

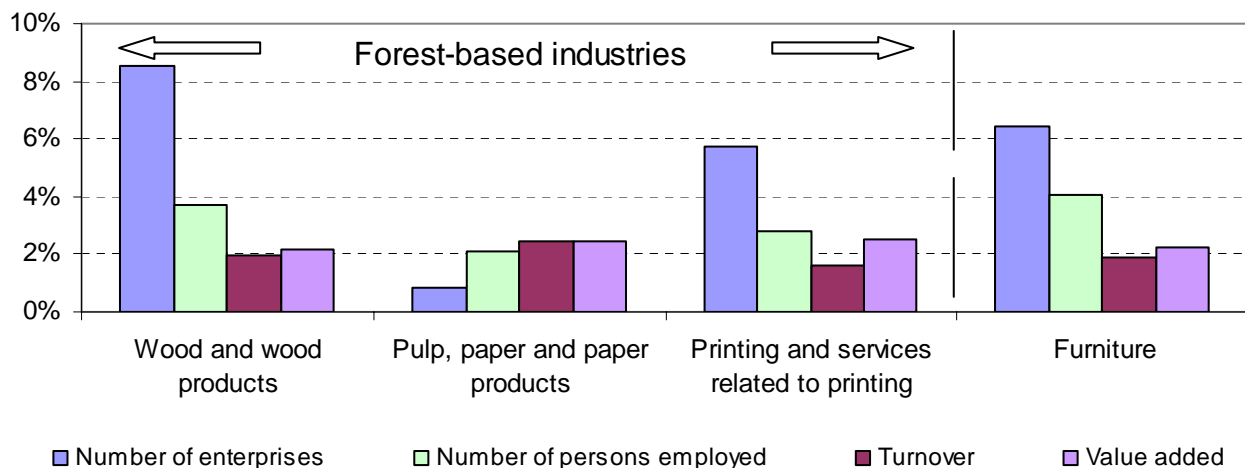
Forest-based industries in the EU-27

Overview

Downstream of the forestry sector, the EU-27 displays a diversified wood-processing chain that is rich in tradition. In some Member States, forest-based industries are major employers within the manufacturing sector. This publication analyses the structure, performance and evolution of the forest based industries¹: Manufacturing of wood and wood products, Pulp, paper and paper products and Printing and services related to printing (NACE DD20, DE21 and DE22.2 respectively). It includes a separate section focusing on the related activity of Furniture manufacturing.

In 2005, the EU-27's forest-based industries included around 350 000 enterprises employing almost 3 million persons. Generating turnover of EUR 380 billion, they produced value added of EUR 116 billion. The large number of small enterprises active in forest-based industries contributed to their making up as much as 15.1 % of the total Manufacturing (NACE D) business population. The number of persons employed by forest-based industries was 8.6 % of the manufacturing workforce. In terms of output the industries contributed 8.6 % of total manufacturing turnover yet only 7.1 % of value added.

Figure 1 Structural profile of forest-based industries (NACE DD20, DE21 and DE22.2) and furniture manufacturing (NACE DN36.1), EU-27, 2005 (share of Manufacturing total)



Source: Eurostat, SBS

The percentage shares in Manufacturing in terms of four main indicators are shown for the three main subsectors in Figure 1; the related activity of furniture manufacturing is included for comparison. Wood and wood products, Printing and Furniture displayed similar profiles with a relatively high share of the number of enterprises in Manufacturing as well as a higher share of

employment than of value added. Pulp and paper, in contrast, had a lower share of enterprises than its share of persons employed, pointing at the dominance of large enterprises in this subsector, and a larger share of value added, reflecting the higher apparent labour productivity which is common for processing industries.

¹ See: [Communication from the Commission on innovative and sustainable forest-based industries in the EU \(COM\(2008\) 113 final\)](#)

Table 1 presents the main indicators for forest-based industries in the Member States and Norway. Five Member States (Germany, United Kingdom, Italy, France and Spain) accounted for over half of the number of enterprises and of the number of persons employed, and for around two thirds of the turnover and value added in the EU-27's forest-based industries in 2005. However

their contributions were smaller than those to Manufacturing, where that group of five Member States accounted for around three quarters of turnover and value added. In Latvia, Estonia and Finland, in comparison, the proportional contributions to the value added of EU-27 forest-based industries were more than double those made to Manufacturing.

