

# Manufacture of aerospace equipment in the European Union

## Statistics in focus

### INDUSTRY, TRADE AND SERVICES

7/2006

Author

Guy VEKEMAN

## Contents

A thriving high-tech industry ..... 1

Aerospace manufacturing strongest in France and the United Kingdom..... 2

Aerospace: essentially an assembly industry..... 3

Relatively high personnel costs did not make aerospace less profitable ..... 4

Production growth, but mixed employment trend ..... 4

Full-time employment more the norm; longest total hours worked in the UK ..... 5

A highly research-intensive sector6

EU-25 trade surplus in aerospace, France leading trader, USA main partner..... 6

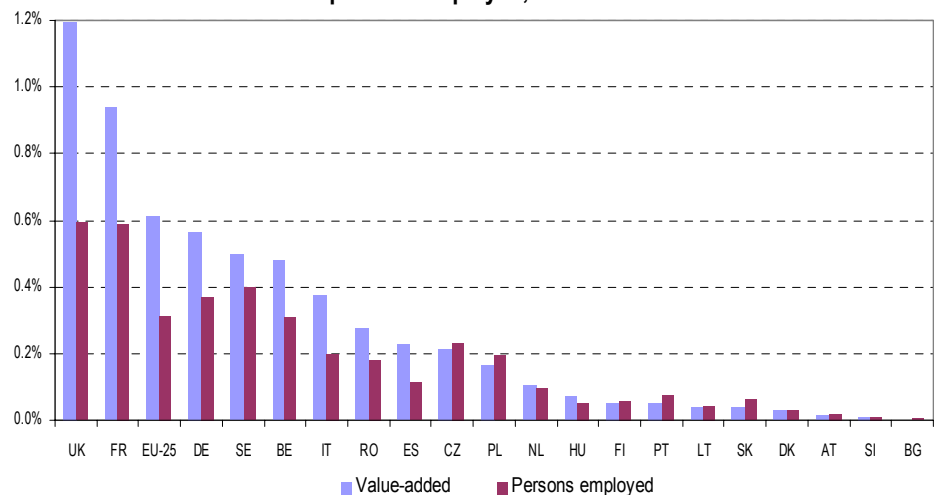


Manuscript completed on: 12.02.2006  
Data extracted on: 1.09.2005  
ISSN 1561-4840  
Catalogue number: KS-NP-06-007-EN-N  
© European Communities, 2006

### A thriving high-tech industry

The EU's aerospace industry (see box below) – one of the EU's cutting-edge, high-technology sectors – provided jobs to 363 900 persons and generated EUR 29 billion in value-added in 2002, according to Eurostat's Structural Business Statistics (SBS). In terms of economic weight this translates as 0.3 % of the total number employed and 0.6 % of total value-added in the non-financial business economy as a whole (Graph 1), or 1.1 % and 1.9 % respectively of the total manufacturing sector.

Graph 1: Importance of aerospace equipment manufacturing (NACE 35.3) in the non-financial business economy as a whole (NACE C-K, excl. J), in terms of value-added and number of persons employed, 2002\*



\* AT, DE, DK, BG, RO: 2003 data / BE: 2001 data

Source: Eurostat (SBS)

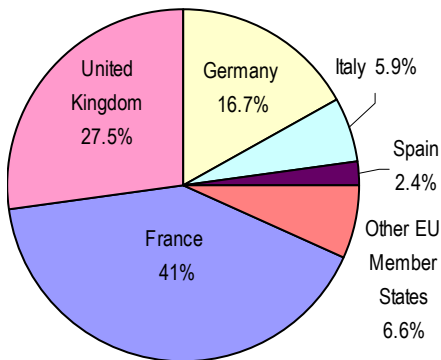
The importance of the aerospace industry in the total non-financial business economy is relatively small, only overstepping 1 % in the case of the United Kingdom (1.2 %). Second to the United Kingdom came France, in which the weight of value-added was just under 1 %. In both countries, employment accounted for 0.6 % of total employment: the highest share reached. Based on value-added and persons employed, only 24 out of the EU's 25 Member States were active in the sector. However, it should be noted that the contributions of Estonia, Latvia, Luxemburg and Malta are marginal and data confidential.

The aerospace industry is highly concentrated within the EU: in terms of value-added, by far the largest contributor to the sector was the United Kingdom (EUR 11 billion), accounting for a share of 39 % of EU-25 value-added, then came France and Germany with respective shares of approximately 22 % and 20 %. As such, these three countries accounted for about 80 % of the value-added in the aerospace industry, compared with an average of 55 % in manufacturing: a collective weight that was even higher for turnover (85 %), but smaller for employment (72 %).

