Machinery and equipment

The machinery and equipment manufacturing sector is almost entirely focused on supplying capital goods or their components to other sectors of the economy, such as the industrial, agricultural or construction sectors, with a view to improving their productivity growth and quality. Demand for machinery and equipment, therefore, tends to follow investment cycles, predominantly within the European Union but also in the global economy.

There have been some recent legislative developments that are important for machinery and equipment enterprises. The so-called machinery directive [1] of the European Parliament and of the Council was amended in May 2006 to redraft several of the harmonisation of health and safety requirements and extend the scope to construction-site hoists and cartridge-operated fixing and other impact machinery, and will be applicable from 29th December 2009 onwards.

[1] Directive 2006/42/EC.

STRUCTURAL PROFILE

The machinery and equipment manufacturing (NACE Subsection DK) sector had some 164 300 enterprises which generated EUR 171.7 billion of value added across the EU-27, representing 3.4 % of the value added generated across the EU-27's non-financial business economy (NACE Sections C to I and K). The sector also employed 3.7 million persons across the EU-27, accounting for 2.9 % of the EU-27's non-financial business economy workforce.

Within the subchapters that follow, the manufacture of industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5, all included in Subchapter 8.2) was the largest in terms of wealth creation, accounting for about two thirds of value added (64.1 %) generated in the EU-27's machinery and equipment manufacturing sector – see Table 8.1. The next largest subsector was that of power machinery manufacturing (NACE Group 29.1, see Subchapter 8.1), that generated more than one fifth (22.4 %) of machinery equipment manufacturing value added.

This chapter covers NACE Subsection DK (Division 29), in other words all mechanical machinery and equipment, except for transport equipment. This sector provides equipment for use in many mining, manufacturing, energy and construction sectors, as well as producing domestic appliances. Furthermore, the machinery and equipment manufacturing sector covers arms and ammunition, whether for military or sporting uses, including some military vehicles such as tanks, but not military aircraft or warships (which are classified under the manufacture of transport equipment – see Chapter 10).

NACE

29: manufacture of machinery and equipment n.e.c.;
29.1: manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines;
29.2: manufacture of other general purpose machinery;
29.3: manufacture of agricultural and forestry machinery;
29.4: manufacture of machine-tools;
29.5: manufacture of other special purpose machinery;
29.6: manufacture of weapons and ammunition;
29.7: manufacture of domestic appliances n.e.c.

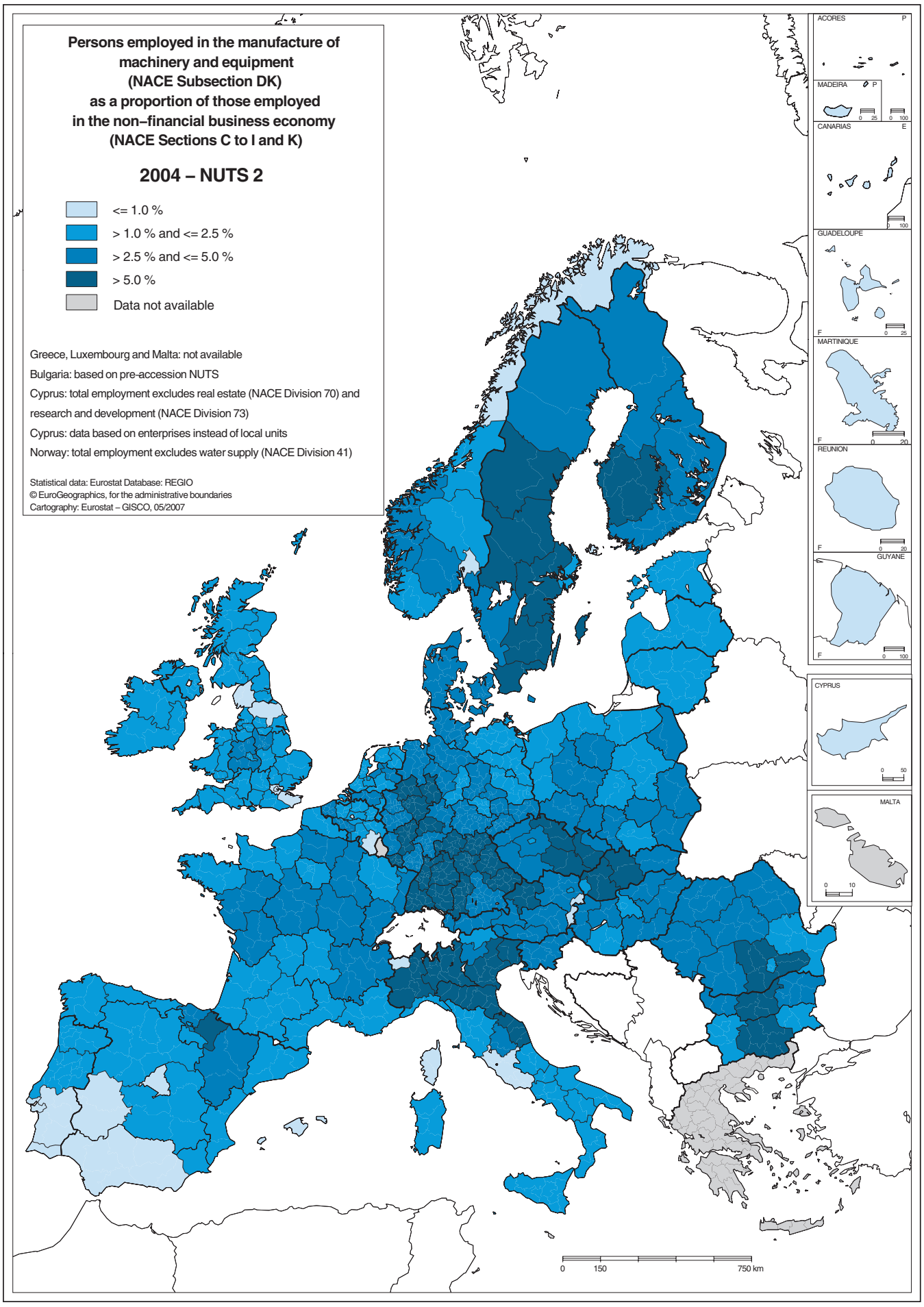

Persons employed in the manufacture of machinery and equipment (NACE Subsection DK) as a proportion of those employed in the non–financial business economy (NACE Sections C to I and K)
2004 – NUTS 2
<= 1.0 %
> 1.0 % and <= 2.5 %
> 2.5 % and <= 5.0 %
> 5.0 %
Data not available
Greece, Luxembourg and Malta: not available
Bulgaria: based on pre-accession NUTS
Cyprus: total employment excludes real estate (NACE Division 70) and research and development (NACE Division 73)
Cyprus: data based on enterprises instead of local units
Norway: total employment excludes water supply (NACE Division 41)
Statistical data: Eurostat Database: REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat – GISCO, 05/2007
ACORES
MADEIRA
CANARIAS
GUADELOUPE
MARTINIQUE
REUNION
GUYANE
CYPRUS
MALTA
0 150 750 km

Table 8.1

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Structural profile, EU-27, 2004

	No. of enterprises		Turnover		Value added		Employment	
	(thousands)	(% of total)	(EUR million)	(% of total)	(EUR million)	(% of total)	(thousands)	(% of total)
Machinery and equipment n.e.c.	164.3	100.0	531 646	100.0	171 696	100.0	3 660.5	100.0
Power machinery (1)	14.6	8.9	112 000	21.1	38 496	22.4	719.4	19.7
Industrial processing machinery (1)	122.8	74.7	324 000	60.9	110 000	64.1	2 300.0	62.8
Agricultural and forestry machinery (1)	21.4	13.0	34 000	6.4	8 000	4.7	210.0	5.7
Arms and ammunition	1.2	0.8	12 669	2.4	4 262	2.5	105.8	2.9
Domestic appliances n.e.c. (1)	4.3	2.6	48 500	9.1	12 400	7.2	286.6	7.8

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

Table 8.2

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Structural profile: ranking of top five Member States, 2004

			Share of non-financial business economy			
Rank	Value added (EUR million) (1)	Employment (thousands) (1)	No. of enterprises (2)	Turnover (2)	Value added (2)	Employment (2)
1	Germany (63 942)	Germany (1 064.2)	Finland (1.9 %)	Germany (4.7 %)	Germany (6.0 %)	Germany (5.1 %)
2	Italy (28 634)	Italy (569.8)	Slovakia (1.7 %)	Italy (4.3 %)	Italy (5.0 %)	Slovakia (4.9 %)
3	United Kingdom (17 573)	France (315.3)	Slovenia (1.7 %)	Sweden (3.9 %)	Slovenia (4.6 %)	Finland (4.6 %)
4	France (16 938)	United Kingdom (304.1)	Germany (1.2 %)	Finland (3.9 %)	Finland (4.5 %)	Sweden (4.6 %)
5	Spain (8 506)	Spain (193.8)	Hungary (1.2 %)	Slovenia (3.7 %)	Sweden (4.2 %)	Slovenia (4.5 %)

(1) Greece and Malta, not available; Luxembourg, 2003.
(2) Ireland, Greece, Cyprus and Malta, not available; Luxembourg, 2003.
Source: Eurostat (SBS)

The machinery and equipment manufacturing sector in Germany was the largest among the Member States, contributing 37.2 % of the value added generated by the sector across the EU-27 in 2004 – see Table 8.2. The next largest Member States in this sector were Italy (16.7 % of EU-27 value added) and the United Kingdom (10.2 %), while no other Member State [(2)] generated a double-digit share of EU-27 value added. Indeed, Germany was the largest manufacturer among the Member States in value added terms for each of the machinery and equipment manufacturing subsectors that are described in the subchapters that follow, with the exception of the manufacture of arms and ammunition (NACE Group 29.6, see Subchapter 8.4). The value added generated by the machinery and equipment manufacturing sector in Germany accounted for 6.0 % of the value added generated across its non-financial business economy, unsurprisingly the highest share among the Member States. Italy and Slovenia were the Member States that were the next most specialised in machinery and equipment manufacturing in 2004, the contribution made by this activity to their respective non-financial business economies being 5.0 % and 4.6 % respectively.