Table 1 Main indicators for forest-based industries (NACE DD20, DE21 and DE22.2), EU-27 and Norway, 2005

	Number of enterprises	Turnover	Value added at factor cost	Number of persons employed	Average personnel costs	Apparent labour productivity	Wage adjusted labour productivity	Gross operating rate
		Million EUR	Million EUR	1 000	1 000 EUR	1 000 EUR	%	%
BE	5 972	12 114	3 320	53.2	43.1	62.4	145	10.6
BG	3 284	813	180	41.3	2.2	4.4	201	11.9
CZ	36 728	5 374	1 502	121.5	7.9	12.4	156	15.6
DK	2 034	4 950	1 876	33.3	42.1	56.4	134	10.3
DE	27 881	75 699	24 207	469.8	45.2	51.5	114	9.6
EE	1 304	1 261	292	23.6	7.4	12.4	166	9.5
IE	699	2 623	1 069	16.9	38.6	63.3	164	16.4
EL	11 003	3 016	1 141	34.0	21.5	33.6	156	21.6
ES	32 564	30 595	9 764	251.2	26.6	38.9	146	11.8
FR	30 138	45 472	12 400	273.1	38.1	45.4	119	4.9
IT	66 341	50 139	14 196	372.8	29.7	38.1	128	12.0
CY	1 271	345	139	5.5	19.2	25.4	133	13.5
LV	2 203	1 403	380	39.6	3.8	9.6	256	16.6
LT	4 558	935	246	37.7	4.0	6.5	163	11.6
HU	9 945	3 021	782	69.7	7.5	11.2	149	10.1
NL	5 840	13 973	4 538	83.4	42.6	54.4	128	10.0
AT	4 582	13 592	4 319	70.6	40.3	61.2	152	11.9
PL	31 549	11 528	3 211	228.7	6.5	14.0	216	17.1
PT	14 885	7 074	2 128	86.6	14.1	24.6	174	13.3
RO	10 283	2 690	612	122.0	2.5	5.0	197	11.4
SI	2 892	1 675	473	23.5	15.3	20.2	132	8.4
SK	931	1 808	380	26.5	6.9	14.3	208	11.0
FI	4 032	20 326	5 007	72.9	43.4	68.7	158	11.3
SE	11 038	23 571	6 382	104.5	44.0	61.0	139	8.7
UK	27 517	45 864	17 068	322.4	35.4	52.9	149	14.0
EU-27	350 446	379 978	115 716	2 987.5	29.1	38.7	133	9.9
NO	3 735	6 538	1 875	30.9	47.9	60.7	127	7.0

CZ: 2004; LU: confidential; MT: not available

Source: Eurostat, SBS

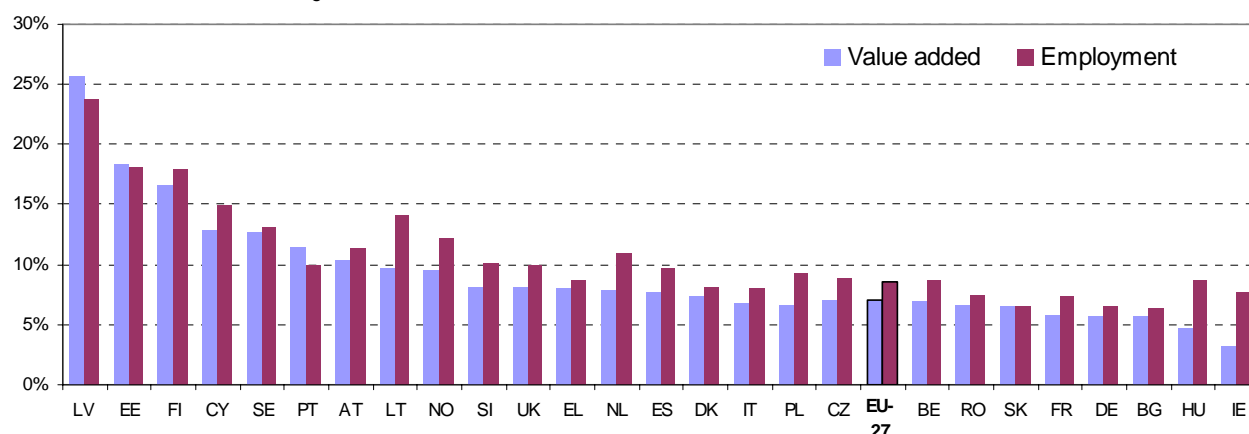
Average personnel costs stood at EUR 29 100 in the EU-27's forest-based industries in 2005. They were highest in Germany (EUR 45 200), Sweden and Finland, and lowest in Bulgaria and Romania. Average personnel costs are influenced by the country specialisation, as higher wages are generally paid in processing industries such as the production of pulp and paper.