The **manufacture of aerospace equipment** corresponds to the classification NACE Rev.1.1, division 35.3: 'Manufacture of aircraft and spacecraft'. It principally covers equipment, parts and accessories used in the production of aircraft and spacecraft used for the transport of passengers or freight, as well as military applications. It is essentially an assembly industry, with miscellaneous components also being produced by other industries (see methodological notes).

## Aerospace manufacturing strongest in France and the United Kingdom

**Graph 2: Main contributors to turnover in the EU's aerospace equipment sector, 2002**



Source: Eurostat (SBS)

Looking at turnover, however, the picture is different. Of the EUR 92 billion generated in the aerospace equipment sector, France emerged as the top contributor, accounting for 41.0 % (see Graph 2). This reflects the concentration of aircraft assembly activity in this country including Airbus, one of the world's two dominant civil aircraft producers. The sector in the UK followed with a 27.5 % share, ahead of that in Germany with 16.7%.

Nevertheless, the aerospace equipment sector in the UK provided the most jobs, amounting to a share of 29.2 % of the EU-25 total of 363 900. France's sector was the second largest employer with 22.6 %, and Germany's the third with 20.6 %.

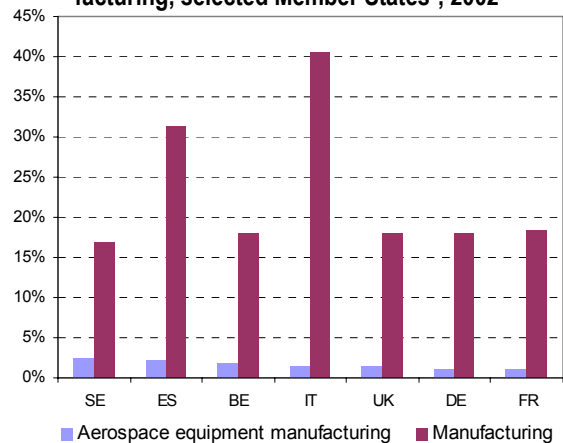
Apparent labour productivity in the aerospace equipment sector in the EU-25 amounted to EUR 79 900 value added per person employed in 2002, well above the average in manufacturing of EUR 45 300. Productivity was highest in the United Kingdom (EUR 105 800), considerably above the average of its manufacturing industry (EUR 59 700). Then followed Belgium, France, Germany and Italy with values over EUR 70 000. The Netherlands and seven other Member States –which were however small contributors to the sector– reported lower productivity levels than the average of their manufacturing industry.

Despite higher personnel costs (see page 4), wage adjusted labour productivity in 2002 shows that value added per person employed amounted to 156.5 % of average personnel costs, 16 percentage points more than in manufacturing. The United Kingdom again had the highest productivity level with 196.8%. By contrast, in Poland and Portugal, aerospace manufacturing was not profitable, with value added per person employed covering only 72.5 % and 68.5 % respectively of average personnel costs.

Although the sector in the UK had the highest share of enterprises (31.8 % of the EU-25 total), ahead of France (17.4 %) and Germany (9.3 %), Germany in fact had the highest average enterprise size (359 persons employed), ahead of Italy (227) and France (210). The EU-25 average (in 2001) was 166 persons per enterprise, against just 16 in manufacturing.

Based on data available for Member States contributing more than 1 % to EU-25 value-added in the sector (Graph 3), enterprises with between 1 and 19 persons employed accounted for a minute fraction

**Graph 3: Share of employment in enterprises with 1-19 persons employed in air- and spacecraft manufacturing, selected Member States\*, 2002\***



\* limited to MS contributing more than 1 % in value-added to the sector

\* DE: 2003 data / BE: 2001 data

Source: Eurostat (SBS)