[(2)] Luxembourg, 2003; Greece and Malta, not available.

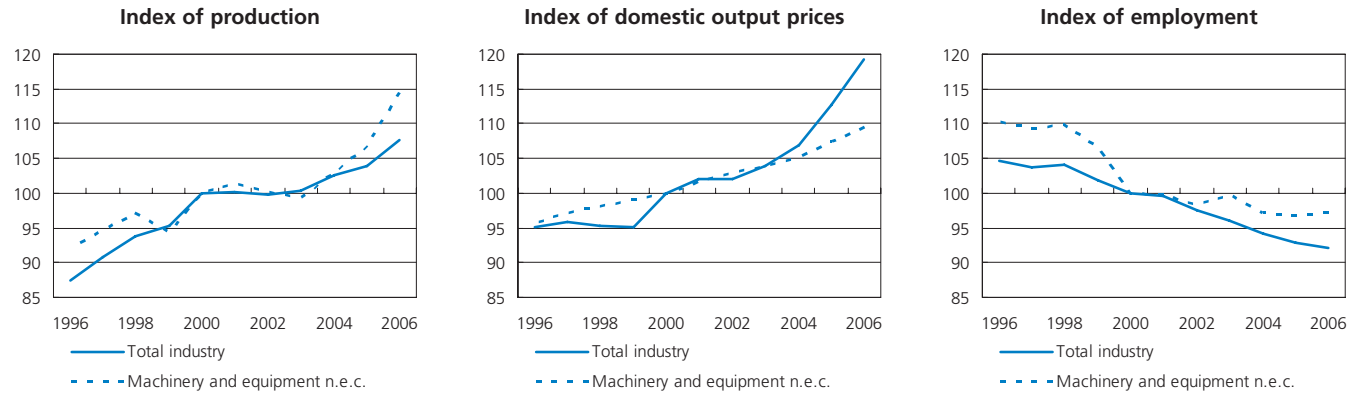
The regional specialisation in machinery and equipment manufacturing in terms of employment is shown on the map on page 158 The six most specialised regions (at the level of detail shown in the map) in this activity were all in Germany; in four of these regions (Tübingen, Unterfranken, Schwaben and Stuttgart) one in every nine or ten people within the non-financial business economy workforce were employed in machinery and equipment manufacturing. There were also several regions in the Czech Republic, Italy and Sweden that were also particularly specialised in this sector.

Over the ten years through until 2006, the production index for machinery and equipment manufacturing rose (an average 2.2 % per annum) at a similar rate to that for industry (NACE Sections C to E) as a whole (2.1 % per annum). Indeed the development of the upward trend in the respective production indices was similar for many years, although the output of machinery and equipment fell back in both 1999 and 2003 in contrast to overall growth in industrial output during these years (see Figure 8.1). In addition, machinery and equipment manufacturing output expanded more sharply in 2004, 2005 and particularly 2006 (a rise of 7.3 % compared to 2005) than average growth in industrial output. Among the NACE groups that make up the manufacture of machinery and equipment, the manufacture of arms and ammunition (NACE Group 29.6) recorded the fastest average annual growth for the production index (2.9 % per annum) from 1996 to 2006 (see Figure 8.2).

The index of domestic output prices for EU-27 machinery and equipment manufacturing grew year-on-year throughout the decade through until 2006 at a remarkably steady rate (an average 1.5 % per annum). This contrasted with the more uneven development for industry as a whole, for which there were some declines in 1998 and 1999 (compared to a year earlier) and much stronger growth in 2005 and 2006. Among the NACE groups that comprise machinery and equipment manufacturing, there were steady annual price rises in line with the machinery and equipment manufacturing average for all except the domestic appliances subsector (NACE Group 29.7), for which prices remained relatively flat throughout the ten years; note data are not available for the price developments of arms and ammunition manufacturing (NACE Group 29.6).

Figure 8.1

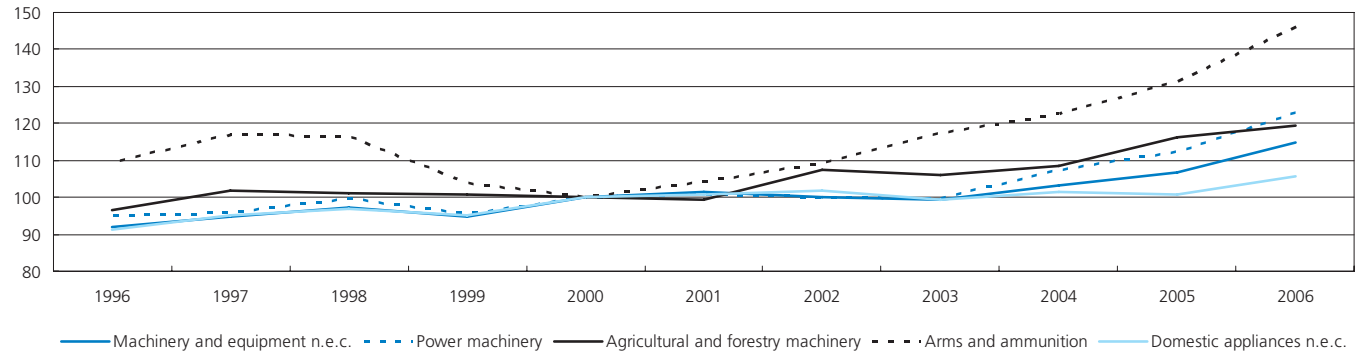
Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Evolution of main indicators, EU-27 (2000=100)



Source: Eurostat (STS)

Figure 8.2

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Index of production, EU-27 (2000=100)

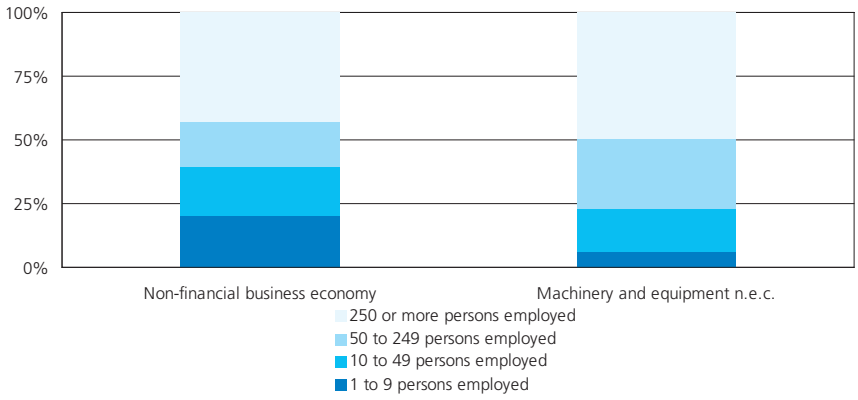


Source: Eurostat (STS)

Small and medium sized enterprises (employing less than 250 persons) within the EU-27's machinery and equipment manufacturing sector generated half (50.5 %) of the value added created by all of its enterprises, a slightly lower proportion than the average across the non-financial business economy (57.0 %) - see Figure 8.3. Despite this relatively low contribution of SMEs as a whole, medium-sized enterprises (with 50 to 249 persons employed) within the sector were particularly important, generating 27.6 % of its total value added, whereas on average similar sized enterprises across the non-financial business economy only generated 17.9 % of value added. This relative importance of medium-sized enterprises within the sector in terms of the value added they created was common to all Member States [3] except Romania, and this was also evident in terms of employment.