Apparent labour productivity (value added per person employed) in the forest-based industries was EUR 38 700 in the EU-27. It was highest in Finland (EUR 68 700), Ireland and Belgium, and it was lowest in the ten central-European Member States.

Wage adjusted labour productivity (the relationship between apparent labour productivity and average personnel costs) was 133 % in the EU-27. It reached its highest level in Latvia (256 %) and it was close to or above 200 % in Poland, Slovakia, Bulgaria and Romania. The indicator was lowest in the Netherlands, Norway, France and Germany.

The Gross operating rate (the share of operating surplus in turnover), which is another indicator of profitability, was 9.9 % in the EU-27's forest-based industries. It was highest in Greece (21.6 %), Poland, Latvia, Ireland and the Czech Republic, and lowest in France, Norway and Slovenia.

Figure 2 Value added and employment in forest-based industries (NACE DD20, DE21 and DE22.2), 2005
share of Manufacturing (NACE D)



CZ: 2004; LU: confidential; MT: not available

Source: Eurostat, SBS

The importance of the forest-based industries in the Member States' manufacturing sectors in 2005 is shown in Figure 2. Latvia (25.7 %), Estonia (18.4 %) and Finland (16.6 %) were the most specialised in terms of value added as well as of employment (23.8 %, 18.1 % and 17.9 % respectively).

In these countries, the proportion of 'Forest and other wooded land' in 'Total land area' in 2005² amounted to 49.3 %, 55.8 % and 76.5 % respectively, as compared to 42.2 % on average in the EU-27.

Sectoral analysis

Table 2 Main indicators for forest-based industries, by subsector, EU-27, 2005

	Value added		Employment		Wage-adjusted labour productivity	Gross operating rate
	EUR million	%	Thousand	%	%	%
Wood and wood products (DD20)	35 100	30	1 280	43	132	9.9
Sawmilling and planing of wood, impregnation of wood (DD20.1)	7 600	7	314	11	146	8.7
Veneers; plywood, lamin-, particle- & fibre board; other (DD20.2)	5 400	5	130	4	160	9.3
Builders' carpentry and joinery (DD20.3)	15 594	13	568	19	121	11.0
Wooden containers (DD20.4)	2 740	2	95	3	133	9.1
Other products of wood, cork, straw and plaiting materials (DD20.5)	3 730	3	170	6	124	10.6
Pulp, paper and paper products (DE21)	40 000	35	730	24	145	8.5
Pulp, paper and paperboard (DE21.1)	17 400	15	235	8	161	9.3
Pulp (DE21.11)	1 700	1	20	1	210	13.0
Paper and paperboard (DE21.12)	15 708	14	215	7	157	8.9
Articles of paper and paperboard (DE21.2)	22 643	20	495	17	135	7.7
Corrugated paper & paperboard and containers made thereof (DE21.21)	12 300	11	282	9	135	8.3
Household and sanitary goods and toilet requisites (DE21.22)	4 365	4	78	3	140	6.1
Paper stationery (DE21.23)	2 104	2	53	2	128	7.5
Wallpaper (DE21.24)	:c	:c	7	0	120	:c
Other articles of paper and paperboard n.e.c. (DE21.25)	3 496	3	75	3	135	9.2
Printing and services related to printing (DE22.2)	40 616	35	978	33	127	12.1
Printing of newspapers (DE22.21)	:c	:c	40	1	:c	:c
Printing n.e.c. (DE22.22)	31 000	27	730	24	128	11.3
Bookbinding (DE22.23)	2 078	2	63	2	117	12.4
Composition and plate-making (Pre-press activities) (DE22.24)	2 849	2	74	2	114	13.3
Other activities related to printing (DE22.25)	2 700	2	67	2	140	18.8
Forest-based industries	115 716	100	2 988	100	133	9.9

" :c " confidential. The difference between totals and components is due to rounding.