**Table 1: Main indicators of aerospace equipment manufacturing (NACE 35.3), 2002**

	EU-25	BE*	CZ	DK**	DE**	ES	FR	IT	LT	HU	NL
<b>Value-added at factor cost – in million EUR</b>	<b>29 086</b>	603	82	29	5 711	847	6 379	2 013	2	21	246
<i>Country's share in total EU-25</i>		2.1%	0.3%	0.1%	19.6%	2.9%	21.9%	6.9%	0.01%	0.1%	0.8%
<b>Persons employed</b>	<b>363 900</b>	7 621	8 142	503	75 028	13 321	82 247	28 563	320	1 349	4 668
<i>Country's share in total EU-25</i>		2.1%	2.2%	0.1%	20.6%	3.7%	22.6%	7.8%	0.1%	0.4%	1.3%
<b>Number of enterprises</b>	<b>2 255*</b>	54	100	35	209	110	392	126	11	95	65
<i>Country's share in total EU-25</i>		2.4%	4.4%	1.6%	9.3%	4.9%	17.4%	5.6%	0.5%	4.2%	2.9%
<b>Turnover – in million EUR</b>	<b>91 841</b>	1 364	353	77	15 341	2 225	37 631	5 401	6	58	724
<i>Country's share in total EU-25</i>		1.5%	0.4%	0.1%	16.7%	2.4%	41.0%	5.9%	0.01%	0.1%	0.8%
<b>Number of persons employed per enterprise</b>	<b>166*</b>	141	81	14	359	121	210	227	29	14	72
<b>Apparent labour productivity (value-added per person employed) – in thousand EUR</b>	<b>79.9</b>	79.1	10.0	58.3	76.1	63.6	77.6	70.5	6.3	15.7	52.7
<b>Apparent labour productivity in manufacturing – in thousand EUR</b>	<b>45.3</b>	65.2	13.0	58.2	56.5	41.5	51.5	42.5	6.2	13.9	63.8
<b>R&amp;D spending (as a share of value-added)</b>	:	11%	21%	:	17%	:	28%	:	0%	0%	:
<b>Investment rate (as a share of value-added)</b>	:	16%	21%	11%	15%	32%	19%	17%	11%	68%	9%

\*2001 data \*\* 2003 data / Data unavailable for Greece and confidential for Ireland, Estonia, Latvia, Luxembourg and Malta.

Source: Eurostat (SBS)

of the persons employed in the aerospace sector in 2002. This is especially true in the EU's three main contributing countries, Germany, France and the UK (see Graph 3), where they only represented about 1 % of employment, against between 15 % and 18 % in manufacturing. In Italy, where smaller enterprises contribute more to manufacturing industry, the difference was even larger.

Looking at the breakdown of the industry in terms of civilian and military sectors, data from the *European Association of Aerospace Industries*<sup>1</sup> show a gradual shift from the manufacturing of predominantly military aircraft to civilian. The share of the civil sector amounted to 64 % by 2003, after peaking at about 70 % by 2000.

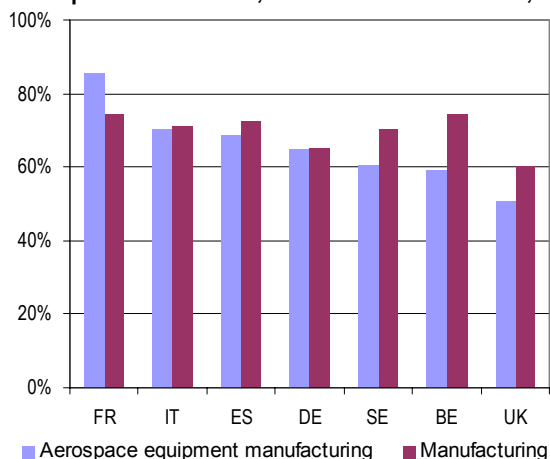
In a breakdown by final products, civilian aircraft was ranked first with 43.4 % of turnover, before military aircraft with 25.9 %. Among minor contributions, helicopters accounted for 9.9 % of turnover, slightly more than spacecraft and missiles with 7.7 % and 7.3 % respectively.

Final products however generated only 58.5 % of total turnover, aircraft maintenance accounted for 22 %, while engines and equipment made up for the remainder.

<sup>1</sup> ASD: Aerospace and Defence Industries Association of Europe: [www.asd-europe.org](http://www.asd-europe.org)

## Aerospace: essentially an assembly industry

**Graph 4: Intermediate consumption as a percentage of production value<sup>†</sup>, selected Member States<sup>\*</sup>, 2002\***



<sup>†</sup> See Methodological Notes for definitions.

<sup>\*</sup> limited to MS contributing more than 1 % in value-added to the sector

\* DE: 2003 data / BE: 2001 data

Source: Eurostat (SBS)

necessary to construct air- and spacecraft. This dependence is evident when looking at intermediate consumption<sup>1</sup> as a percentage of production value, as shown in Graph 4.

