Wood and paper

The Global Forest Resources Assessment (FRA 2005) of the FAO [(1)] estimates that the area of forests and wooded land in the EU-25 was 166 million hectares in 2005, representing 36 % of the EU-25's territory. Since 1990, the area of forests and wooded land in the EU-25 has increased by an average of about one million hectares a year, making it one of the few regions in the world where the area of forestry land has been increasing.

According to the European Commission, 80 % of wood used in the EU-25 industrial processing and energy sectors is supplied domestically, using only 65 % of annual forest wood growth. Nevertheless, according to the Confederation of European Paper Industries (CEPI) [(2)], access to affordable raw materials remains one of the key issues for European wood and paper enterprises, particularly in the first processing stages of the production chain. Some of this apparent paradox is explained by the increased use of forests for other functions (for carbon sequestration, for nature management and conservation, for recreation and for biomass in energy production), and may also be explained by changing global economic conditions (brought about by low cost competition and the issue of illegal logging). These issues of sustainability, the multifunctional role of forests and competitiveness are the focus of the June 2006 Communication of the European Commission [(3)] on an EU Forest Action Plan.

[(1)] Food and Agriculture Organization of the United Nations, http://www.fao.org/forestry
[(2)] Confederation of European Paper Industries (CEPI), http://www.cepi.org

[(3)] COM(2006) 302 final.

This chapter covers some of the so-called forest-based activities: more specifically the manufacture of wood and wood products (classified under NACE Division 20) and the manufacture of pulp, paper and paper products (found under NACE Division 21). The former includes all stages of wood processing that follow on from the activity of forestry, while the latter covers downstream activities that use by-products from the initial processing of wood. Together, these activities are referred to, hereafter, as the wood and paper manufacturing sector. It is important to underline that this sector does not include forestry activities, which are not covered within this publication.

NACE

- 20: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials;
- 20.1: sawmilling and planing of wood; impregnation of wood;
- 20.2: manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards;
- 20.3: manufacture of builders' carpentry and joinery;
- 20.4: manufacture of wooden containers;
- 20.5: manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials;
- 21: manufacture of pulp, paper and paper products;
- 21.1: manufacture of pulp, paper and paperboard;
- 21.2: manufacture of articles of paper and paperboard.

Table 4.1

Top ten enterprise (groups) in forest and paper activities, EU-25, 2005 (EUR million) (1)

		World ranking (sales)	Sales	Net income	Return on capital employed (%) (2)
Stora Enso	FI	3	13 188	-126	5.6
Svenska Cellulosa	SE	5	10 363	47	4.6
UPM	FI	7	9 348	261	6.8
Metsäliitto	FI	10	8 643	-50	0.4
Anglo American (Mondi)	UK	12	5 590	238	6.3
Smurfit Kappa	IE	17	4 213	-177	3.6
Sequana Capital	FR	18	4 067	356	1.4
DS Smith	UK	31	2 375	57	6.8
Cartiere Burgo	IT	34	2 202	69	1.7
Holmen	SE	41	1 754	135	5.3

(1) All figures reported for calendar year 2005, except DS Smith which is the year to 30 April 2005.
(2) Calculated as net income before unusual items, minority interest and interest expense, on an after-tax basis, divided by average total assets less average non-interest-bearing current liabilities.
Source: PricewaterhouseCoopers 2006 Global Forest and Paper Industry Survey, available at: http://www.pwc-global.com/forestry