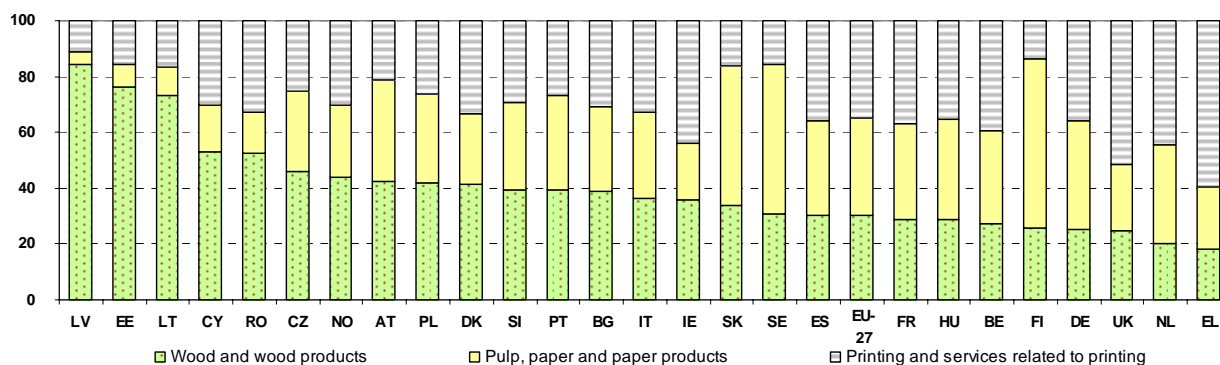
Source: Eurostat, SBS

A breakdown of the subsectors making up EU-27 forest-based industries in 2005 is provided in Table 2. While 43 % of persons were employed in producing Wood and wood products, they generated only 30 % of the value added in the forest-based

industries. Pulp (DE 21.11) displayed the highest wage adjusted labour productivity (210 %) while Other activities related to printing (DE 22.25) had the highest gross operating rate (18.8 %).

² See: [Forestry Statistics – 2007 Edition, Eurostat Pocketbooks](#)

Figure 3 Share of value added in forest-based industries, by subsector, EU-27, 2005 (%)



CZ: 2004; LU: confidential; MT: not available

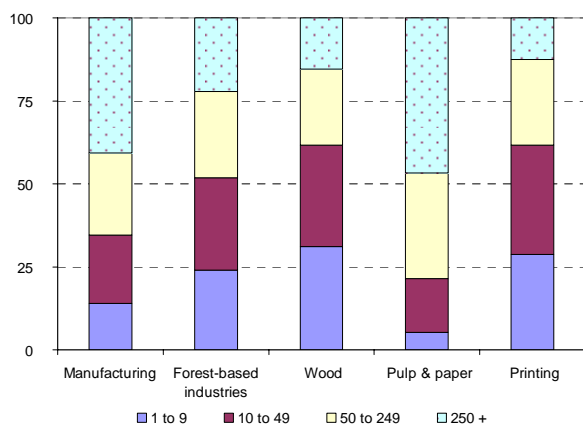
Source: Eurostat, SBS

The Member States' specialisations in the forest-based industries are shown in Figure 3, which depicts the distribution of value added according to the three main subsectors³. The share of Wood and wood products in forest-based industry value added was highest in the three Baltic states, where it was above double the EU-27 average (30 %), reaching 84 %, 76 % and 73 % respectively in

Latvia, Estonia and Lithuania. The three Member States in which Pulp and paper contributed the highest shares of value added, were Finland (61 %), Sweden (53 %) and Slovakia (50 %). The share of Printing in total value added was highest in Greece (60 %), the United Kingdom (52 %), the Netherlands (45 %) and Ireland (44 %).

Employment by enterprise size-class

Figure 4 Persons employed by enterprise size-class, Manufacturing, forest-based industries and subsectors, EU-27, 2005 (%)



Source: Eurostat, SBS

The distribution of the forest-based industries' labour forces according to the enterprise size-classes micro- (1 to 9 persons employed), small (10 to 49), medium (50 to 249) and large (above 250) are compared to that of Manufacturing in Figure 4. While in Manufacturing higher shares of the workforce were employed in large enterprises, employment in forest-based industries as a whole was distributed fairly evenly among the four size-classes. The picture is however different when looking at the size-class distribution of employment in the forest-based industries' three subsectors.