Figure 8.3

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Share of value added by enterprise size class, EU-27, 2004

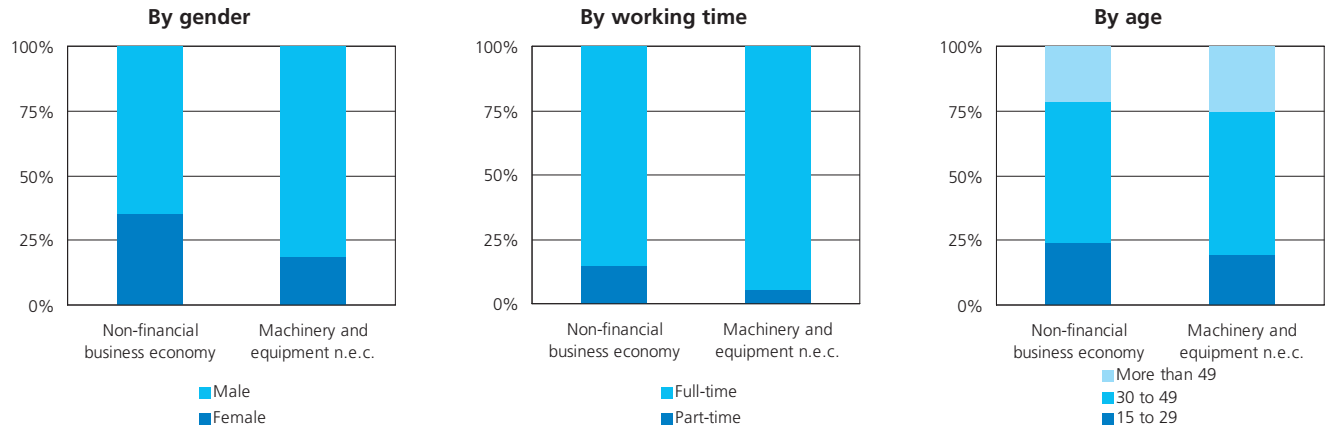


Source: Eurostat (SBS)

[3] Germany, Latvia and Hungary, 2003; Estonia, Ireland, Greece, Cyprus, Luxembourg, Malta, Austria, Portugal and Finland, not available.

Figure 8.4

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Labour force characteristics, EU-27, 2006



Source: Eurostat (LFS)

EMPLOYMENT CHARACTERISTICS

The proportion of the EU-27's machinery and equipment manufacturing sector that were men (81.5 %) was well above the average across the non-financial business economy (65.0 %) – see Figure 8.4 – a characteristic noted in 2006 in all of the Member States [4] but particularly in Cyprus. In keeping with most industrial activities, full-time employment was the dominant form of engagement, accounting for 94.6 % of those employed in the EU-27's machinery and equipment workforce in 2006, a notably higher proportion than the average (85.6 %) across the non-financial business economy, a characteristic also noted in all of the Member States [5].

[4] Estonia, Latvia, Lithuania, Luxembourg and Malta, not available.
[5] Estonia, Ireland, Luxembourg and Malta, not available.

In 2006, in comparison to the age profile of workers across the non-financial business economy, there was a lower proportion of young workers aged between 15 and 29 in the EU-27's machinery and equipment manufacturing sector (19.4 % compared to 24.2 %) and a higher proportion of older workers aged 50 or more (24.9 % compared to 21.6 %).

On the basis of structural business statistics for 2004, there was relatively little self-employment within the EU-27's machinery and equipment manufacturing sector; paid employees accounted for 95.7 % of the number of persons employed, a much higher proportion than that (86.2 %) for the non-financial business economy as a whole.

COSTS, PRODUCTIVITY AND PROFITABILITY

In 2004, as a proportion of total expenditure, investment within the EU-27's machinery and equipment manufacturing sector (NACE Subsection DK) was relatively low (2.9 %) compared to the average share (4.9 %) across the non-financial business economy (NACE Sections C to I and K). In contrast, personnel costs within the sector accounted for a relatively high proportion (25.0 %) of total expenditure compared to the average (16.4 %) across the non-financial business economy, in part reflecting the fact that average personnel costs of EUR 36 300 per employee in the sector were about a third higher (31.5 %) than the non-financial business economy average. Although the average apparent labour productivity (EUR 46 900 per person employed) of those working within the sector across the EU-27 more than covered average personnel costs, the wage adjusted labour productivity ratio of 129.2 % was much lower than the corresponding ratio across the EU-27's non-financial business economy (148.0 %). Among the activities presented in the subchapters that follow, even the highest wage adjusted labour productivity ratio of 138.8 % for the manufacture of power machinery manufacturing (NACE Group 29.1) was notably lower than the non-financial business economy average.

In terms of the gross operating rate, there was also a relatively low rate of profitability across the EU-27's machinery and equipment sector, the gross operating rate of 8.4 % being much less than the rate of 11.0 % for the non-financial business economy in 2004.

Table 8.3

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Productivity and profitability, EU-27, 2004

	Apparent labour productivity (EUR thousand)	Average personnel costs (EUR thousand)	Wage adjusted labour productivity (%)	Gross operating rate (%)
Machinery and equipment n.e.c.	46.9	36.3	129.2	8.4
Power machinery (1)	53.5	38.5	138.8	10.0
Industrial processing machinery (1)	46.5	36.9	126.0	8.2
Agricultural and forestry machinery (1)	38.1	:	:	:
Arms and ammunition	40.3	33.6	119.9	6.8
Domestic appliances n.e.c. (1)	44.0	32.0	135.0	7.0

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

Table 8.4

Machinery and equipment n.e.c. (CPA Subsection DK)
External trade, EU-27, 2006

	Extra-EU exports		Extra-EU imports			
	(EUR million)	(% share of industrial exports)	(EUR million)	(% share of industrial imports)	Trade balance (EUR million)	Cover ratio (%)
Machinery and equipment n.e.c.	171 147	15.8	74 717	6.0	96 430	229.1
Power machinery	40 226	3.7	20 602	1.6	19 625	195.3
Industrial processing machinery	115 097	10.6	42 256	3.4	72 841	272.4
Agricultural and forestry machinery	6 305	0.6	2 270	0.2	4 034	277.7
Arms and ammunition	907	0.1	288	0.0	620	315.4
Domestic appliances n.e.c.	8 612	0.8	9 302	0.7	-690	92.6

Source: Eurostat (Comext)

EXTERNAL TRADE

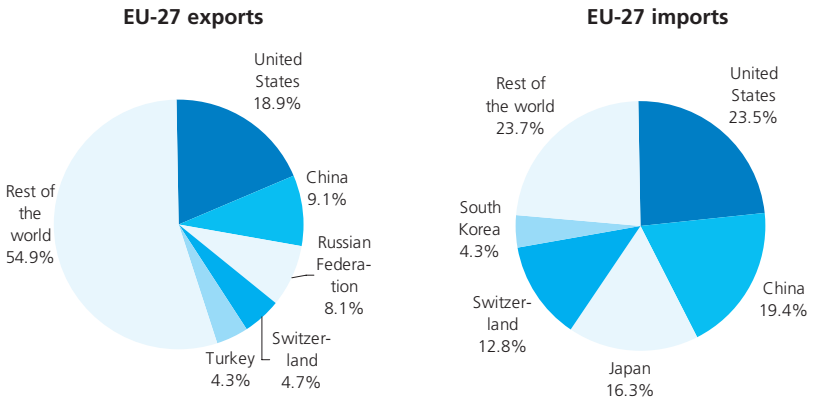
EU-27 trade in machinery and equipment (CPA Subsection DK) generated a surplus of EUR 96.4 billion in 2006, the largest trade surplus of any CPA subsection for industrial goods (CPA Sections C to E), underlining the progressive widening noted since 2001 when the surplus was EUR 55.1 billion. Of the subchapters that follow, the only deficit recorded in 2006 concerned domestic appliances n.e.c. (CPA Group 29.7) and this was relatively small at EUR 0.7 billion – see Table 8.4. In contrast, the largest trade surplus of EUR 72.8 billion was recorded for industrial processing machinery (CPA Groups 29.2, 29.4 and 29.5).

EU-27 exports of machinery and equipment were valued at EUR 171.1 billion in 2006, accounting for 15.8 % of the value of industrial exports. The United States (18.9 %) and then China (9.1 %) accounted for the largest shares of machinery and equipment exports from the EU-27 in 2006 – see Figure 8.5. Imports of machinery and equipment into the EU-27 were valued at EUR 74.7 billion in 2006, with the largest shares coming from the United States (23.5 %), China (19.4 %) and Japan (16.3 %).

Looking at all exports (intra- and extra-EU) of the EU-27 Member States, intra-EU trade of machinery and equipment between Member States accounted for a majority (54.7 %) of the total. Germany was the largest exporter of machinery and equipment in 2006, the value of which (EUR 123.2 billion) accounted for a third (32.6 %) of all intra and extra-EU exports by EU-27 Member States. As a proportion of industrial exports, exports of machinery and equipment from Italy (valued at EUR 65.9 billion) was higher than for any other Member State, reaching 21.0 %, higher for example than in Germany (for which the share was 15.6 %). These two Member States recorded the highest trade surpluses in machinery and equipment; the level in Germany was EUR 75.1 billion and in Italy it was EUR 42.6 billion, dwarfing the next highest surplus of EUR 4.8 billion in Sweden.