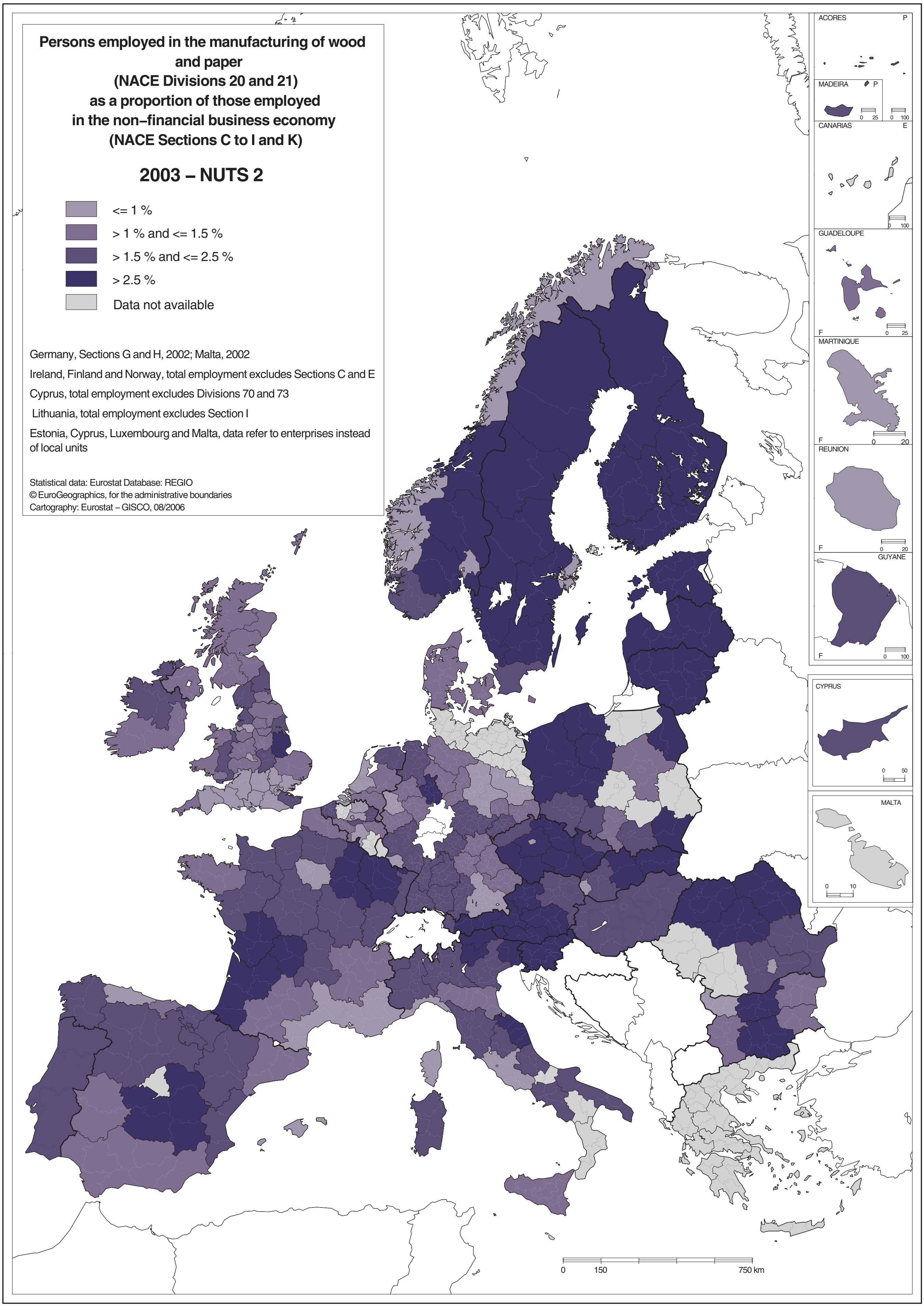

Persons employed in the manufacturing of wood and paper
(NACE Divisions 20 and 21)
as a proportion of those employed
in the non–financial business economy
(NACE Sections C to I and K)
2003 – NUTS 2
<= 1 %
> 1 % and <= 1.5 %
> 1.5 % and <= 2.5 %
> 2.5 %
Data not available
Germany, Sections G and H, 2002; Malta, 2002
Ireland, Finland and Norway, total employment excludes Sections C and E
Cyprus, total employment excludes Divisions 70 and 73
Lithuania, total employment excludes Section I
Estonia, Cyprus, Luxembourg and Malta, data refer to enterprises instead of local units
Statistical data: Eurostat Database: REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat – GISCO, 08/2006
ACORES
MADEIRA
CANARIAS
GUADELOUPE
MARTINIQUE
REUNION
GUYANE
CYPRUS
MALTA
0 150 750 km

Table 4.2

Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Structural profile, EU-25, 2003 (1)

	Value added (EUR million)	Share of industrial value added (%)	Number of persons employed (thousands)	Share of industrial employment (%)
Wood and wood products; pulp, paper and paper products	75 000	4.4	1 910	5.4
Wood and wood products	32 400	1.9	1 190	3.4
Pulp, paper and paper products	42 600	2.5	728	2.1

(1) Rounded estimates based on non-confidential data.
Source: Eurostat (SBS)

Table 4.3

Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Value added and employment: ranking of the top 5 Member States, 2003

Rank	Highest value added (EUR million) (1)	Share in EU-25 value added (%) (1)	Highest number of persons employed (thousands) (2)	Share in EU-25 employment (%) (2)	Highest share of national industrial value added (%) (3)	Highest share of national industrial employment (%) (4)
1	Germany (15 447.1)	20.6	Germany (307.1)	16.1	Latvia (17.5)	Latvia (19.2)
2	Italy (9 288.1)	12.4	Italy (259.6)	13.6	Finland (15.1)	Finland (15.0)
3	United Kingdom (8 677.9)	11.6	France (180.2)	9.4	Estonia (13.0)	Estonia (13.8)
4	France (8 294.7)	11.1	United Kingdom (173.4)	9.1	Sweden (12.9)	Lithuania (10.4)
5	Sweden (6 302.2)	8	Poland (168.2)	8.8	Austria (7.8)	Sweden (10.3)

(1) Luxembourg and Sweden, 2002; Greece and Malta, not available.
(2) Sweden, provisional; Luxembourg, 2002; Greece and Malta, not available.
(3) Luxembourg and Sweden, 2002; Greece, Ireland and Malta, not available.
(4) Sweden, provisional; Luxembourg, 2002; Greece, Ireland and Malta, not available.
Source: Eurostat (SBS)

The pulp, paper and paper products subsector is dominated by multinational corporations, particularly from the Nordic Member States and North America (see Table 4.1 for the ranking of the largest enterprise (groups) in the EU's forest-based activities). Consolidation within this sector in Europe continued in 2005 with a merger between Jefferson Smurfit (Ireland) and Kappa Packaging (the Netherlands). In contrast, the wood and wood products subsector is characterised as predominantly private-owned, with relatively small-scale enterprises scattered across local or national markets.

STRUCTURAL PROFILE

The wood and paper manufacturing sector (NACE Divisions 20 and 21) of the EU-25 generated EUR 75.0 billion of value added in 2003, equivalent to 4.4 % of industrial (NACE Sections C to E) value added, while it employed 1.9 million people (5.4 % of the industrial workforce).

Although the manufacture of pulp, paper and paper products (NACE Division 21) in the EU-25 was larger than the manufacture of wood and wood products (NACE Division 20) in terms of value added (EUR 42.6 billion compared with EUR 32.4 billion) it was smaller in terms of employment, representing only 38.0 % of employment in the wood and paper products manufacturing sector.

Among the Member States [4], Germany generated the largest proportion (20.6 %) of value added in the EU-25's wood and paper manufacturing sector in 2003, followed by Italy, the United Kingdom, and France (between 12.4 % and 11.1 %). However, Latvia, Finland, Estonia and Sweden were the most specialised in wood and paper products manufacturing in terms of the relative contribution of this sector to national, industrial value added, accounting for shares between 17.5 % and 12.9 % - see Table 4.3.

The map on page 84 shows the contribution of the wood and paper products manufacturing sector to employment within the non-financial business economy (NACE Sections C to I and K) of each region. The most specialised regions (at the level of detail shown in the map) in the EU-25 were in Finland and Sweden. There was also strong specialisation in the Baltic Member States and Slovenia (each considered as one region at the level of detail in the map), as well as in several regions of Poland, the Czech Republic, Austria, Italy, France and Romania.

(4) Luxembourg and Sweden, 2002; Greece and Malta, not available.