On NACE division level, Wood and wood products (DD 20) SMEs (micro-, small and medium enterprises) had the second-highest⁴ share within manufacturing industry in terms of the number of persons employed (84.4 %) in 2005 after Recycling (DN 37) (88.5 %). In Wood and wood products, and Printing, over 61 % of persons were employed in micro- and small enterprises alone, compared to 34.5 % in Manufacturing.

In Pulp and paper, in contrast, 79.0 % of the workforce was employed in large (47.0 %) and medium-sized enterprises (32.1 %) and only 5.2 % in micro-enterprises. This size-class distribution is typical for enterprises in processing industries, where large production installations are predominant.

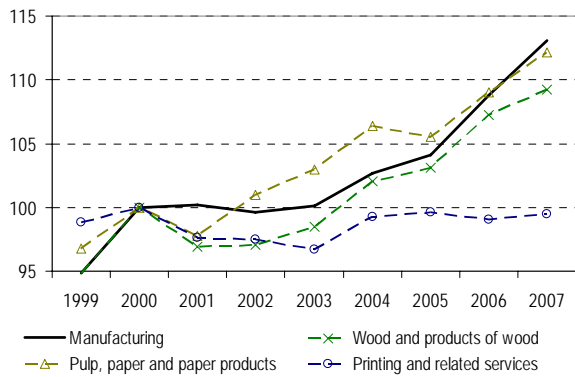
Individual Member States' size-class distributions in the forest-based industries reflect their specialisations in the subsectors of forest-based industries. While the proportion of persons employed in medium and large enterprises was 48.3 % in the EU-27, it was highest in Germany (59.0 %) and lowest in Italy (26.8 %). Germany's high share of medium and large enterprises is linked to relatively strong specialisation in Pulp and paper. In the same way, in Pulp and paper specialists Finland (2004) and Sweden, the shares of persons employed by large enterprises alone were particularly high, at 63.7 % and 44.2 % respectively, compared to the 22.2 % average in forest-based industries in the EU-27 in 2005.

³ For a more detailed analysis of the production of and the trade in wood and pulp products, please see: "[Production and trade of wood products in 2006](#)".

⁴ Printing (NACE 22.2), (on the more detailed Nace-group level) has also a higher employment share of SME's (87%).

Production trends

Figure 5 Production trends in Manufacturing and forest-based industries, index 2000 = 100



Source: Eurostat, STS

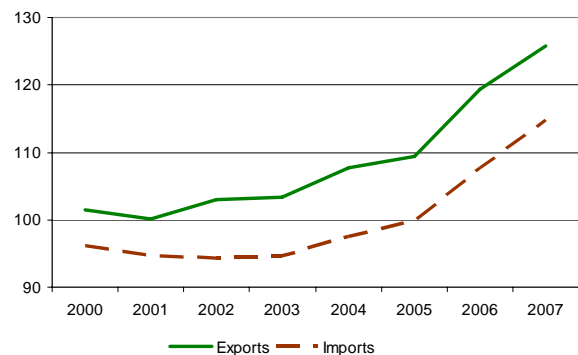
The evolution of the production of Wood and wood products and Pulp and paper more or less followed the general trend in Manufacturing between 2000 and 2007. However, Wood and wood products underperformed somewhat. While Manufacturing stagnated between 2000 and 2003, Wood and wood products, and Printing and related services receded. Wood and wood products rapidly regained momentum after 2002, while the production of Printing and related services stagnated over the period. This may be attributed to strong competition from the new electronic media, especially the Internet. The production of Pulp and paper grew after 2001, only witnessing a downturn from 2004 to 2005 that may in part be related to a slowdown in exports (see Figure 6).

Foreign Trade

The EU-27's foreign trade in forest-based industry products grew strongly from 2000 to 2007, and in particular during the last three years of that period, as shown in Figure 6. In 2007, total exports reached EUR 125.8 billion and imports EUR 114.8 billion. Underlining the Internal Market's importance for these bulky goods, a much higher share of foreign trade was carried out intra-EU-27: 78 % for imports and 75 % for exports. Intra-EU-27 exports consisted in large part of Pulp and paper (63 %) and of Wood and wood products (31 %). Extra-EU-27 exports by subsector were made in very much the same proportions. Imports from extra-EU-27 consisted in large part of Pulp and paper (48 %) and of Wood and wood products (48 %). Both in intra- and extra-EU-27 trade, the low weight of printing products reflects their local nature, linked to language differences and often brief delays in delivery.