Figure 8.5

Machinery and equipment n.e.c. (CPA Subsection DK)
Main destination of EU-27 exports and main origin of EU-27 imports, 2006



Source: Eurostat (Comext)

8.1: POWER MACHINERY

The manufacture of power machinery (NACE Group 29.1) concerns the manufacture of machinery for the production and use of mechanical power. This includes internal combustion engines, as well as steam, gas, wind and hydraulic turbines, pumps, compressors, taps, valves, bearings and transmission equipment. This NACE group excludes the manufacture of propulsion engines for aircraft, vehicles or cycles. Power machines transform different forms of energy, for example, thermal or electrical energy into motion.

STRUCTURAL PROFILE

The power machinery manufacturing sector (NACE Group 29.1) had some 14 600 enterprises which generated EUR 38.5 billion across the EU-27 in 2004, contributing 22.4 % of the total value added for machinery and equipment manufacturing (NACE Subsection DK). The sector also employed 719 400 persons across the EU-27 in 2004, accounting for about one in every five people within the machinery and equipment workforce.

Among the four NACE classes that comprise the power machinery sector, the manufacture of pumps and compressors (NACE Class 29.12) was the largest in terms of value added, contributing 30.1 % of sectoral value added – see Table 8.5. The next largest activities were the manufacture of bearings, gears, gearing and driving elements (NACE Class 29.14), which contributed 28.3 % of sectoral value added, and then the manufacture of taps and valves (NACE Class 29.13), which contributed a further quarter (24.7 %) of the total. The smallest of the four subsectors was the manufacture of engines and turbines (NACE Class 29.11), which generated 16.7 % of the value added for power machinery manufacturing.

The power machinery manufacturing sector in Germany generated EUR 16.4 billion of value added in 2004, which represented 42.6 % of the value added generated across the EU-27, by far the largest share among the Member States – see Table 8.6. Among the Member States, however, the power machinery manufacturing sector in Slovakia contributed the highest proportion (1.6 %) of the value added of any national non-financial business economy (NACE Sections C to I and K), a little higher than the proportion in Germany, and in both cases a little more than double the average share across the EU-27.

Annual short-term statistics show that the staggered growth in the production index for the manufacture of power machinery (NACE Group 29.1) was very similar to, although slightly more pronounced than that for machinery and equipment manufacturing as a whole (NACE Subsection DK) during the ten years between 1996 and 2006 – see Figure 8.2 in the overview to this chapter. Over the same period, there were also very similar developments in the domestic output price indices for the EU-27's manufacture of power machinery on the one hand and machinery and equipment manufacturing as a whole on the other. Like machinery and equipment manufacturing as a whole, the domestic output price index of power machinery manufacturing increased year-on-year at a relatively even pace (an average 1.5 % per annum over the ten years), although there was some accelerated growth in the output price of power machinery after 2003.

Table 8.5

Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (NACE Group 29.1) Structural profile, EU-27, 2004 (1)

	No. of enterprises (thousands)	Turnover (EUR million)	Value added (EUR million)	Employment (thousands)
Power machinery	14.6	112 000	38 496	719.4
Engines and turbines, except aircraft, vehicle and cycle engines	2.8	22 900	6 430	110.0
Pumps and compressors	5.5	34 100	11 600	214.0
Taps and valves	2.8	26 000	9 500	170.0
Bearings, gears, gearing and driving elements	3.4	29 600	10 900	230.0

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

Table 8.6

Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (NACE Group 29.1) Structural profile: ranking of top five Member States, 2004

Rank	Share of EU-27 value added (%) (1)	Share of EU-27 employment (%) (1)	Value added specialisation ratio (EU-27=100) (2)	Employment specialisation ratio (EU-27=100) (2)
1	Germany (42.6)	Germany (33.8)	Slovakia (214.8)	Slovakia (285.2)
2	Italy (15.1)	Italy (13.1)	Germany (203.3)	Denmark (217.1)
3	United Kingdom (10.7)	United Kingdom (9.8)	Denmark (162.3)	Germany (204.3)
4	France (10.1)	France (9.3)	Italy (135.5)	Finland (141.6)
5	Denmark (3.3)	Romania (4.4)	Bulgaria (116.4)	Romania (138.2)

(1) Estonia, Greece, Luxembourg and Malta, not available.
(2) Estonia, Ireland, Greece, Cyprus, Luxembourg and Malta, not available.
Source: Eurostat (SBS)

Table 8.7

Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (NACE Group 29.1) Productivity and profitability, EU-27, 2004 (1)

	Apparent labour productivity (EUR thousand)	Average personnel costs (EUR thousand)	Wage adjusted labour productivity (%)	Gross operating rate (%)
Power machinery	53.5	38.5	138.8	10.0
Engines and turbines, except aircraft, vehicle and cycle engines	59.0	41.0	140.0	9.0
Pumps and compressors	54.5	39.6	137.0	9.7
Taps and valves	56.0	39.0	140.0	11.5
Bearings, gears, gearing and driving elements	48.0	36.0	130.0	9.7

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

Table 8.8

Machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (CPA Group 29.1) External trade, EU-27, 2006

	Extra-EU exports		Extra-EU imports			
	(EUR million)	(% share of chapter)	(EUR million)	(% share of chapter)	Trade balance (EUR million)	Cover ratio (%)
Power machinery	40 226	23.5	20 602	27.6	19 625	195.3
Engines and turbines except aircraft, vehicle and cycle engines	9 003	5.3	5 775	7.7	3 228	155.9
Pumps and compressors	14 126	8.3	6 403	8.6	7 722	220.6
Taps and valves	9 187	5.4	4 235	5.7	4 952	216.9
Bearings, gears, gearing and driving elements	7 910	4.6	4 188	5.6	3 722	188.9

Source: Eurostat (Comext)

COSTS, PRODUCTIVITY AND PROFITABILITY

The structure of costs across the EU-27's power machinery (NACE Group 29.1) sector was similar to that already described for machinery and equipment manufacturing as a whole, with a relatively low ratio of tangible investment (3.7 %) and much higher ratio of personnel costs (25.7 %) in total expenditure than for the non-financial business economy (4.9 % and 16.4 % respectively) in 2004.

Average personnel costs of EUR 38 500 per employee across the EU-27 power machinery sector were the highest among the NACE groups [6] that comprise machinery and equipment manufacturing, and almost two fifths higher than the average across the non-financial business economy. The apparent labour productivity of EUR 53 500 per person employed across the sector in the EU-27 in 2004 (see Table 8.7) was also the highest level among the NACE groups within the machinery and equipment manufacturing and 30.8 % higher than the level across the non-financial business economy. Although the wage adjusted labour productivity ratio of the power machinery sector (138.8 %) was also the highest among the NACE groups of this chapter, it remained below the ratio (148.0 %) for the non-financial business economy.

As with the measures of productivity, the gross operating rate of 10.0 % for the EU-27's power machinery sector was also the highest among the NACE groups of this chapter but was a lower rate of profitability than that for the non-financial business economy as a whole (11.0 %).

[6] The manufacture of agricultural tractors and other agricultural and forestry machinery (NACE Group 29.3), 2003.

EXTERNAL TRADE

EU-27 exports of power machinery (CPA Group 29.1) were valued at EUR 40.2 billion in 2006 (see Table 8.8), accounting for a little less than one quarter (23.5 %) of the value of EU-27 exports of machinery and equipment (CPA Subsection DK). With EU-27 imports of power machinery valued at EUR 20.6 billion in 2006, the EU-27 recorded a trade surplus of EUR 19.6 billion in these goods. Each of the four CPA classes comprising power machinery recorded a trade surplus, with that for pumps and compressors (CPA Class 29.12) being largest at EUR 7.7 billion.

As in the majority of machinery and equipment CPA groups, Germany had by far the largest trade surplus in power machinery among the Member States (EUR 16.5 billion), followed by Italy (EUR 7.9 billion) and then France (EUR 1.0 billion). In contrast, the largest trade deficit (EUR 1.8 billion) in power machinery in 2006 was recorded for Spain.

8.2: INDUSTRIAL PROCESSING MACHINERY

The manufacture of industrial processing machinery is made up of the manufacture of general purpose machinery, machine-tools, and special purpose machinery, as covered by NACE Groups 29.2, 29.4 and 29.5.

Other general purpose machinery covers equipment such as lifting and handling equipment, furnaces and furnace burners, and cooling equipment. Such machinery is of general purpose because it is used by a broad range of downstream sectors, such as the distribution and transport sectors and mining and quarrying sectors. In contrast, special purpose machinery is tailored for use within specific sectors of the economy and particularly the various engineering sectors that are covered in other parts of this chapter as well as Chapters 9 and 10 that follow.

STRUCTURAL PROFILE

The EU-27's industrial processing machinery manufacturing sector (NACE Groups 29.2, 29.4 and 29.5) consisted of 122 800 enterprises which generated EUR 110.0 billion of value added in 2004, contributing almost two thirds (64.1 %) of the value added created across machinery and equipment manufacturing (NACE Subsection DK). The 2.3 million employed in the industrial processing machinery manufacturing sector across the EU-27 in 2004 also represented somewhat less than two in every three (62.8 %) of those in the machinery and equipment workforce.