At 85 %, France had the highest intermediate consumption as a percentage of production value, thus reflecting the concentration of assembly activities in this country. This also explains why the country's share in EU turnover (41%) was almost twice its share in EU value-added (22 %), (Table 1). By contrast, in the United Kingdom intermediate consumption was just 51% of production value.

Because of the assembly nature of the sector, one might expect intermediate consumption to be higher than in manufacturing across the board. However this was only the case in France, by a difference of about 11 percentage points. The high value added typical for the production of single parts reversed the situation for the other main contributors.

The aerospace manufacturing sector relies heavily on external suppliers for the goods and services

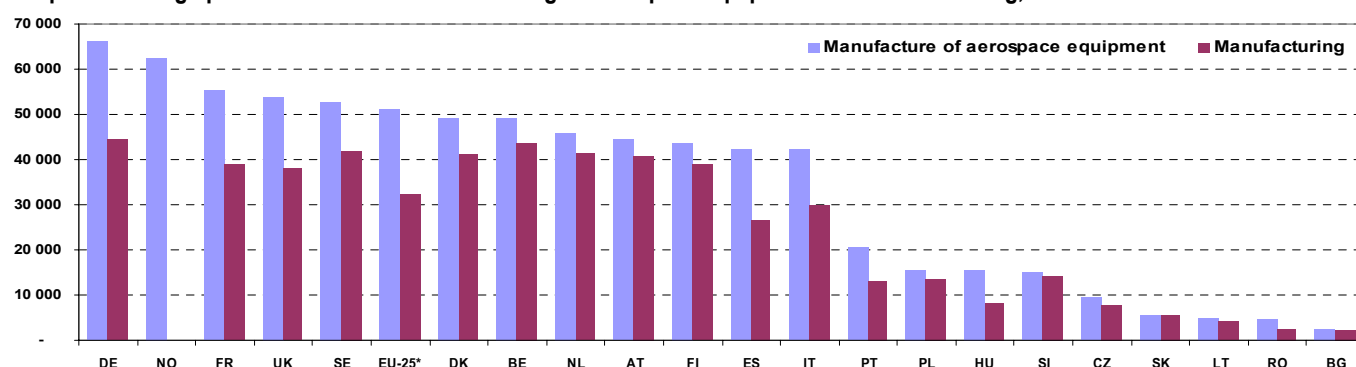
<sup>1</sup> See Methodological Notes for definitions

**Table 1: Main indicators of aerospace equipment manufacturing (NACE 35.3), 2002 (continued)**

	AT**	PL	PT	SI	SK	FI	SE	UK	BG**	RO**	NO
<b>Value-added at factor cost – in million EUR</b>	18	162	31	1	4	38	655	11 231	<1	48	117
Country's share in total EU-25	0.1%	0.6%	0.1%	0.003%	0.0%	0.1%	2.3%	38.6%			
<b>Persons employed</b>	397	14 400	2 235	59	568	679	10 440	106 117	43	7 161	1 089
Country's share in total EU-25	0.1%	4.0%	0.6%	0.02%	0.2%	0.2%	2.9%	29.2%			
<b>Number of enterprises</b>	36	40	25	11	7	9	151	716	4	25	14
Country's share in total EU-25	1.6%	1.8%	1.1%	0.5%	0.3%	0.4%	6.7%	31.8%			
<b>Turnover – in million EUR</b>	36	275	67	3	9	62	1 501	25 225	<1	104	294
Country's share in total EU-25	0.04%	0.3%	0.1%	0.004%	0.0%	0.1%	1.6%	27.5%			
<b>Number of persons employed per enterprise</b>	11	360	89	5	81	75	69	148	11	286	78
<b>Apparent labour productivity (value-added per person employed) – in thousand EUR</b>	45.1	11.3	14.0	16.9	6.9	55.5	62.7	105.8	2.3	6.7	107.5
<b>Apparent labour productivity in manufacturing – in thousand EUR</b>	60.7	16.1	20.0	17.4	9.8	68.7	54.8	59.7	3.4	3.9	65*
<b>R&amp;D spending (as a share of value-added)</b>	26%	:	0%	0%	12%	0%	29%	17%	:	:	4.7%
<b>Investment rate (as a share of value-added)</b>	6%	23%	15%	14%	26%	5%	8%	10%	:	39%	29%

## Relatively high personnel costs did not make aerospace less profitable

Graph 5: Average personnel costs in manufacturing of aerospace equipment and manufacturing, 2002\* in EUR