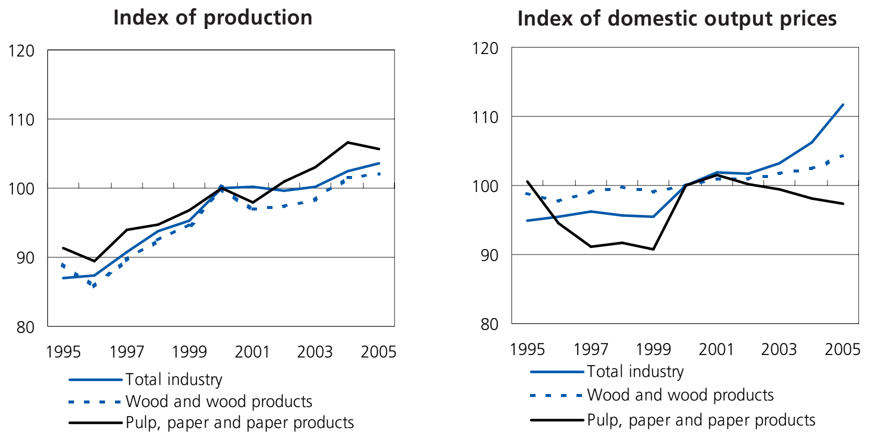
The production indices for wood and wood products manufacturing on the one hand, and pulp, paper and paper products manufacturing on the other, followed a broadly similar upward trend during the period between 1995 and 2005 (average increases of 1.4 % and 1.5 % per annum respectively – see Figure 4.1). For both of these activities, output growth was strongest in the period through until 2000, despite moderate falls in 1996. The flatter trend to output growth in the period since 2000 was clearest for the manufacture of wood and wood products (an average rate of growth of 0.4 % per annum), for which there was a slow recovery from a reduction in the production index in 2001. There was also a decline in the output of pulp, paper and paper products manufacturing in 2001, although there was an immediate rebound in 2002. The subsequent growth in output, however, was checked in 2005, as a decline of 0.8 % was registered.

By contrast, the index of domestic output prices for the manufacture of wood and wood products was quite different to that of pulp, paper and paper products. The output price index of wood and wood products increased relatively slowly and steadily over the period between 1995 and 2005 (an average increase of 0.5 % per annum), despite some small declines in 1996 and 1999. There was a rollercoaster development to the output price index for the manufacture of pulp, paper and paper products, however, with a strong decline in 1996 to a low in 1999, before an equally rapid rebound in 2000 to a relative peak in 2001. Since 2001 there was a relatively gentle decline in domestic output prices, which slipped back to below their 1995 level. Over the 10 years presented in Figure 4.1 there was a decline in the output price index of 0.3 % per annum on average for pulp, paper and paper products manufacturing, one of only a handful of industrial NACE divisions that registered a decline in prices over this period.

The EU-25's pulp, paper and paper products subsector (NACE Division 21) is dominated by large enterprises (defined as having 250 or more persons employed). These large enterprises generated 61.6 % of the total value added in 2003, a much higher proportion than that generated by large enterprises in the wood and wood products (NACE Division 20) subsector (21.2 %), although only slightly higher than the industrial (NACE Sections C to E) average (57.6 %).The proportion of value added generated by small and medium-sized enterprises (employing less than 250 people) in the wood and wood products subsector was 78.8 % – see Figure 4.2; this was the third highest contribution of SMEs to the value added of any industrial NACE division [5] in 2003, behind only other mining and quarrying (NACE Division 14) and recycling (NACE Division 37).

Figure 4.1

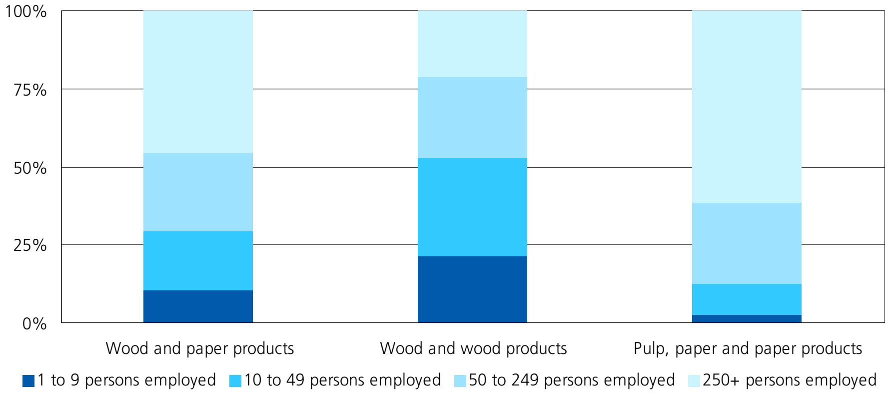
Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Evolution of main indicators, EU-25 (2000=100)



Source: Eurostat (STS)

Figure 4.2

Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Share of value added by enterprise size class, EU-25, 2003 (%) (1)



(1) Rounded estimates based on non-confidential data.
Source: Eurostat (SBS)

LABOUR FORCE CHARACTERISTICS

A significantly higher proportion of the workforce in the wood and paper manufacturing (NACE Divisions 20 and 21) sector of the EU-25 were male than was the case for industry (NACE Sections C to E) as a whole in 2005 (80.5 % compared with 71.3 %). This characteristic was common across all of the Member States for which data are available [6] and was particularly evident in Lithuania (see Table 4.4). The proportion of men working in the manufacture of wood and wood products (NACE Divisions 20) subsector was particularly high at 84.7 %.

[5] NACE Divisions 12 and 16, not available.
[6] Luxembourg and Malta, not available.

COSTS, PRODUCTIVITY AND PROFITABILITY

The apparent labour productivity of the EU-25's wood and paper manufacturing sector (NACE Divisions 20 and 21) was EUR 39 200 per person employed in 2003, about EUR 10 000 per person less than the average for industry (NACE Sections C to E) as a whole. Within the sector, however, the apparent labour productivity of the pulp, paper and paper products manufacturing subsector (EUR 59 000 per person employed) was more than double that of the wood and wood products manufacturing subsector (EUR 27 300 per person employed). In all of the Member States for which information is available [7], the apparent labour productivity of the pulp, paper and paper products manufacturing subsector was considerably higher than that for wood and wood products. Furthermore, in the majority of these Member States, the apparent labour productivity of the wood and paper manufacturing sector was lower than the industrial average, the exceptions being in Luxembourg (2002), Portugal, Finland and Sweden (2002).

At EUR 27 200 per employee in 2003, EU-25 average personnel costs in this sector were lower than the industrial average by some EUR 5 400 per employee. The characteristic of lower average personnel costs for the wood and paper manufacturing sector than the industrial average was noted in each of the

[7] Luxembourg and Sweden, 2002; Greece and Malta, not available.