Of the three NACE groups that make up the manufacture of industrial processing machinery, the largest was the manufacture of other general purpose machinery (NACE Group 29.2), which accounted for a little less than half of sectoral value added (46.8 %) in 2004 and a similar proportion (45.9 %) of its workforce. The manufacture of other special purpose machinery (NACE Group 29.5) was a little smaller, accounting for 38.2 % of sectoral value added and 41.7 % of the industrial processing machinery sector's workforce. The manufacture of machine tools (NACE Group 29.4) was by far the smallest of the three activities covered in this subchapter – see Table 8.9.

The industrial processing sector is made up of 13 NACE classes. Within the EU-27, the largest of these in 2006 was the manufacture of other special purpose machinery not elsewhere classified (NACE Class 29.56), such as printing and book-binding machinery, dryers for wood and centrifugal clothes-dryers, which contributed 18.7 % of the value added generated across the industrial processing machinery manufacturing sector and employed 19.2 % of its workforce. At the NACE class level, three other subsectors contributed one tenth or more of industrial processing value added and employment, all concerning the manufacture of other general purpose

Table 8.9

Manufacture of industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5)
Structural profile, EU-27, 2004 (1)

	No. of enterprises (thousands)	Turnover (EUR million)	Value added (EUR million)	Employment (thousands)
Industrial processing machinery	122.8	324 000	110 000	2 300.0
Other general purpose machinery	63.2	153 425	51 526	1 054.6
Furnaces and furnace burners	3.3	6 000	2 000	41.8
Lifting and handling equipment	16.1	52 100	17 400	350.0
Non-domestic cooling and ventilation equipment	15.0	41 000	13 000	270.0
Other general purpose machinery n.e.c.	28.5	54 400	19 000	390.0
Machine-tools	13.6	40 672	14 568	317.9
Other special purpose machinery	45.9	130 000	42 000	960.0
Machinery for metallurgy	2.5	6 060	2 020	60.0
Machinery for mining, quarrying and construction	6.0	28 600	7 710	190.0
Machinery for food, beverage and tobacco processing	8.4	17 000	5 600	130.0
Machinery for textile, apparel and leather production	5.2	12 000	4 000	95.5
Machinery for paper and paperboard production	1.2	7 640	2 410	45.5
Other special purpose machinery n.e.c.	22.7	58 700	20 600	443.0

(1) Rounded estimates based on non-confidential data, except for machine tools.
Source: Eurostat (SBS)

Table 8.10

Manufacture of industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5)
Structural profile: ranking of top five Member States, 2004

Rank	Share of EU-27 value added (%) (1)	Share of EU-27 employment (%) (2)	Value added specialisation ratio (EU-27=100) (3)	Employment specialisation ratio (EU-27=100) (4)
1	Germany (37.4)	Germany (30.8)	Germany (178.4)	Germany (186.1)
2	Italy (16.6)	Italy (16.3)	Italy (149.5)	Finland (173.5)
3	United Kingdom (9.4)	France (8.2)	Finland (145.6)	Sweden (172.1)
4	France (9.0)	United Kingdom (7.8)	Austria (134.8)	Czech Republic (158.0)
5	Spain (5.2)	Spain (5.9)	Sweden (128.9)	Slovakia (144.5)

(1) Greece, Luxembourg and Malta, not available; Denmark and Slovenia, 2003.
(2) Greece, Luxembourg and Malta, not available; Denmark, 2003.
(3) Ireland, Greece, Cyprus, Luxembourg and Malta, not available; Denmark and Slovenia, 2003.
(4) Ireland, Greece, Cyprus, Luxembourg and Malta, not available; Denmark, 2003.
Source: Eurostat (SBS)

Table 8.11

Production of selected products - industrial processing machinery (CPA Groups 29.2, 29.4 and 29.5), EU-27, 2006 (1)

	Prodcom code	Production value (EUR million)	Volume of sold production (thousands)	Unit of volume
Parts of machines of 8479	29.56.26.70	5 068	-	-
Machinery for packing or wrapping (excluding for filling, closing, sealing, capsuling or labelling bottles, cans, boxes, bags or other containers)	29.24.21.70	4 643	218	units
Parts for earthmoving equipt., ships' derricks, cranes, mobile lifting frames excluding buckets, shovels, grabs, grips, blades (all types of construction equipt.), for boring/sinking machinery	29.52.61.50	4 547	-	-
Parts of machinery of HS 8425, 8427 and 8428 (excluding lift, skip hoists or escalators)	29.22.19.30	4 100	-	-
Self-propelled fork-lift trucks, rough terrain and other trucks, non-electric, with a lifting height <= 1m	29.22.15.33	3 420	83	units
Self-propelled fork-lift trucks powered by an electric motor, with a lifting height <= 1 m	29.22.15.13	2 753	171	units
Wheeled loaders, crawler shovel loaders, front-end loaders	29.52.25.50	2 467	45	units
Self-propelled coal or rock cutters and tunnelling machinery	29.52.12.33	1 421	9	units
Machinery for making pulp of fibrous cellulosic material	29.55.11.13	1 267	c	units
Fully or partly automatic electrical machines for resistance welding of metal	29.43.20.30	806	54	units

(1) Estimated.
Source: Eurostat (PRODCOM)

machinery: the manufacture of other general purpose machinery not elsewhere classified (NACE Class 29.24), such as industrial cleaning and packing machines, centrifuges and gas generators contributed 17.3 % of sectoral value added, the manufacture of lifting and handling equipment (NACE Class 29.22) contributed 15.8 %, and the manufacture of non-domestic cooling and ventilation equipment (NACE Class 29.23) contributed 11.8 % of value added.

The industrial processing machinery manufacturing sector in Germany contributed a little more than one third (37.4 %) of the value added generated by the sector across the EU-27 in 2004, more than double the next highest contribution which was from Italy (16.6 %) – see Table 8.10. Germany had an even greater presence in the manufacture of machine-tools, where it contributed a little over half (52.6 %) of the value added across the EU-27. Germany was also the most specialised Member State in industrial processing machinery manufacturing in 2004, the value added generated by this activity accounting for 3.8 % of the value added generated across its non-financial business economy (NACE Sections C to I and K) in 2004, a much higher share than the average (2.2 %) for the EU-27. In these relative terms, Italy and Finland were also relatively specialised in this sector.

The production indices for the three NACE groups that comprise the manufacture of industrial processing machinery generally followed a similar progression to the index for the manufacture of machinery and equipment as a whole over the period between 1996 and 2001. All three groups then experienced varying declines in output in 2002 and 2003 (and 2004 in the case of the manufacture of machine tools) before a return to strong growth. Over the ten years through until 2006, the growth in output of other general purpose machinery (NACE Group 29.2) was strongest (an average 2.4 %) and most closely followed the broader development for machinery and equipment manufacturing. The lower rates of growth in the output of both other special purpose machinery (NACE Group 29.5) and the manufacture of machine tools (NACE Group 29.4), an average 1.5 % and 1.4 % per annum respectively, in large part reflected the downturns in output after 2001. The domestic output price indices of the three NACE groups developed in a very similar way to that for machinery and equipment manufacturing as a whole throughout the period between 1996 and 2006, with year-on-year rises which averaged between 1.3 % and 1.4 % per annum.

COSTS, PRODUCTIVITY AND PROFITABILITY

The structure of costs within the industrial processing machinery manufacturing sector was very similar to that for machinery and equipment manufacturing as a whole, albeit with a slightly lower proportion of total expenditure accounted for by investment expenditure (2.6 %) and slightly higher proportion accounted for by personnel costs (26.4 %).

Average personnel costs for those working in the sector (EUR 36 900 per employee) across the EU-27 were very similar to the average across machinery and equipment manufacturing as a whole and about one third higher (33.7 %) than the average across the non-financial business economy. Apparent labour productivity of EUR 46 500 per person employed in the sector (see Table 8.12) was also similar to the average across machinery and equipment manufacturing as a whole. As a result, the wage adjusted labour productivity ratio of the industrial processing machinery manufacturing sector (126.0 %) was also similar to the average for the activities covered in this chapter and was notably lower, therefore, than the average ratio (148.0 %) across the non-financial business economy. This characteristic was common to all Member States [7], with the exception of Italy where the wage adjusted labour productivity ratio of the sector was slightly above the ratio for the non-financial business economy.

[7] Denmark and Slovenia, 2003; Ireland, Greece, Cyprus, Luxembourg and Malta, not available.