\* AT, DE, DK, BG, RO: 2003 data / BE: 2001 data – \*EU-25: estimated data

Source: Eurostat (SBS)

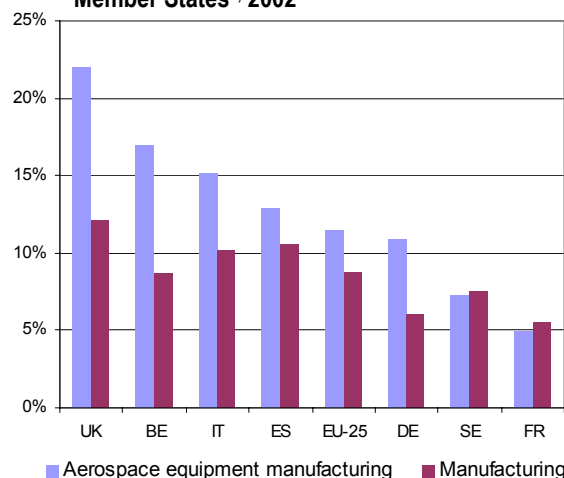
Average personnel costs in aerospace equipment manufacturing were relatively high when compared with the average of manufacturing industry (Graph 5). The average in the EU-25 was EUR 51 067, about 58 % more than the average of manufacturing industry of EUR 32 318. Average personnel costs in the sector were above the EU average in four of the main contributing countries and also in Norway: costs were highest in Germany at EUR 66 186, followed by Norway (EUR 62 592).

With the exception of Belgium, the difference between average personnel costs in aerospace equipment manufacturing and in total manufacturing was highest in the main contributing countries, ranging from a gap of almost EUR 22 000 in Germany to less than half that amount in Sweden (EUR 10 753). However, in relative terms, average personnel costs in the Hungarian manufacturing sector were only 53 % of what they were in aerospace equipment manufacturing. Interestingly, in the 7 Slovak aerospace enterprises, these costs were on average lower.

Personnel costs accounted for 20 % of turnover for aerospace equipment manufacturing in the EU-25 in 2002, which is 2 percentage points more than the average in manufacturing. However, this did not hamper the profitability of the sector, as measured by the gross operating margin (gross operating surplus over turnover), which was 11.5 % in aerospace manufacturing, about 2.7 percentage points more than in manufacturing (Graph 6).

Among the main contributors in 2002, the United Kingdom had the highest gross operating margin, at 22 %, which exceeded the average of manufacturing industry by approximately 10 percentage points, the largest difference recorded among these Member States. It was followed by Italy (15 % operating margin), Spain (13 %) and Germany (11 %). France, by contrast, recorded a low gross operating margin of 5 %, mainly due to its particular assembly activity (see previous section).

Graph 6: Gross operating margin in aerospace equipment manufacturing and manufacturing, selected Member States\*, 2002\*



\* limited to MS contributing more than 1 % in value-added to the sector

\* BE: 2001 data

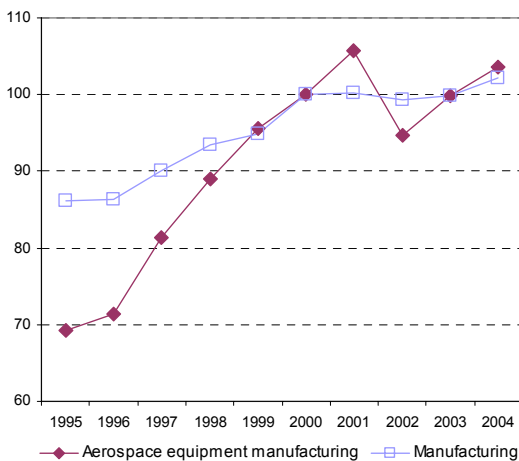
Source: Eurostat (SBS)

## Production growth, but mixed employment trend

Between 1995 and 2004, growth in the aerospace sector was about 50 %, compared with approximately 19 % in manufacturing (Graph 7). Even if the aerospace sector has grown substantially over the last decade, its development has been relatively volatile. The most striking example was the rebound in the late nineties, characterised by six consecutive years of growth, just after a period of declining output over five successive years.

However, in the context of a general economic slowdown and a downturn in air transport following the terrorist attacks of 11 September 2001, aerospace output dropped by 10.5 % in 2002, whereas manufacturing only slightly contracted. This drop was the net result of declines particularly in the United Kingdom (19 %) but also France, Italy and Spain, only partly offset by a sustained growth in Germany.