Table 4.4

Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Labour force characteristics, 2005

	Male		Full-time		Breakdown by age (% share of total)		
	Proportion of those employed (%)	Index (industry=100)	Proportion of those employed (%)	Index (industry=100)	< 30 years	30-49 years	50+ years
EU-25	80.5	113.0	93.6	101.3	23.3	55.6	21.1
BE	85.9	113.5	93.4	104.9	25.2	60.3	14.5
CZ	73.6	114.2	95.8	98.2	25.1	52.8	22.1
DK	70.7	101.6	91.9	102.2	10.5	55.5	34.0
DE	78.6	108.5	89.4	101.1	19.2	57.9	22.9
EE	73.9	132.5	96.4	98.8	25.0	48.4	26.6
EL	92.1	124.2	98.8	100.7	23.3	52.1	24.6
ES	84.9	112.9	96.8	101.6	29.5	53.0	17.6
FR	78.4	109.8	93.1	99.1	18.3	60.6	21.0
IE	83.6	118.5	96.1	101.5	36.6	46.0	:
IT	81.3	113.8	94.2	100.9	21.5	60.7	17.8
CY	88.8	128.4	97.8	104.4	18.5	61.8	19.7
LV	74.3	126.7	96.3	99.9	25.8	49.8	24.4
LT	79.8	149.8	97.0	99.1	20.7	59.1	20.3
LU	:	:	:	:	:	:	:
HU	74.8	119.9	93.7	96.4	26.2	50.1	23.7
MT	:	:	:	:	:	:	:
NL	84.5	109.2	74.4	101.9	19.2	57.1	23.7
AT	77.3	103.5	91.9	102.1	28.6	55.8	15.6
PL	84.2	122.1	95.8	99.6	34.1	51.7	14.2
PT	78.8	133.0	97.0	99.9	23.5	54.3	22.1
SI	73.5	115.0	95.8	99.7	16.6	64.7	18.7
SK	80.9	126.8	98.1	99.1	23.6	59.4	16.9
FI	78.2	109.5	96.6	101.7	17.3	54.4	28.3
SE	83.7	111.5	92.6	102.7	15.1	49.8	35.1
UK	81.4	108.7	92.3	101.1	22.7	52.3	25.0

Source: Eurostat (LFS)

Table 4.5

Manufacture of wood and wood products; pulp, paper and paper products (NACE Divisions 20 and 21)
Cost, productivity and profitability indicators, ranking of the top 5 Member States compared to EU-25 averages, 2003

Rank	Investment in tangible goods relative to total operating costs (%) (1)	Purchases of goods and services as a share of total operating costs (%) (2)	Personnel costs as a share of total operating costs (%) (2)	Apparent labour productivity (EUR thousand) (3)	Average personnel costs (EUR thousand) (3)	Wage adjusted labour productivity (%) (3)	Gross operating rate (%) (3)
EU-25	5.7	80.4	19.6	39.2	27.2	144.0	10.8
1	Slovakia (20.3)	Slovakia (89.1)	Cyprus (29.5)	Luxembourg (82.1)	Finland (43.7)	Latvia (231.1)	Poland (16.2)
2	Latvia (12.3)	Latvia (87.5)	Denmark (29.3)	Sweden (76.1)	Luxembourg (42.5)	Slovakia (206.4)	Sweden (15.6)
3	Lithuania (11.3)	Luxembourg (87.2)	Ireland (23.2)	Finland (73.8)	Belgium (42.1)	Poland (193.8)	Ireland (15.1)
4	Slovenia (10.9)	Poland (86.7)	Germany (23.0)	Belgium (69.3)	Sweden (41.0)	Luxembourg (193.3)	Latvia (14.7)
5	Poland (8.8)	Czech Republic (86.6)	United Kingdom (22.7)	Austria (60.7)	Netherlands (40.2)	Estonia (185.7)	Czech Republic (14.5)

(1) Sweden, 2002; Belgium, Greece, Luxembourg and Malta, not available; EU-25 is an EU average based on available data for 2002 and 2003.
(2) Luxembourg and Sweden, 2002; Greece and Malta, not available; EU-25 is an EU average based on available data for 2002 and 2003.
(3) Luxembourg and Sweden, 2002; Greece and Malta, not available; EU-25, rounded estimate based on non-confidential data.
Source: Eurostat (SBS)

Member States for which information was available [8], except Finland where average personnel costs were the highest within the EU-25 (see Table 4.5) and about 10 % above the national, industrial average. Average personnel costs for the pulp, paper and paper products manufacturing subsector were EUR 36 200 per employee in the EU-25, almost EUR 15 500 per employee more than the figure for the wood and wood manufacturing subsector.

The gross operating rate of the wood and paper manufacturing sector of the EU-25 was 10.8 % in 2003, this measure of profitability being similar for both the wood and wood products manufacturing subsector and the pulp, paper and paper products manufacturing subsector.

(8) Luxembourg and Sweden, 2002; Greece, Ireland and Malta, not available.

Table 4.6

Wood and wood products; pulp, paper and paper products (CPA Divisions 20 and 21)
External trade, EU-25, 2005

	Extra-EU exports (EUR million)	Share of EU industrial exports (%)	Extra-EU imports (EUR million)	Share of EU industrial imports (%)	Trade balance (EUR million)	Cover ratio (%)
Wood and wood products; pulp, paper and paper products	20 891	2.1	18 687	1.7	2 204	111.8
Wood and wood products	8 104	0.8	9 657	0.9	-1 553	83.9
Pulp, paper and paper products	12 786	1.3	9 030	0.8	3 757	141.6

Source: Eurostat (Comext)

EXTERNAL TRADE

The EU-25 had a trade surplus of EUR 2.2 billion in wood and paper products (CPA Divisions 20 and 21) in 2005. This aggregated trade surplus comprised a surplus for pulp, paper and paper products (CPA Division 21) of EUR 3.8 billion and a deficit for wood and wood products (CPA Division 20) of EUR 1.6 billion (see Table 4.6). Among the Member States, Sweden and Finland had the largest trade surpluses (intra- and extra-EU trade combined) in wood and paper products in 2005 (EUR 8.3 billion and EUR 6.2 billion respectively) and the United Kingdom the largest deficit (EUR 7.1 billion).

EU-25 exports of wood and paper products to non-member countries were valued at EUR 20.9 billion in 2005, representing 2.1 % of all industrial exports (CPA Sections C to E). The principal extra-EU markets for these products were the United States (16.8 % of EU-25 exports) and Switzerland (9.8 %). Germany, Sweden and Finland accounted for the largest shares of exports (intra- and extra-EU-25 combined) in wood and paper products (18.9 %, 13.0 % and 9.1 % of the exports by all EU-25 Member States respectively in 2005). The contribution of exports of wood and paper products to industrial exports as a whole was particularly significant in 2005 in Latvia (24.6 %), Finland (15.7 %), Estonia (11.1 %) and Sweden (10.6 %).