The EU-27's main partners for extra-EU-27 forest-based industry exports were the USA (11 % of total) – main client for Wood and wood products, second-main client for both Pulp and paper and Printing – Switzerland (11 %) and Russia (10 %). The EU-27's main import partners for forest-based industry products were China (15 %) – main supplier of Wood and wood products and of Printing products – the USA (14 %) and Brazil (11 %).

Figure 6 Total* forest-based industry exports and imports, 2000 to 2007 (EUR billion)

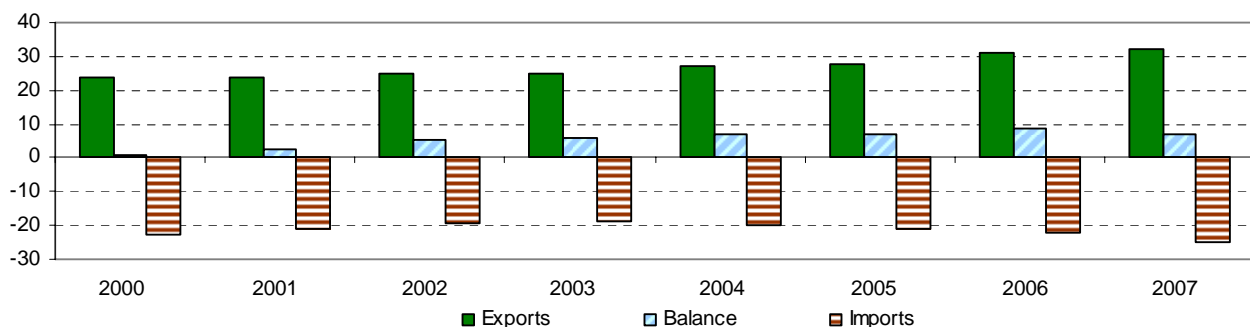


* Intra-EU-27 and extra-EU-27

Source: Eurostat, Comext

The EU-27's trade surplus in forest-based industry products grew over the period peaking at EUR 8.5 billion in 2006, as shown in Figure 7. The extra-EU-27 surplus of EUR 6.8 billion in 2007 was in large part due to a EUR 8.3 billion surplus in the trade in Pulp and paper products (itself explained by a EUR 9.3 billion surplus in Paper and paperboard but a EUR 3.6 billion deficit in Pulp), which outweighed a EUR 2.1 billion deficit in Wood and wood products.

Figure 7 Extra-EU-27 exports, imports and balance of trade in forest-based industry products, 2000 to 2007, (EUR billion)



Source: Eurostat, Comext

Manufacture of Furniture

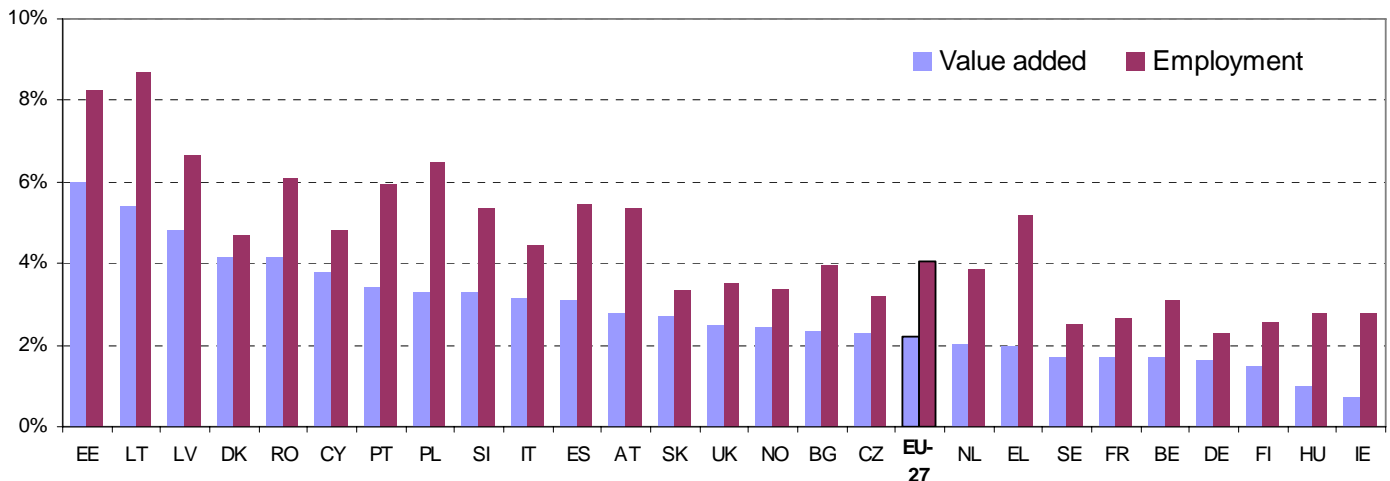
The Manufacture of furniture (NACE DN36.1) is largely based on wood products. According to PRODCOM data, in 2006, 63 % of the sales of Furniture in the EU-27 were those of furniture in which wood was used. The EU-27 Furniture sector displayed an industrial profile resembling that of Wood and wood products or Printing (see: Figure 1), where a higher share of the number of enterprises in Manufacturing total than that of persons employed indicates small-sized enterprises, and a lower share of value added indicates lower apparent labour productivity than in the case of Pulp and paper, for example.