Table 8.12

Manufacture of industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5)
Productivity and profitability, EU-27, 2004 (1)

	Apparent labour productivity (EUR thousand)	Average personnel costs (EUR thousand)	Wage adjusted labour productivity (%)	Gross operating rate (%)
Industrial processing machinery	46.5	36.9	126.0	8.2
Other general purpose machinery	48.9	37.8	129.1	9.2
Furnaces and furnace burners	48.0	39.0	123.0	8.3
Lifting and handling equipment	49.8	37.9	132.0	9.0
Non-domestic cooling and ventilation equipment	48.0	38.0	129.0	8.4
Other general purpose machinery n.e.c.	48.7	38.1	128.0	10.0
Machine-tools	45.8	37.0	123.8	7.9
Other special purpose machinery	44.1	36.0	123.0	7.2
Machinery for metallurgy	34.0	28.0	120.0	6.9
Machinery for mining, quarrying and construction	40.0	31.0	130.0	7.5
Machinery for food, beverage and tobacco processing	45.0	35.0	127.0	8.4
Machinery for textile, apparel and leather production	42.0	36.0	116.0	6.0
Machinery for paper and paperboard production	52.9	46.9	113.0	4.3
Other special purpose machinery n.e.c.	46.7	38.2	122.0	7.5

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

Table 8.13

Industrial processing machinery (CPA Groups 29.2, 29.4 and 29.5)
External trade, EU-27, 2006

	Extra-EU exports		Extra-EU imports			
	(EUR million)	(% share of chapter)	(EUR million)	(% share of chapter)	Trade balance (EUR million)	Cover ratio (%)
Industrial processing machinery	115 097	67.3	42 256	56.6	72 841	272.4
Other general purpose machinery	41 169	24.1	15 787	21.1	25 382	260.8
Furnaces and furnace burners	2 986	1.7	588.0	0.8	2 398.0	508.0
Lifting and handling equipment	11 557	6.8	3 338.0	4.5	8 219.0	346.0
Non-domestic cooling and ventilation equipment	8 827	5.2	6 544.0	8.8	2 283.0	135.0
Other general purpose machinery n.e.c.	17 798	10.4	5 316.0	7.1	12 481.0	335.0
Machine tools	15 628	9.1	9 830	13.2	5 799	159.0
Other special purpose machinery	58 300	34.1	16 639	22.3	41 661	350.4
Machinery for metallurgy	2 547	1.5	323	0.4	2 224	790.0
Machinery for mining, quarrying and construction	17 490	10.2	5 813	7.8	11 677	301.0
Machinery for food, beverage and tobacco processing	5 564	3.3	801	1.1	4 762	694.0
Machinery for textile, apparel and leather production	6 688	3.9	1 204	1.6	5 484	555.0
Machinery for paper and paperboard production	3 282	1.9	739	1.0	2 543	444.0
Other special purpose machinery n.e.c.	22 728	13.3	7 759	10.4	14 969	293.0

Source: Eurostat (Comext)

The gross operating rate, a measure of profitability that compares the gross operating surplus with turnover, for the EU-27's manufacture of industrial processing machinery sector was 8.2 % in 2004. The manufacture of other general purpose machinery (NACE Group 29.2) had the highest gross operating rate (9.2 %) among the three NACE groups covered, although this rate remained below the non-financial business economy average (11.0 %).

EXTERNAL TRADE

EU-27 exports of industrial processing machinery (CPA Groups 29.2, 29.4 and 29.5) were valued at EUR 115.1 billion in 2006 (see Table 8.13), accounting for 10.6 % of the value of industrial (CPA Sections C to E) exports. The EU-27 trade surplus with non-member countries in industrial processing machinery widened to EUR 72.8 billion in 2006, despite the strong rise in the value of imports to EUR 42.3 billion. There were trade surpluses for each of the CPA groups that comprise industrial processing machinery, although the majority (57.2 %) of the surplus came from EU-27 trade in other general purpose machinery (CPA Group 29.2).

Germany had a trade surplus (intra- and extra EU trade) of EUR 52.4 billion in industrial processing machinery in 2006, almost double the surplus recorded by Italy (EUR 27.0 billion) and substantially more than the third highest surplus (EUR 4.4 billion) which was recorded by Sweden.

8.3: AGRICULTURAL AND FORESTRY MACHINERY

NACE Group 29.3 covers the manufacture of agricultural tractors and other agricultural and forestry machinery, but not agricultural hand tools.

Domestic demand for agricultural machinery is closely linked to structural developments and profitability within farming. The number of farms has been declining steeply and steadily for many years (a decline of 14.6 % in the EU-15 [8] between 2000 and 2005 according to statistics from the Structure of Agricultural Holdings), which has had the dual effect of reducing the size of the domestic market and increasing the second-hand market for machinery. There has also been an increasing tendency to use specialist machinery contractors for sowing, harvesting and spraying.

[8] France, not available.

STRUCTURAL PROFILE

The agricultural and forestry machinery manufacturing sector (NACE Group 29.3) was one of the smaller activities within the manufacture of machinery and equipment (NACE Subsection DK); the sector had some 21 400 enterprises and generated EUR 8.0 billion of value added across the EU-27 in 2004, contributing 4.7 % of value added generated by all the manufacturing activities covered by this chapter and the 210 000 people employed accounted for only a slightly higher proportion (5.7 %) of the manufacture of machinery and equipment workforce.

The manufacture of other agricultural and forestry machinery (NACE Class 29.32), generated the bulk (82.5 %) of sectoral value added, the remainder being generated by the manufacture of agricultural tractors (NACE Class 29.31).

A quarter (25.3 %) of sectoral value added was generated in Germany, the largest contribution among Member States, the next largest coming from Italy (18.4 %) and France (15.5 %) – see Table 8.14. In terms of this sector's contribution to the value added of the national non-financial business economies (NACE Sections C to I and K), Finland, Austria and Italy were relatively more specialised in the manufacture of agricultural and forestry machinery than the other Member States [9].

[9] Denmark, Ireland, Greece, Cyprus, Luxembourg, Malta and Netherlands, not available.

Table 8.14

Manufacture of agricultural and forestry machinery (NACE Group 29.3)
Structural profile: ranking of top five Member States, 2004

Rank	Share of EU-27 value added (%) (1)	Share of EU-27 employment (%) (2)	Value added specialisation ratio (EU-27=100) (3)	Employment specialisation ratio (EU-27=100) (4)
1	Germany (25.3)	Germany (18.3)	Finland (272.4)	Finland (229.4)
2	Italy (18.4)	Italy (16.9)	Austria (203.0)	Austria (178.2)
3	France (15.5)	France (13.7)	Italy (165.1)	Slovenia (151.9)
4	United Kingdom (5.2)	Poland (8.6)	Slovenia (132.1)	Czech Republic (146.0)
5	Austria (4.9)	Spain (5.4)	Czech Republic (124.1)	Italy (143.9)

(1) Denmark, Greece, Luxembourg, Malta and Netherlands, not available.
(2) Denmark, Greece, Luxembourg and Malta, not available; Slovenia, 2003.
(3) Denmark, Ireland, Greece, Cyprus, Luxembourg, Malta and Netherlands, not available.
(4) Denmark, Ireland, Greece, Cyprus, Luxembourg and Malta, not available; Slovenia, 2003.
Source: Eurostat (SBS)

Table 8.15

Production of selected products - agricultural and forestry machinery (CPA Group 29.3), EU-27, 2006 (1)

	Prodcom code	Production value (EUR million)	Volume of sold production (thousands)	Unit of volume
New agricultural and forestry tractors, wheeled, of an engine power > 59 kW but <= 75 kW (excluding pedestrian-controlled tractors)	29.31.23.30	1 842	64	units
Combine harvester-threshers	29.32.34.10	1 162	14	units
New agricultural and forestry tractors, wheeled, of an engine power > 75 kW but <= 90 kW (excluding pedestrian-controlled tractors)	29.31.23.50	1 076	20	units
New agricultural and forestry tractors, wheeled, of an engine power > 37 kW but <= 59 kW (excluding pedestrian-controlled tractors)	29.31.22.00	1 059	49	units
Parts of agricultural, horticultural or forestry machinery for soil preparation or cultivation	29.32.70.20	831	-	-
Self-loading or self-unloading trailers for agricultural purposes	29.32.50.40	771	91	units
Self-propelled powered mowers with a seat and with the cutting device rotating in a horizontal plane, for lawns, parks, golf courses or sports grounds (excluding electric mowers)	29.32.20.33	647	918	units
Seeders for agricultural or horticultural use (excluding central driven precision spacing seeders)	29.32.13.35	262	36	units
New agricultural and forestry tractors, wheeled, of an engine power <= 18 kW (excluding pedestrian-controlled tractors)	29.31.21.30	79	40	units

(1) Estimated.
Source: Eurostat (PRODCOM)

The output of the EU-27's manufacture of agricultural and forestry machinery grew during the period between 1996 and 2006, although did so unevenly and in stages. There was strong growth in the production index between 1996 and 1997, which was partly undone by the subsequent year-on-year declines through until 2001. There was then strong growth in the production index in 2002, which was again followed by a small decline, although there was a return to growth in 2004, 2005 and 2006. Over the ten years through until 2006 the average rate of growth in the production index for the manufacture of agricultural and forestry machinery (an average 2.1 % per annum) was very similar to the rate of growth for the manufacture of machinery and equipment as a whole.