**Graph 7: Production (working day adjusted) (2000=100), EU-25, 1995 to 2004**



Source: Eurostat (STS)

Growth rebounded, however, in 2003 by 5.5 % and by a further 3.7 % in 2004, clearly exceeding the average of manufacturing industry. However, Italy and the United Kingdom still felt the downturn, as output in 2004 was still below the 2000 level.

Employment time series are available for all of the main contributing countries except Sweden. Between 1995 and 2004, the employment trend was rather mixed, and – apart from Spain – employment either grew less than production, or even contracted.

Data from Eurostat's STS series show a sustained employment growth in at least two Member States: with +20 % over the last decade, employment in the German aerospace industry grew at less than half the pace of production, while the Spanish aerospace industry thrived with employment growing by +158 %, exceeding its production growth of +110 %. In Belgium and the United Kingdom, on the other hand, employment shrunk by -30 % and -2 %, in spite of production growth of +70 % and +42 % respectively. Similarly, based on SBS data available between 1996 and 2003, employment also decreased slightly (-0.7 %) in France, but by -37.8 % in Italy. Production increased also in these Member States by 63 % and 17 % respectively.

Looking briefly at the effects on employment of the -10.5 % decline in production between 2001 and 2002, employment decreased in Belgium, France, Italy and the United Kingdom, but actually increased in Germany, Spain and Sweden.

## Full-time employment more the norm; longest total hours worked in the UK

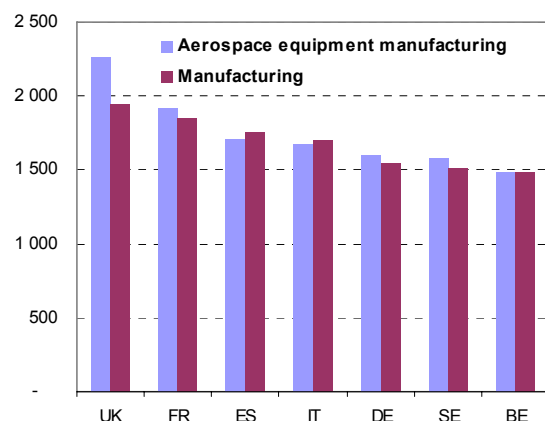
Based on data available for Member States contributing at least 1 % to EU-25 value-added in the aerospace sector, excluding Sweden, employees were more likely to have a full-time job in the aerospace sector, than on average within manufacturing industry.

The shares of part-time employment in the aerospace sector were generally very low. In Belgium, Germany, Italy and the United Kingdom, shares ranged between 0.1 % and 3.3 %, which were between 5 and 6 percentage points lower than in manufacturing. In Spain, where the share was 0.3 %, the difference was smallest: just over 1 percentage point less. However, in France, part-timers made up 7 % of the employees, which is however still less than the average of this country's manufacturing industry (9 %).

Employees in the UK's aerospace sector worked longest, about 18 % more hours than their counterparts in France, ranking second (Graph 8). When comparing average hours worked in the aerospace industry with manufacturing – a comparison which highlights both sector-specific characteristics and national labour market policies, – the UK's aerospace sector stands out because the average in aerospace industry exceeded that in manufacturing by about 16 %.

However, although employees in the UK's aerospace sector worked longest, they were not the most productive, measured by value added per hour

**Graph 8: Number of hours worked per employee in aerospace equipment manufacturing and total manufacturing, selected Member States\* 2002\***



\* limited to MS contributing more than 1 % in value-added to the sector  
\* BE and UK: 2001 data

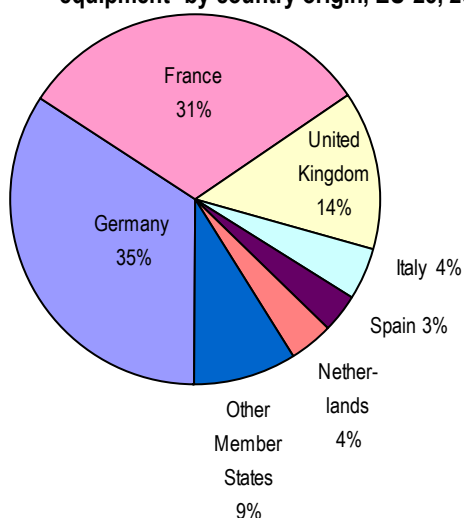
Source: Eurostat (SBS)

worked. German and Belgian employees were most productive, each at just under EUR 54 per hour, while those in the UK ranked third at EUR 49 per hour. Value added per hour worked in the aerospace industries in Spain, Germany and the United Kingdom was around 1.5 times these countries' respective manufacturing industry averages. In France and Italy this sector generated around 40 % more, at EUR 40 and EUR 42 per hour respectively. In Belgium, the difference was only 15 % and in Sweden there was not much difference.

