (46th) and Inles (51st). The wood company reported net profits of SIT 18 mn in 1998, the company's second year in the black.
- Ilcam Legno Spa, Italy: In 1993, the Italian company formed a joint venture with Ilcam-Meblo d.o.o..

Conclusions for Part II

- * Production structure and concentration within the wood and wood products sector differs across the region. A higher level of processing - meaning higher value added products - is represented by the 'builder's carpentry and joinery' sub-branch. Only Slovenia has a significant concentration on this branch (see also Table 19), while in Hungary and Poland 'builder's carpentry' and 'veneer sheets and board' are important (see also Table 17). The Czech and Slovak Republics concentrate on a relatively low

⁵⁸ See Internet Homepage (<http://www.randburg.com/si/jelovica.html>) read on July 20, 1999.

⁵⁹ See Internet Homepage (<http://www.randburg.com/si/kli.html>) read on July 20, 1999.

⁶⁰ See Javor Pivka Internet Homepage (<http://www.javor-pivka.si>) read on July 20, 1999.

level of processing, i.e. 'veneer sheets and board' and 'sawmilling'. Production and export structures differ slightly.

- * Small companies constitute almost three quarters of all sector's enterprises.
- * Profits in the sector are small (Hungary) or even became negative (Slovakia, Czech Republic and Slovenia). In the latter two countries, enterprises are handicapped by a high level of indebtedness.
- * Austrian wood and wood products companies are very active in the region.

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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	35 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

Wood and wood products

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

	Czech Republic	Hungary	Poland	Romania	Slovak Republic	Slovenia
PPP for GDP (lower range)	41	21	24	12	32	62
PPP for fixed capital formation (upper range)	53	33	33	36	49	72

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

Source: WIIW

Table A3

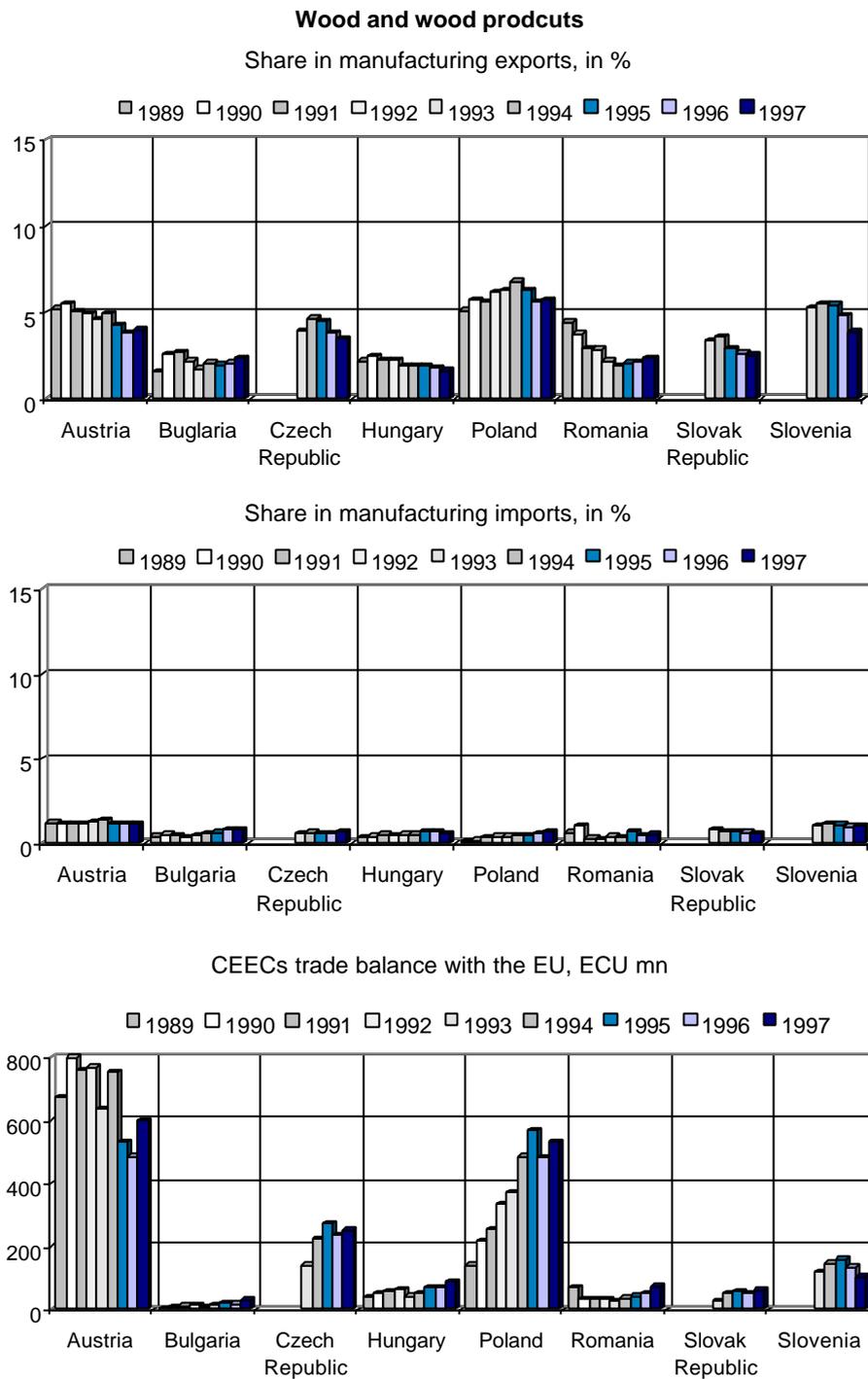
Exports of individual industries in total manufacturing exports to the EU, 1997, in %

	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 fuel ¹⁾							
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
D Transport equipment	0.5	13.7	21.6	10.8	2.1	19.5	18.3
M							
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 & nuclear fuels not termed manufacturing in the trade statistics.

Source: WIIW Industrial database

Figure A1



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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