When looking at the subsector's main indicators, close to 150 000 enterprises were active in the Manufacture of furniture in the EU-27 in 2005. Employing 1.4 million persons, their total turnover was EUR 120 billion and

they generated EUR 36 billion value added. Average personnel costs in the Manufacture of furniture were EUR 21 900, below the Manufacturing average of EUR 33 900. They were highest in Germany and lowest in Bulgaria.

In 2005, the Manufacture of furniture displayed lower profitability indicators than did Manufacturing as a whole. The EU-27 sector's apparent labour productivity was EUR 26 800, ranging from EUR 55 400 in Denmark to EUR 2 900 in Bulgaria. Wage adjusted labour productivity was 122 % on average in the EU-27, going from 178.6 % in Latvia to 81.4 % in Greece. At 8.0 % on average in the EU-27, the gross operating rate in the manufacture of Furniture ranged between 15.1 % in Latvia and 4.2 % in France.

Figure 9 Value added and employment of the Manufacture of furniture (NACE DN 36.1), 2005
share of Manufacturing (NACE D)



CZ & IE: 2004; MT: 2002

Source: Eurostat, SBS

The shares in Manufacturing total of value added and employment in the Manufacture of furniture are presented in Figure 9. While in the EU-27 those ratios were 2.2 % and 4.0 % respectively, the highest shares of value added were displayed by the three Baltic states Estonia (6.0 %), Lithuania (5.4 %) and Latvia (4.8 %) together with Denmark (4.1 %). Furniture also made the largest contribution to employment in Manufacturing in Lithuania (8.7 %), Estonia (8.2 %) and Latvia (6.7 %), together with Poland (6.5 %).

Employment size-class statistics are available for enterprises in 16 Member States which account for 81.6 % of persons employed in the Manufacture of furniture in the EU-27 in 2005. The labour-force distribution in furniture according to the enterprise size-classes micro- (22.2 %), small (24.8 %), medium (26.2 %) and large (26.7 %) was fairly even, similar to that of the forest-based industries as a whole.

According to STS data, the production of furniture in the EU-27 was slightly below its 2000 levels in 2007,

appearing to have met rising competition on international markets. In 2007, the EU-27's total exports of Furniture products amounted to EUR 45.1 billion, of which 26 % were made extra-EU-27. Total imports were worth EUR 41.4 billion, of which 31 % came from extra-EU-27. From 2000 until 2007, extra-EU-27 exports of furniture grew at an average annual rate of 3 % while imports grew at 11 %. Thus, the extra-EU-27 trade in furniture went from a surplus of EUR 3.3 billion in 2000 to a EUR 1.2 billion deficit in 2007.

The main partner countries for exports in 2007 were the USA (20 % of total extra-EU-27), Switzerland (16 %), Russia (12 %) and Norway (10 %). For imports, the main partners were China (47 %), Indonesia (6 %), Viet-Nam (5 %) and Turkey (5 %).