## A highly research-intensive sector

Clearly one of the EU's cutting-edge, high-technology sectors, the aerospace sector is highly research-intensive, with research budgets absorbing a significant share of the sector's value-added in the contributing countries (Table 1), and always significantly more than the average of manufacturing industry. In France, 28 % of the sector's value-added was devoted to this expense (manufacturing: 7 %), while in the UK and Germany it was 17 % (manufacturing 5 % and 10 % respectively).

**Graph 9: Breakdown of patent applications made to the European Patent Organisation (EPO) in aerospace equipment\* by country origin, EU-25, 2002**



\*Based on the International patent classification (IPC) system (B64: 'Aircraft; aviation; cosmonautics')

Source: Eurostat and EPO

The number of patent applications made by the EU also testifies the EU's dynamism in the sector, and its developing role in the world's aerospace industry. Based on the International patent classification system, between 1996 and 2002, the growth in patent applications in the field of 'Aircraft; aviation; cosmonautics' made to the European Patent Organisation (EPO) grew by 117 %, compared with just 46 % in manufacturing on average.

When examining the country origin of these approximately 180 patent applications in the EU-25 in 2002, three Member States accounted for around 80 % of total patent applications: Germany recorded the highest share with 35 %, ahead of France (31 %) and the United Kingdom (14 %).

Investment generally was also significant, measured by the ratio of gross investment in tangible goods to value added (investment rate), even if the differences between aerospace and manufacturing were not always large (Table 1). The highest investment rate among the main contributors was found in Spain at 32 % (against 16 % in manufacturing), France 19 %, and Germany (2003 data) 15 % (manufacturing 12%). However, in Italy, the investment rate was 17 % both for aerospace and manufacturing, whereas in the UK slightly less was invested in aerospace industry, with a rate of 10 % (against 12 % in manufacturing).

## EU-25 trade surplus in aerospace, France leading trader, USA main partner

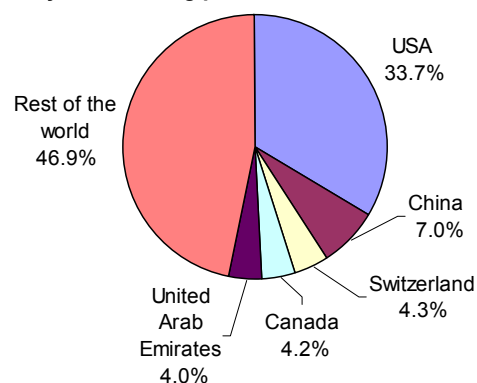
Based on external trade data, EU-25 exports of air- and spacecraft equipment to non-EU countries amounted to EUR 38.4 billion in 2004, against an import total of EUR 34.5 billion. The EU-25 was therefore running a trade surplus on these products, with exports amounting to 111 % of imports (the cover ratio).

Among Member States, France accounted for the largest share of EU-25 (external) exports, at 51 %, but also the largest share of imports at 32 %. This is again related to its specific position in the aircraft sector, both as an importer of components for assembling and as an exporter of aeroplanes.

Looking at trade partners, the highest share of EU-25 exports went to the USA (33.7 %), as illustrated in Graph 10. Since it was also the largest supplier (69.5 % of imports), the EU-25 therefore had a trade deficit with the USA. Other export destinations are China with 7 % of EU-25 exports, Switzerland, Canada and United Arab Emirates each with around 4 %.

However, although these countries could be singled out as the most important export destinations for aerospace products, others under 'Rest of the world' accounted nevertheless for the largest share (46.9 %) of exports in 2004, making the EU-25 exports quite globally diversified.

**Graph 10: Share of EU-25 exports in aerospace equipment, by main trading partner, 2004**



Source: Eurostat (Comext)

## ➤ 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 September 2005.

**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://europa.eu.int/comm/eurostat/> (select 'Data' / 'Industry, trade and services' / 'Horizontal view' / 'Structural Business Statistics'). Selected publications and data are available in the section dedicated to European Business, located directly under the theme 'Industry, trade and services' on the Eurostat website.