Imports of wood and paper products from non-EU countries were valued at EUR 18.7 billion (representing 1.7 % of all industrial imports). These imports originated principally from the United States (15.2 % of EU-25 imports), Brazil (10.9 %), China (10.7 %), Canada (9.0 %) and Russia (8.7 %).

4.1: WOOD AND WOOD PRODUCTS

The wood and wood products sector is classified as NACE Division 20. It is split into five groups that cover the initial processing stages of sawing and planing of wood (NACE Group 20.1), through semi-processed wood products, such as the manufacture of boards and panels (NACE Group 20.2) and builders' carpentry and joinery (NACE Group 20.3), towards finished products such as wooden containers (NACE Group 20.4) and other wood products, including household goods made from wood (NACE Group 20.5).

Wood is a natural and renewable product that is used widely by the building and furniture-making trades (see Subchapter 15.2 and Subchapter 11.1). According to the European Commission's Directorate-General for Enterprise [9], the EU's forest-based industries procure most of their wood from domestic markets. However, the EU is also highly dependent on imports of sawn hardwood and pulp from non-member countries.

[9] More information at http://ec.europa.eu/enterprise/forest_based/.

There have been some recent Community measures aimed at strengthening good forestry practice and environmental stewardship. In October 2005, the Council unanimously reached political agreement on a Council Regulation concerning the establishment of a Forest Law Enforcement, Governance and Trade (FLEGT) licensing scheme, that it is hoped will tighten controls on illegal timber imports (associated with deforestation and a loss of biodiversity). In March 2005, the European Commission Directive on phytosanitary measures for wooden packing material and dunnage came into force [10], with the aim of helping to safeguard the health and vitality of the EU-25's forest eco-systems against pests such as the Asian longhorn beetle and pine wood nematode.

STRUCTURAL PROFILE

The wood and wood products manufacturing sector (NACE Division 20) in the EU-25 generated EUR 32.4 billion of value added in 2003, the equivalent of 1.9 % of the industrial (NACE Sections C to E) total. There were 1.2 million people employed in this sector in 2003, representing 3.4 % of the industrial workforce. The largest contribution (45.7 %) to the value added of the sector came from the manufacture of builder's carpentry and joinery (NACE Group 20.3), which generated EUR 15.0 billion of value added in 2003 (see Table 4.7). This subsector produces a variety of wooden building components (such as doors, window frames, parquet panels and prefabricated wooden buildings). The second largest activity, in terms of value added, was sawmilling, planing and impregnation of wood (NACE Group 20.1), the first stage in the processing of wood, which generated EUR 6.9 billion of value added in 2003 (the equivalent of 21.1 % of the sectoral total). The manufacture of veneer sheets, plywood, laminboard, particle board, fibre board and other panels and boards (NACE Group 20.2) generated a further EUR 4.6 billion of value added in 2003. These are semi-finished products used predominantly as intermediate products in the furniture or construction industries.

[10] Directive 2004/102/EC, the latest amendment being Directive 2006/14/EC.

Table 4.7

Manufacture of wood and wood products (NACE Division 20)
Structural profile, EU-25, 2003

	Value added (EUR million)	Share of industrial value added (%)	Number of persons employed (thousands)	Share of industrial employment (%)
Wood and wood products (1)	32 400	1.9	1 190	3.4
Sawmilling and planing of wood, impregnation of wood (1)	6 930	0.4	262	0.7
Veneer sheets; plywood, panels and boards	4 575	0.3	119	0.3
Builders' carpentry and joinery (2)	15 000	0.9	550	1.6
Wooden containers (2)	2 450	0.1	90	0.3
Other wood products; cork, straw & plaiting materials (1)	3 840	0.2	169	0.5

(1) Rounded estimates based on non-confidential data.
(2) Value added and related share, rounded estimates based on non-confidential data.
Source: Eurostat (SBS)

Table 4.8

Production value of selected wood products (CPA Division 20), EU-25, 2004 (EUR million)

	Prodcom code(s)	
Particle board and similar board of wood unworked or sanded (excl. waferboard or oriented strand board)	20.20.13.33	2 309
Particle board and similar board of wood surfaced with melamine resin impregnated paper (excl. waferboard or oriented strand board)	20.20.13.37	3 706
Fibreboard of a density > 0.8 g/cm³	20.20.14.13 and 20.20.14.15	2 818
Fibreboard of a density > 0.5 g/cm³ but <= 0.8 g/cm³	20.20.14.33 and 20.20.14.35	1 650
Wooden frames for paintings; photographs; mirrors or similar objects	20.51.14.10	898

Source: Eurostat (PRODCOM)

Table 4.9

Wood and wood products (CPA Division 20)
External trade, EU-25, 2005

	Extra-EU exports (EUR million)	Share of EU industrial exports (%)	Extra-EU imports (EUR million)	Share of EU industrial imports (%)	Trade balance (EUR million)	Cover ratio (%)
Wood and wood products	8 104	0.8	9 657	0.9	-1 553	83.9
Wood, sawn, planed or impregnated	2 949	0.3	4 415	0.4	-1 465	66.8
Veneer sheets; plywood, panels and boards	2 670	0.3	2 206	0.2	464	121.0
Builders' joinery and carpentry, of wood	1 296	0.1	1 061	0.1	235	122.2
Wooden containers	367	0.0	122	0.0	245	301.3
Other wood products; cork, straw & plaiting materials	823	0.1	1 854	0.2	-1 031	44.4

Source: Eurostat (Comext)

Among the Member States, Germany had the largest wood and wood products manufacturing sector in terms of value added generated (18.8 % of the EU-25 total), followed by Italy (14.9 %) and the United Kingdom (11.5 %). However, the contribution of this sector to national, industrial value added as a whole was highest in Latvia (16.4 %) and Estonia (11.4 %) in 2003, considerably above the EU-25 average (1.9 % of industrial value added).

COSTS, PRODUCTIVITY AND PROFITABILITY

The apparent labour productivity of the wood and wood products manufacturing sector in the EU-25 was EUR 27 300 per person employed in 2003, one of the lowest productivity levels (according to this measure) among industrial NACE divisions, and EUR 22 300 per person employed below the industrial average. Average personnel costs within the wood and wood products manufacturing sector were also relatively low, at EUR 20 700 per employee. The wage adjusted labour productivity ratio was 132 % for the EU-25's wood and wood products manufacturing sector.