COSTS, PRODUCTIVITY AND PROFITABILITY

The apparent labour productivity of those working in the EU-27's manufacture of agricultural and forestry machinery sector was around EUR 38 000 per person employed in 2004, EUR 8 800 per person less than the level across machinery and equipment manufacturing as a whole. Figures for 2003, however, suggest that average personnel costs per employee in the sector were also low, resulting in a wage adjusted labour productivity ratio for the sector (129.9 %) that was slightly above the machinery and equipment average but well below the ratio for the non-financial business economy.

EXTERNAL TRADE

The EU-27 recorded a EUR 4.0 billion trade surplus for agricultural and forestry machinery (CPA Group 29.3) in 2006, resulting from EU-27 exports of EUR 6.3 billion and imports of EUR 2.3 billion (see Table 8.16). Both the CPA classes within agricultural and forestry machinery recorded trade surpluses in 2006, with the surplus for other agricultural and forestry machinery (CPA Class 29.32) accounting for a little less than two thirds (64.7 %) of the total. The largest trade surpluses (intra- and extra-EU trade) for agricultural and forestry machinery among the Member States in 2006 were recorded for Germany (EUR 4.0 billion) and Italy (EUR 2.4 billion).

Table 8.16

Agricultural and forestry machinery (CPA Group 29.3)
External trade, EU-27, 2006

	Extra-EU exports		Extra-EU imports			
	(EUR million)	(% share of chapter)	(EUR million)	(% share of chapter)	Trade balance (EUR million)	Cover ratio (%)
Agricultural and forestry machinery	6 305	3.7	2 270	3.0	4 034	277.7
Agricultural tractors	2 193	1.3	769	1.0	1 424	285.3
Other agricultural and forestry machinery	4 112	2.4	1 502	2.0	2 610	273.8

Source: Eurostat (Comext)

8.4: ARMS AND AMMUNITION

The activity of NACE Group 29.6 covers the manufacture of tanks and other fighting vehicles, artillery material and ballistic missiles, small arms and ammunition. This activity also includes the manufacture of hunting, sporting or protective firearms and ammunition, as well as explosive devices (such as bombs, mines and torpedoes).

In comparison to many of the other sectors of the economy covered by this publication, the availability of data on the arms and ammunition sector is often restricted by issues of confidentiality. Therefore, the likelihood of an under-reporting of arms production and sales must be borne in mind by readers.

STRUCTURAL PROFILE

Among the NACE groups that make up machinery and equipment manufacturing, the manufacture of arms and ammunition sector (NACE Group 29.6) was the smallest in terms of both the value added generated (EUR 4.3 billion) and the size of its workforce (105 800 persons); the sector accounted for only 2.5 % of the value added generated across machinery and equipment manufacturing and 2.9 % of its workforce. There were 1 240 enterprises registered in the EU-27's arms and ammunition sector in 2004.

The manufacture of arms and ammunition sector in the United Kingdom generated more value added than in any other Member State, accounting for a little over a quarter (26.9 %) of the value added generated across the EU-27 in 2004. The next highest contributions came from France (19.5 %) and Germany (19.2 %) – see Table 8.17. Across the EU-27 as a whole, the contribution made by the manufacture of arms and ammunition sector to the value added of the non-financial business economy (NACE Sections C to I and K) was only 0.1 % in 2004. In these terms, Bulgaria was by far the most specialised Member State [10] in this activity, the sector contributing 0.5 % of the value added of its non-financial business economy, followed by Sweden and Romania.

Over the period between 1996 and 2006, the production index for arms and munitions manufacturing (as given in annual short-term statistics) grew by an average 2.9 % per annum, the fastest rate of growth among the NACE groups that comprise machinery and equipment manufacturing. However, there were two distinct periods of output development; the first was characterised by falling output after 1997 through until 2000 and the second by the subsequent, sustained strong growth through until 2006, at an average 6.5 % per annum.

[10] Slovenia, 2003; Denmark, Estonia, Ireland, Greece, Cyprus, Latvia, Luxembourg, Malta and Netherlands, not available.

COSTS, PRODUCTIVITY AND PROFITABILITY

The wage adjusted labour productivity ratio of the EU-27's arms and ammunition manufacturing sector was 119.9 % in 2004, the lowest of any of the NACE groups [11] that make up machinery and equipment manufacturing and much lower than the ratio for the EU-27's non-financial business economy (148.0 %). The wage adjusted labour productivity ratio for the sector in 2004, reflected a relatively low apparent labour productivity level of EUR 40 300 per person employed and relatively high average personnel costs of EUR 33 600 per employee.

EXTERNAL TRADE

Exports of arms and ammunition (CPA Group 29.6) to non-member countries accounted for a small majority (53.3 %) of the EU-27 Member States' trade (intra- and extra-EU), the second highest proportion among the various subchapters of this publication.

The value of exports of arms and ammunition recorded in official external trade statistics was relatively small at EUR 907.5 million in 2006, from which a trade surplus of EUR 619.8 million was recorded.

[11] The manufacture of agricultural tractors and other agricultural and forestry machinery (NACE Group 29.3), 2003.

Table 8.17

Manufacture of arms and ammunition (NACE Group 29.6)
Structural profile: ranking of top five Member States, 2004

Rank	Share of EU-27 value added (%) (1)	Share of EU-27 employment (%) (2)	Value added specialisation ratio (EU-27=100) (3)	Employment specialisation ratio (EU-27=100) (4)
1	United Kingdom (26.9)	United Kingdom (16.0)	Bulgaria (638.2)	Bulgaria (960.1)
2	France (19.5)	Romania (15.7)	Sweden (250.8)	Romania (489.2)
3	Germany (19.2)	Bulgaria (13.6)	Romania (178.0)	Sweden (168.8)
4	Italy (9.6)	France (11.6)	Finland (149.3)	Czech Republic (156.1)
5	Sweden (7.3)	Germany (11.2)	United Kingdom (142.0)	Finland (123.7)

(1) Denmark, Estonia, Greece, Latvia, Luxembourg, Malta and Netherlands, not available; Slovenia, 2003.
(2) Denmark, Estonia, Greece, Luxembourg, Malta and Netherlands, not available; Slovenia, 2003.
(3) Denmark, Estonia, Ireland, Greece, Cyprus, Latvia, Luxembourg, Malta and Netherlands, not available; Slovenia, 2003.
(4) Denmark, Estonia, Ireland, Greece, Cyprus, Luxembourg, Malta and Netherlands, not available; Slovenia, 2003.
Source: Eurostat (SBS)

8.5: DOMESTIC APPLIANCES

The activities of NACE Group 29.7 cover the manufacture of domestic electrical appliances (such as white goods and vacuum cleaners), heating appliances, and non-electric domestic cooking equipment.

Among the activities covered by the machinery and equipment manufacturing sector, the domestic appliances manufacturing sector (NACE Group 29.7) is the only one for which households are the main customers. Product innovations have tended to concentrate on efficiency and environmental considerations, lifestyle changes, the incorporation of new materials, design and ergonomics.

STRUCTURAL PROFILE

The domestic appliances manufacturing sector (NACE Group 29.7) of the EU-27 consisted of 4 300 enterprises which generated EUR 12.4 billion of value added in 2004, accounting for 7.2 % of the value added created by all machinery and equipment manufacturing activities (NACE Subsection DK). The sector employed 286 600 persons throughout all of the Member States, which represented 7.8 % of the machinery and equipment workforce.

The value added generated by the domestic appliances manufacturing sector in Germany was much larger than that in any other Member State, accounting for 29.0 % of the total across the EU-27 in 2004 – see Table 8.18. However, Slovenia was by far the most specialised Member State [12] in the manufacture of domestic appliances, as the sector contributed 2.1 % of the value added of the Slovenian non-financial business economy (NACE Sections C to I and K) in 2004, compared to an average 0.3 % across the EU-27.

[12] Estonia, 2003; Ireland, Greece, Cyprus, Latvia, Luxembourg and Malta, not available.

The production index for the EU-27's domestic appliances manufacturing developed in an almost identical manner to the index for machinery and equipment manufacturing as a whole in the period between 1996 and 2003, after which growth in the output of domestic appliances manufacturing was weaker and more staggered (a slight decline in 2005). Over the ten years through until 2006, the output of domestic appliances manufacturing increased by an average 1.5 % per annum, a slower rate than that for machinery and equipment manufacturing as a whole (an average 2.2 % per annum). For most of this ten-year period, the output price index for domestic appliances remained remarkably flat; average growth was limited to 0.4 % per annum with much of this resulting from an upswing in prices in 2005 and 2006.