The main contributors to EU-27 exports were Italy (31 %), Germany (18 %), France (7 %) and Sweden (7 %), while the main importing Member States were the United Kingdom (26 %), Germany (17 %), France (10 %) and Spain (7 %).

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

DATA SOURCES

The source of all figures presented is Eurostat (unless specifically stated otherwise). Most data sources are continually updated and revised where necessary. This publication reflects the state of data availability in Eurostat's reference database as of February 2008.

Structural Business Statistics (SBS) is the main data source for this publication. Two main SBS data sets have been used: annual enterprise statistics and annual enterprise statistics broken down by size classes. These and other SBS data sets are available under theme 'Industry, trade and services' on the Eurostat website <http://epp.eurostat.ec.europa.eu/> (select 'Data' / 'Industry, trade and services' / 'Horizontal view' / 'Structural Business Statistics'). Selected publications, data and background information are available in the section dedicated to European Business, located directly under the theme 'Industry, trade and services' on the Eurostat website (direct link: <http://ec.europa.eu/eurostat/europeanbusiness>).

PRODCOM provides detailed information on the production of about 4 500 manufactured products (according to the Statistical Classification of Products by Activity: CPA). Data employed here relate to the value of production sold during the reference period.

COMEXT Eurostat's database on external trade supplied data on the value of exports and imports of products, by type of product (CPA), by reporting Member State, by source and by destination.

Short-Term Statistics (STS) were used to complement SBS data with information on time series trends based on the Industrial production index, which shows the evolution of value added at factor cost at constant prices.

COUNTRIES

This publication covers the European Union, including the 27 Member States (EU-27): Belgium (BE), Bulgaria (BG), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK). Also included is the EFTA country with data available: Norway (NO).

EU-27

EU-27 aggregates include estimates for missing components where necessary. EU-27 aggregates from the SBS data set were supplemented by rounded estimates based on non-confidential data where necessary and appropriate. Some differences may exist between aggregates and sub-components due to rounding. In some cases, when no EU totals are available, averages of available countries are presented.

EXCHANGE RATES

All data are presented in ECU/EUR terms, with national currencies converted using average exchange rates prevailing for the year in question.

SYMBOLS

“:c” confidential.

SECTORS

Statistics are presented by sectors of activity according to the NACE Rev. 1.1 system of classification. Comparisons are made with Section D: **Manufacturing**.

OBSERVATION UNIT

The observation unit is the enterprise. An enterprise carries out one or more activities at one or more locations. Enterprises are classified into sectors (by NACE) according to their main activity. The enterprise should not be confused with the local unit, which is an enterprise or part thereof situated in one geographically identified place.

STRUCTURAL BUSINESS STATISTICS VARIABLES

Variables are defined according to Commission Regulation No 2700/98 and include:

Number of enterprises

The number of enterprises active during at least part of the reference period.

Number of persons employed

The total number of persons who work in the observation unit, as well as persons who work outside the unit who belong to it and are paid by it. It includes working proprietors, unpaid family workers, part-time workers, seasonal workers etc.

Value added at factor cost

The gross income from operating activities after adjusting for operating subsidies and indirect taxes (including value added tax).

Turnover

The totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Apparent labour productivity

This is a simple indicator of productivity calculated as value added divided by persons employed.

Average personnel costs

Personnel costs are the total remuneration, in cash or in kind, payable by an employer to an employee for work carried out. This is divided by the number of employees (paid workers), which includes part-time workers, seasonal workers etc., but excludes persons on long-term leave.

Wage adjusted labour productivity (%)

Value added divided by personnel costs, after the latter has been divided by the share of employees (paid workers) in the number of total persons employed. It is also obtained by dividing apparent labour productivity by average personnel costs.

The gross operating rate (%)

This is an indicator of profitability where the gross operating surplus is related to the turnover generated. The gross operating surplus is the surplus generated by operating activities after the labour factor input has been recompensed. It can be calculated from the value added at factor cost less the personnel costs.






Further information

Data: [Eurostat Website: http://ec.europa.eu/eurostat](http://ec.europa.eu/eurostat)

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 -  Annual detailed enterprise statistics on manufacturing subsections DA-DE and total manufacturing (NACE D) (part of Annex 2)
 -  Annual detailed enterprise statistics on manufacturing subsections DF-DN and total manufacturing (NACE D) (part of Annex 2)

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