EXTERNAL TRADE

The EU-25 exported wood and wood products (CPA Division 20) to the value of EUR 8.1 billion in 2005, continuing an upward trend in value terms that was apparent since 2002. The EU-25's principal export partners for these products were the United States (23.6 % of EU-25 exports), Switzerland (10.8 %) and Japan (10.6 %). The EU-25 imported wood and wood products to the value of EUR 9.7 billion in 2005, particularly from China, Russia, the United States, Brazil and Indonesia (these countries together providing just over half of all such imports). As a result of these trade flows, the EU-25 registered a trade deficit of EUR 1.6 billion in 2003 for wood and wood products (see Table 4.9).

The upward trend in the value of exports of veneer sheets, plywood, laminboard, particle board, fibre board and other panels and boards (CPA Group 20.2) continued in 2005, which saw a trade surplus of EUR 464 million, underpinning the turnaround from a trade deficit in 2000. Exports of wood, sawn, planed or impregnated (CPA Group 20.1) also grew strongly in 2005, although there was little change in the level of the trade deficit (EUR 1.5 billion) for these products. The trade deficit for other wood products (CPA Group 20.5) also widened in 2005, to reach EUR 1.0 billion.

Among the Member States, Sweden, Austria and Finland had the largest trade surpluses (between EUR 1.9 and EUR 2.2 billion each) for wood and wood products. Germany, however, was the principal exporter of wood and wood products in 2005, accounting for 16.9 % of intra- and extra-EU exports by the Member States. Germany was also the second largest importer (13.4 % of imports), after the United Kingdom (14.8 %).

4.2: PULP, PAPER AND PAPER PRODUCTS

The pulp, paper and paper products sector is broken down in the NACE classification into two groups. The first, NACE Group 21.1, covers the manufacture of pulp, paper and paperboard, through mechanical and chemical processes. These products often require further processing, as covered by the second activity, NACE Group 21.2, which includes the manufacture of corrugated, household and sanitary paper products, as well as newsprint, wallpaper and stationery.

Paper and paperboard is made predominantly in the EU-25 from waste paper and wood pulp. The main uses of the products manufactured by the pulp, paper and paper products sector are packaging, communications for printing, and specialist paper applications (for hygienic purposes, such as toilet paper, or technical purposes, such as wallpaper).

Community legislation aimed at the sector continues to be prompted by environmental considerations. The EU Greenhouse Gas Emissions Trading Scheme started in January 2005 with the aim of regulating CO2 emissions in five key sectors, including pulp and paper. At the time of writing, the European Commission plans to consider whether to extend the scheme to other greenhouse gases (and other sectors) beyond the initial trading period of 2005–2007. A first report on the Integrated Pollution Prevention and Control (IPPC) Directive that aims to promote cleaner production processes was adopted in November 2005, stating that implementation had been slow. The targets for the recycling and recovery of packaging and packaging waste [11] were extended in March 2005 to the Member States that joined the EU in 2004.

(11) Directive 2005/20/EC of the European Parliament and of the Council.

STRUCTURAL PROFILE

The EU-25's pulp, paper and paper products (NACE Division 21) manufacturing sector generated a value added of EUR 42.6 billion in 2003, which corresponded to 2.5 % of industrial (NACE Sections C to E) value added. The value added of the sector was fairly evenly split (48 % and 52 % respectively in 2002) between the manufacture of pulp, paper and paperboard (NACE Group 21.1) and the manufacture of articles of paper and paperboard (NACE Group 21.2). There were 728 000 persons employed in the EU-25's manufacture of pulp, paper and paper products sector in 2003, of which about one third (33.0 %) worked in the manufacture of pulp, paper and paperboard (NACE Group 21.1).

A little over one fifth (22.0 %) of the value added of the EU-25's pulp, paper and paper products manufacturing sector came from Germany in 2003 (see Table 4.10). The pulp, paper and paper products manufacturing sectors in Italy, France and the United Kingdom generated a further 10.5 % to 11.6 % each of the EU-25's value added. However, Finland and Sweden (2002) were the most specialised Member States [12] in this manufacturing activity, as pulp, paper and paper products manufacturing contributed 11.1 % and 8.9 % of national, industrial value added respectively.

(12) Malta, Luxembourg, Sweden, 2002; Greece and Ireland, not available.

COSTS, PRODUCTIVITY AND PROFITABILITY

The apparent labour productivity of those employed in the pulp, paper and paper products manufacturing sector within the EU-25 was EUR 59 000 per person in 2003, which was EUR 9 400 per person more than the industrial average. The ratio was highest (between EUR 91 000 and EUR 108 000 per person employed) in Austria, Finland, Luxembourg (2002) and Sweden (2002), some of the Member States most specialised in this activity. Average personnel costs in the pulp, paper and paper products manufacturing sector were EUR 36 200 per employee in the EU-25, which was 11.0 % higher than the industrial average. Apparent labour productivity in the pulp, paper and paper products manufacturing sector was the equivalent of 162 % of average personnel costs per employee (the wage adjusted labour productivity), with the highest rates being registered in Slovakia (272.4 %) and Poland (270.1 %).

As an indicator of profitability, the gross operating rate of the pulp, paper and paper products manufacturing sector across the EU-25 was 11.0 % in 2003, with the highest rate being recorded for Portugal (18.9 %).

Table 4.10

Manufacture of pulp, paper and paper products (NACE Division 21)
Value added and employment: ranking of the top 5 Member States, 2003

Rank	Highest value added (EUR million) (1)	Share in EU-25 value added (%) (1)	Highest number of persons employed (thousands) (2)	Share in EU-25 employment (%) (2)	Highest share of national industrial value added (%) (3)	Highest share of national industrial employment (%) (4)
1	Germany (9 361.7)	22.0	Germany (150.8)	20.7	Finland (11.1)	Finland (8.7)
2	United Kingdom (4 935.9)	11.6	France (88.3)	12.1	Sweden (8.9)	Sweden (5.1)
3	France (4 901.4)	11.5	United Kingdom (86.4)	11.9	Austria (3.8)	Netherlands (2.9)
4	Italy (4 451.8)	10.5	Italy (82.8)	11.4	Portugal (3.2)	Austria (2.7)
5	Sweden (4 377.8)	9.5	Spain (55.3)	7.6	Slovakia (2.8)	United Kingdom (2.3)