Table 8.18

Manufacture of domestic appliances n.e.c. (NACE Group 29.7)
Structural profile: ranking of top five Member States, 2004

Rank	Share of EU-27 value added (%) (1)	Share of EU-27 employment (%) (2)	Value added specialisation ratio (EU-27=100) (3)	Employment specialisation ratio (EU-27=100) (4)
1	Germany (29.0)	Germany (21.8)	Slovenia (868.2)	Slovenia (798.4)
2	Italy (21.4)	Italy (20.7)	Italy (192.7)	Italy (176.2)
3	United Kingdom (12.7)	United Kingdom (9.3)	Hungary (171.3)	Hungary (169.4)
4	Spain (9.4)	Spain (7.6)	Romania (155.3)	Slovakia (167.7)
5	France (8.3)	France (6.8)	Lithuania (152.8)	Sweden (165.2)

(1) Greece, Latvia, Luxembourg and Malta, not available; Estonia, 2003.
(2) Greece, Luxembourg, Malta and Netherlands, not available; Estonia, 2003.
(3) Ireland, Greece, Cyprus, Latvia, Luxembourg and Malta, not available; Estonia, 2003.
(4) Ireland, Greece, Cyprus, Luxembourg, Malta and Netherlands, not available; Estonia, 2003.
Source: Eurostat (SBS)

Table 8.19

Production of selected products - domestic appliances n.e.c. (CPA Group 29.7), EU-27, 2006 (1)

	Prodcom code	Production value (EUR million)	Volume of sold production (thousands)	Unit of volume
Fully-automatic washing machines of a dry linen capacity <= 10 kg (including machines which both wash and dry)	29.71.13.30	4 362	17 818	units
Household dishwashing machines	29.71.12.00	2 487	9 717	units
Combined refrigerators-freezers, with separate external doors	29.71.11.10	1 797	7 326	units
Domestic electric hobs for building-in	29.71.28.33	1 660	20 613	units
Non-electric instantaneous or storage water heaters	29.72.14.00	1 514	5 228	units
Household-type refrigerators (including compression-type, electrical absorption-type) (excluding built-in)	29.71.11.33	1 309	16 923	units
Parts for electro-mechanical domestic appliances with a self-contained electric motor	29.71.30.30	1 258	-	-
Iron or steel solid fuel domestic appliances (including heaters, grates, fires and braziers; excluding cooking appliances and plate warmers)	29.72.12.70	1 146	2 180	units
Drying machines of a dry linen capacity <= 10 kg	29.71.13.70	1 012	5 088	units
Parts of appliances of 8516	29.71.30.70	937	-	-

(1) Estimated.
Source: Eurostat (PRODCOM)

Table 8.20

Domestic appliances n.e.c. (CPA Group 29.7)
External trade, EU-27, 2006

	Extra-EU exports		Extra-EU imports			
	(EUR million)	(% share of chapter)	(EUR million)	(% share of chapter)	Trade balance (EUR million)	Cover ratio (%)
Domestic appliances n.e.c.	8 612	5.0	9 302	12.4	-690	92.6
Electric domestic appliances	7 489	4.4	8 564	11.5	-1 075	87.5
Non-electric domestic appliances	1 122	0.7	738	1.0	384	152.0

Source: Eurostat (Comext)

COSTS, PRODUCTIVITY AND PROFITABILITY

The proportion of total expenditure accounted for by personnel costs in the EU-27's domestic appliances manufacturing sector was 19.1 % in 2004, by far the lowest proportion among the NACE groups within machinery and equipment manufacturing as a whole and much closer to the proportion across the non-financial business economy (16.4 %). This may be explained, in part, by average personnel costs in the sector (EUR 32 000 per employee) that were also relatively low (EUR 4 300 per employee less than across machinery and equipment manufacturing as a whole).

Although the apparent labour productivity level of EUR 44 000 per person employed in the sector in 2004 was also less than the average across all of the EU-27's machinery and equipment manufacturing activities, the wage adjusted labour productivity ratio of 135.0 % for EU-27's domestic appliances manufacturing sector was higher than the chapter average (129.2 %).

EXTERNAL TRADE

EU-27 exports of domestic appliances (CPA Group 29.7) were valued at EUR 8.6 billion in 2006, however, the EU-27 had a small trade deficit in domestic appliances as imports were valued at EUR 9.3 billion. The trade deficit in 2006 reflected a turnaround from the trade surplus of EUR 1.2 billion that was recorded in 2001, brought about by the faster rate of growth in the value of imports than exports. In contrast to the trade deficit of EUR 1.1 billion in electric domestic appliances (CPA Class 29.71) in 2006, there was a small surplus of EUR 384.2 million in non-electric domestic appliances (CPA Class 29.72).

The two largest exporters (intra- and extra-EU combined) of domestic appliances in the EU-27 were Germany and Italy, with exports of these goods valued respectively at EUR 7.6 billion and EUR 7.1 billion. These two Member States also had the largest trade surpluses in these goods, although that for Italy (EUR 5.0 billion) was much larger than that for Germany (EUR 2.4 billion).

Table 8.21

Manufacture of machinery and equipment n.e.c. (NACE Subsection DK)
Main indicators, 2004

	EU-27	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT
No. of enterprises (thousands)	164.3	1.8	1.9	7.8	2.3	21.0	0.2	0.3	:	13.8	16.4	41.2	0.2	0.3	0.3
Turnover (EUR million)	531 646	9 206	941	7 033	9 552	177 703	182	1 856	:	26 655	59 077	103 544	86	133	246
Production (EUR million)	498 550	8 641	898	6 695	8 895	169 267	166	1 779	:	24 969	52 391	99 107	74	127	243
Value added (EUR million)	171 696	2 746	252	2 054	3 577	63 942	55	681	:	8 506	16 938	28 634	30	48	81
Gross operating surplus (EUR million)	44 553	784	75	707	733	12 344	16	261	:	2 619	3 534	9 980	9	19	24
Purchases of goods & services (EUR million)	366 160	6 461	733	5 189	6 277	115 577	129	1 196	:	18 841	41 841	76 181	56	90	172
Personnel costs (EUR million)	127 143	1 961	176	1 350	2 844	51 597	39	421	:	5 888	13 404	18 654	21	30	57
Investment in tangible goods (EUR million)	14 878	335	65	402	353	4 476	7	55	:	784	1 131	3 014	3	12	11
Employment (thousands)	3 661	42	66	152	63	1 064	5	12	:	194	315	570	1	7	11
Apparent labour prod. (EUR thousand)	46.9	64.8	3.8	13.5	57.0	60.1	10.7	57.9	:	43.9	53.7	50.3	22.0	6.5	7.6
Average personnel costs (EUR thousand)	36.3	48.2	2.8	9.4	46.0	49.1	7.7	36.1	:	31.7	43.1	36.6	16.8	4.0	5.4
Wage adjusted labour productivity (%)	129.2	134.5	138.3	144.3	123.9	122.4	139.5	160.5	:	138.4	124.6	137.5	131.0	160.7	141.3
Gross operating rate (%)	8.4	8.5	8.0	10.0	7.7	6.9	8.8	14.0	:	9.8	6.0	9.6	9.9	14.0	9.9
Investment / employment (EUR thousand)	4.1	7.9	1.0	2.7	5.6	4.2	1.4	4.7	:	4.0	3.6	5.3	2.5	1.6	1.0

	LU (1)	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	NO	
No. of enterprises (thousands)	0.0	6.9	:	4.3	2.2	13.6	3.9	1.5	1.5	0.6	3.5	5.6	12.9	2.6	
Turnover (EUR million)	587	3 935	:	17 448	14 234	7 658	3 083	1 796	2 065	1 972	11 075	20 969	49 764	4 483	
Production (EUR million)	529	3 170	:	16 624	13 515	7 068	2 952	1 791	1 931	1 922	10 700	18 928	45 367	4 341	
Value added (EUR million)	143	939	:	5 365	5 034	2 546	1 115	505	626	515	3 298	6 157	17 573	1 453	
Gross operating surplus (EUR million)	37	292	:	1 576	1 468	1 227	371	87	219	195	933	1 276	5 712	315	
Purchases of goods & services (EUR million)	442	3 028	:	12 253	9 613	5 670	2 020	1 411	1 495	1 492	8 060	15 229	32 095	3 098	
Personnel costs (EUR million)	106	646	:	3 788	3 567	1 319	744	419	408	320	2 366	4 881	11 861	1 138	
Investment in tangible goods (EUR million)	16	288	:	347	492	401	190	205	126	131	228	598	1 165	116	
Employment (thousands)	2	69	:	85	79	191	43	129	26	44	56	118	304	22	
Apparent labour prod. (EUR thousand)	61.8	13.6	:	63.2	63.8	13.4	25.7	3.9	24.4	11.7	59.1	52.2	57.8	64.8	
Average personnel costs (EUR thousand)	46.0	9.9	:	46.0	46.0	7.5	17.6	3.4	16.5	7.3	43.0	50.0	40.0	53.5	
Wage adjusted labour productivity (%)	134.3	136.4	:	137.6	138.7	178.7	145.9	116.9	147.7	160.7	137.3	104.4	144.3	121.2	
Gross operating rate (%)	6.4	7.4	:	9.0	10.3	16.0	12.0	4.8	10.6	9.9	8.4	6.1	11.5	7.0	
Investment / employment (EUR thousand)	7.0	4.2	:	4.1	6.2	2.1	4.4	1.6	4.9	3.0	4.1	5.1	3.8	5.2	

(1) 2003.
Source: Eurostat (SBS)