**Short-Term Business Statistics (STS)** have been used to complement SBS data with information on time series development, based on the Industrial production index. This index shows the evolution of value added at factor cost, and at constant prices.

**Comext** – Eurostat's database on intra- and extra-European trade – has also been used for information on external trade.

### **COUNTRIES**

This publication covers the European Union (EU-25). It includes data on 18 Member States for which data are available and non-confidential: Belgium (BE), the Czech Republic (CZ), Denmark (DK), Germany (DE), Spain (ES), France (FR), Italy (IT), Lithuania (LT), Hungary (HU), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK). Also included are the Candidate Countries: Bulgaria (BG) and Romania (RO) and an EEA country: Norway (NO). Data are not available for Greece and are confidential for Ireland (IE) Estonia (EE), Latvia (LV), Luxembourg (LU), and Malta (MT). In Cyprus (CY) there isn't any economic activity in this sector.

### **EU-25**

EU-25 aggregates include estimates for missing components where necessary. In the absence of EU-25 aggregates, averages of available countries are presented where appropriate.

### **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**

“.” not available or confidential.

### **SECTORS**

Statistics are presented by sectors of activity according to the NACE Rev. 1.1 system of classification. Comparisons are made with the whole non-financial business economy and/or the whole manufacturing industry (Nace Section D). **Non-financial business economy** includes the Sections C (Mining and quarrying), D (Manufacturing), E (Electricity, gas and water supply), F (Construction), G (Wholesale and retail trade), H (Hotels and restaurants), I (Transport, storage and communication) and K (Real estate, renting and business activities). Please also note that in this SIF, IE excludes Section E, CY excludes K, and BE is 2001 data.

### **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.

#### **Production value**

It differs from turnover by taking into account the variation of the value of production in progress and the production of tangible assets and by correcting for purchases of goods for resale (if any).

#### **Apparent labour productivity**

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

#### **Wage adjusted labour productivity**

Value added per person employed divided by average personnel costs.

#### **Personnel costs**

Total remuneration, in cash or in kind, payable by an employer to an employee for work carried out.

#### **Purchases of goods and services**

The value of all goods and services purchased during the accounting period for resale or consumption in the production process, excluding capital goods.

#### **Intermediate consumption**

A concept borrowed from National Accounting, it is defined as the purchases of goods and services, corrected for changes in stocks and for purchases of goods for resale (if any). It better reflects the total consumption of goods and services for the production process.

#### **Gross operating surplus**

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.

#### **Degree of specialisation**

This is defined based on the share of the value added accounted for by an activity (NACE) in relation to the total non-financial business economy (NACE Sections C-K excl. J) of a country.

## ***Further information:***

### **Data:**

[EUROSTAT Website/Industry, trade and services/Industry and construction/Annual detailed enterprise statistics on industry and construction/Annual detailed enterprise statistics on manufacturing subsections DF-DN and total manufacturing \(NACE D\)](#)

[EUROSTAT Website/Industry, trade and services/Industry and construction/Annual detailed enterprise statistics on industry and construction/ Annual enterprise statistics on industry and construction broken down by size classes \(sizclass\) DF-DN and total manufacturing \(NACE D\)](#)

[EUROSTAT Website/Industry, trade and services/Industry and construction/Business trends: Industry \(NACE Rev.1 C-F\) \(ebt\\_ind\) / Production indices \(2000=100\) \(ind\\_prod\) / Annual production index - data adjusted by working days](#)

[EUROSTAT Website/Home page/Data/External trade/External trade detailed data at HS4 and HS2 level](#)

---

### **Journalists can contact the media support service:**

Bech Building Office A4/017  
L - 2920 Luxembourg

Tel. (352) 4301 33408  
Fax (352) 4301 35349

E-mail: [eurostat-mediasupport@cec.eu.int](mailto:eurostat-mediasupport@cec.eu.int)

### **European Statistical Data Support:**

Eurostat set up with the members of the 'European statistical system' a network of support centres, which will exist in nearly all Member States as well as in some EFTA countries.

Their mission is to provide help and guidance to Internet users of European statistical data.

The complete details concerning this support network can be found on our Internet site:  
[www.europa.eu.int/comm/eurostat/](http://www.europa.eu.int/comm/eurostat/)

---

A list of worldwide sales outlets is available at the:  
**Office for Official Publications of the European Communities.**

2, rue Mercier  
L - 2985 Luxembourg

URL: <http://publications.eu.int>  
E-mail: [info-info-opoce@cec.eu.int](mailto:info-info-opoce@cec.eu.int)

---