(1) Malta and Sweden, 2002; Greece and Luxembourg, not available.
(2) Sweden, provisional; Luxembourg and Malta, 2002; Greece, not available.
(3) Malta, Luxembourg and Sweden, 2002; Greece and Ireland, not available.
(4) Sweden, provisional; Luxembourg and Malta, 2002; Greece and Ireland, not available.
Source: Eurostat (SBS)

Table 4.11

Production value of selected paper products (CPA Division 21), EU-25, 2004 (EUR million)

	Prodcom code	
Newsprint in rolls or sheets	21.12.11.50	4 409
Graphic paper, paperboard: mechanical fibres <= 10%, 40 g/m² <= weight <= 150 g/m²	21.12.14.39	4 667
Graphic paper, paperboard: mechanical fibres > 10%	21.12.14.70	3 449
Uncoated semi-chemical fluting paper (corrugated medium); in rolls or sheets	21.12.24.00	1 865
Coated paper, for writing, printing, graphic purposes (excl. coated base, weight <= 150 g/m²)	21.12.53.37	6 475
Light-weight coated paper for writing, printing, graphic purposes, m.f. > 10%	21.12.53.60	3 899
Cartons; boxes and cases of corrugated paper or paperboard	21.21.13.00	18 047
Toilet paper	21.22.11.10	4 893
Envelopes of paper or paperboard (1)	21.23.12.30	2 064

(1) Estimated.
Source: Eurostat (PRODCOM)

EXTERNAL TRADE

EU-25 exports of pulp, paper and paper products (CPA Division 21) were valued at EUR 12.8 billion in 2005 (see Table 4.12), remaining markedly down on the levels recorded between 2000 and 2003. However, imports of these products in 2005 (EUR 9.0 billion) also remained lower than their level in 2000. These trade flows resulted in a trade surplus of EUR 3.8 billion being recorded in 2005 for pulp, paper and paper products in the EU-25. Within this CPA Division, pulp (CPA Class 21.11) was the only CPA class in which the EU-25 recorded a trade deficit (EUR 3.5 billion). Among the six other CPA classes within this CPA division, the largest trade surplus was recorded for paper and paperboard

Exports of pulp, paper and paper products from Germany (20.1 %) and Sweden (14.5 %) accounted for a little over a third of all Member State exports (intra- and extra-EU) of these goods. The largest export markets for these products outside the EU were in the United States, Switzerland, Russia and China. Germany, along with France and the United Kingdom were the main importers of pulp, paper and paper products, accounting for 45 % of the total. Over two thirds (71.2 %) of imports of these products originating from outside the EU-25 came from North America, Brazil, Switzerland and Norway.

Table 4.12

Pulp, paper and paper products (CPA Division 21)
External trade, EU-25, 2005

	Extra-EU exports (EUR million)	Share of EU industrial exports (%)	Extra-EU imports (EUR million)	Share of EU industrial imports (%)	Trade balance (EUR million)	Cover ratio (%)
Pulp, paper and paper products	12 786	1.3	9 030	0.8	3 757	141.6
Pulp, paper and paperboard	9 714	1.0	7 741	0.7	1 972	125.5
Articles of paper and paperboard	2 816	0.3	1 287	0.1	1 529	218.8

Source: Eurostat (Comext)

Table 4.13

Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials (NACE Division 20)
Main indicators, 2003

	EU-25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Turnover (EUR million) (1)	112 000	3 349	2 367	1 817	19 893	769	:	9 825	12 377	1 069	16 566	161	1 009	528	144	931	:
Production (EUR million)	:	3 250	2 215	1 788	18 785	740	:	9 519	11 714	1 028	16 344	160	909	510	144	767	:
Value added at factor cost (EUR million) (1)	32 400	876	640	676	6 085	182	:	2 761	3 393	322	4 836	67	259	133	37	212	:
Gross operating surplus (EUR million) (1)	11 800	425	345	157	1 734	84	:	914	773	132	2 306	20	147	50	16	72	:
Purchases of goods and services (EUR million)	:	2 450	1 786	1 176	13 803	591	:	7 251	8 832	751	11 913	97	784	403	107	716	:
Gross investment in tangible goods (EUR million) (2)	:	246	81	92	499	58	:	368	443	37	843	8	111	60	1	69	:
Number of persons employed (thousands) (1)	1 190	14	79	14	156	18	:	108	92	7	177	3	33	29	1	32	:
Personnel costs (EUR million) (1)	20 600	451	295	519	4 352	98	:	1 847	2 620	190	2 530	46	111	83	21	139	:
App. labour productivity (EUR thous./pers. emp.) (1)	27.3	62.3	8.1	47.7	38.9	10.0	:	25.6	36.9	47.7	27.4	19.5	7.8	4.6	63.6	6.6	:
Average personnel costs (EUR thous./employee) (1)	20.7	36.6	6.4	37.2	30.6	5.5	:	19.4	29.6	29.0	22.9	16.5	3.4	2.9	36.6	4.9	:
Wage adjusted labour productivity (%) (1)	132.0	170.3	126.4	128.3	127.0	183.9	:	132.1	124.7	164.8	119.4	118.7	229.8	156.5	173.7	134.3	:
Gross operating rate (%) (1)	10.6	12.7	14.6	8.6	8.7	10.9	:	9.3	6.2	12.3	13.9	12.6	14.6	9.5	10.9	7.8	:
Investment per person employed (EUR thousand) (2)	:	18.0	1.0	6.5	3.2	3.2	:	3.4	4.8	5.5	4.8	2.5	3.3	2.1	1.8	2.1	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	BG	HR	RO	TR	IS	LI	NO	CH
Turnover (EUR million) (3)	2 577	5 845	3 835	3 365	559	410	5 668	7 801	10 343	228	:	1 189	:	:	:	2 403	:
Production (EUR million) (3)	2 458	5 620	3 675	3 258	529	365	5 608	7 637	9 650	210	:	1 126	:	:	:	2 239	:
Value added at factor cost (EUR million) (4)	837	1 756	1 060	799	185	74	1 292	1 924	3 742	39	:	277	:	:	:	685	:
Gross operating surplus (EUR million) (4)	219	640	574	303	49	18	403	608	1 651	14	:	145	:	:	:	146	:
Purchases of goods and services (EUR million) (3)	1 737	4 206	2 702	2 654	390	335	4 543	5 643	6 551	198	:	1 006	:	:	:	1 741	:
Gross investment in tangible goods (EUR million) (3)	68	243	272	156	28	52	256	480	377	19	:	189	:	:	:	114	:
Number of persons employed (thousands) (3)	20	38	130	49	12	13	28	42	87	18	:	91	:	:	:	14	:
Personnel costs (EUR million) (4)	618	1 117	487	496	135	57	897	1 316	2 091	25	:	132	:	:	:	539	:
App. labour productivity (EUR thous./pers. emp.) (4)	41.3	46.1	8.2	16.4	15.0	5.5	46.6	45.7	43.0	2.1	:	3.0	:	:	:	47.6	:
Average personnel costs (EUR thous./employee) (4)	34.5	32.1	5.0	11.2	12.1	4.2	33.0	34.6	26.1	1.6	:	1.5	:	:	:	37.8	:
Wage adjusted labour productivity (%) (4)	119.7	143.9	163.5	147.3	124.6	131.2	141.2	132.0	164.5	137.6	:	205.0	:	:	:	125.8	:
Gross operating rate (%) (4)	8.5	10.9	15.0	9.0	8.8	4.3	7.1	8.1	16.0	6.1	:	12.2	:	:	:	6.1	:
Investment per person employed (EUR thousand) (3)	3.4	6.4	2.1	3.2	2.3	3.9	9.2	11.4	4.3	1.0	:	2.1	:	:	:	7.9	:

(1) EU-25, rounded estimate based on non-confidential data. (2) Belgium, 2002. (3) Sweden, provisional. (4) Sweden, 2002.
Source: Eurostat (SBS)

Table 4.14

Manufacture of pulp, paper and paper products (NACE Division 21)
Main indicators, 2003 (1)

	EU-25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Turnover (EUR million) (2)	153 000	4 567	1 538	1 505	31 912	97	:	11 122	20 100	845	18 482	70	62	94	149	1 064	19
Production (EUR million)	:	4 330	1 510	1 446	29 599	96	:	10 806	18 007	817	17 926	65	62	96	149	928	19
Value added at factor cost (EUR million) (2)	42 600	1 135	385	547	9 362	26	:	3 169	4 901	345	4 452	24	18	23	26	265	8
Gross operating surplus (EUR million) (2)	16 800	445	221	177	2 924	13	:	1 445	1 360	158	1 899	10	11	11	15	123	3
Purchases of goods and services (EUR million)	:	3 360	1 173	964	22 397	69	:	8 078	14 820	501	14 026	47	45	75	121	820	11
Gross investment in tangible goods (EUR million) (3)	:	471	88	77	1 886	5	:	624	1 114	25	901	5	6	4	:	60	0
Number of persons employed (thousands) (2)	728	15	20	8	151	2	:	55	88	5	83	1	2	2	0	16	0
Personnel costs (EUR million) (2)	25 800	689	164	370	6 438	13	:	1 724	3 541	188	2 553	14	7	12	12	142	5
App. labour productivity (EUR thous./pers. emp.) (2)	59.0	75.8	19.1	66.4	62.1	14.9	:	57.3	55.5	71.6	53.8	29.0	10.5	10.2	107.1	16.8	22.6
Average personnel costs (EUR thous./employee) (2)	36.2	46.8	8.5	45.1	43.0	7.5	:	31.7	40.2	39.1	33.7	16.7	4.2	5.3	47.8	9.1	14.2
Wage adjusted labour productivity (%) (2)	162.0	162.0	224.0	147.3	144.3	199.1	:	180.6	138.3	183.0	159.3	173.5	248.7	191.9	224.2	185.1	159.1
Gross operating rate (%) (2)	11.0	9.8	14.4	11.8	9.2	13.2	:	13.0	6.8	18.7	10.3	14.7	16.9	11.8	9.8	11.6	15.5
Investment per person employed (EUR thousand) (3)	:	32.7	4.3	9.3	12.5	2.6	:	11.3	12.6	5.1	10.9	5.3	3.8	2.0	:	3.8	0.1

	NL	AT	PL	PT	SI	SK	FI	SE	UK	BG	HR	RO	TR	IS	LI	NO	CH
Turnover (EUR million) (4)	5 766	5 091	3 087	2 228	597	819	14 017	12 323	16 627	244	:	484	:	:	:	2 043	:
Production (EUR million) (4)	5 363	4 790	2 967	2 266	581	750	13 675	12 104	15 180	235	:	467	:	:	:	1 964	:
Value added at factor cost (EUR million) (5)	1 671	1 633	829	699	147	176	3 581	4 378	4 936	43	:	94	:	:	:	597	:
Gross operating surplus (EUR million) (5)	618	782	546	421	52	112	1 820	2 471	1 691	15	:	47	:	:	:	197	:
Purchases of goods and services (EUR million) (4)	4 077	3 558	2 337	1 578	451	653	10 725	8 235	11 648	213	:	406	:	:	:	1 552	:
Gross investment in tangible goods (EUR million) (4)	204	367	236	244	89	173	658	726	950	28	:	56	:	:	:	60	:
Number of persons employed (thousands) (4)	24	18	38	12	6	9	38	41	86	13	:	18	:	:	:	8	:
Personnel costs (EUR million) (5)	1 053	851	283	278	95	65	1 967	1 907	3 245	28	:	47	:	:	:	400	:
App. labour productivity (EUR thous./pers. emp.) (5)	70.2	91.7	21.6	56.2	24.5	20.0	93.5	107.7	57.2	3.4	:	5.2	:	:	:	74.5	:
Average personnel costs (EUR thous./employee) (5)	44.5	47.9	8.0	22.6	16.1	7.3	51.4	47.0	38.1	2.3	:	2.7	:	:	:	50.0	:
Wage adjusted labour productivity (%) (5)	157.9	191.4	270.1	248.8	152.6	272.4	182.0	228.9	150.1	149.2	:	195.5	:	:	:	149.2	:
Gross operating rate (%) (5)	10.7	15.4	17.7	18.9	8.8	13.6	13.0	20.2	10.2	6.0	:	9.6	:	:	:	9.6	:
Investment per person employed (EUR thousand) (4)	8.6	20.6	6.2	19.6	14.9	19.5	17.2	17.9	11.0	2.2	:	3.1	:	:	:	7.5	:

(1) Luxembourg and Malta, 2002. (2) EU-25, rounded estimate based on non-confidential data.(3) Belgium, 2002. (4) Sweden, provisional. (5) Sweden, 2002.
Source: Eurostat (SBS)