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European Business

Facts and Figures

Part 1: Industry and construction

(NACE Sections C to F)

Data 1990-2000

4

EUROPEAN COMMISSION

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THEME 4
Industry, trade and services

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It can be accessed through the Europa server (http://europa.eu.int).

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European Business, Facts & Figures
This publication has been produced by unit D2 of Eurostat, responsible for structural business statistics. The opinions expressed are those of the individual authors alone and do not necessarily reflect the position of the European Commission.

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Guide to the publication

CONTENTS OF THE PUBLICATION

European Business aims to provide a standard set of information for industrial and service activities within the European Union. The data provided in European Business traces the major developments of output, employment and external trade. The commentaries concentrate largely on the 3-digit level of the NACE Rev. 1 classification of economic activities[1].

Publication format

The publication is available as a paper or electronic product (CD-ROM). The paper publication contains a descriptive text of the evolution of the EU's business economy - it is available in German, English and French versions.

Structure of the publication

European Business is divided into three main sections:

1. The first provides a general overview of the structure of the EU's business economy, looking at the changes in output, employment and external trade.
2. The second provides a sectoral breakdown of industrial activities into 14 separate chapters, each of which contains a number of sub-chapters usually based on the 3-digit level of the NACE classification. Each chapter concludes with a statistical annex based on structural business statistics and external trade statistics.
3. The third section provides a sectoral breakdown of service activities into 7 separate chapters (again with sub-chapters and a statistical annex usually based on structural business statistics or alternatively a functional database specific to the subject area).

The chapters in European Business are structured largely on the basis of their NACE code, starting with energy and the extractive industries and finishing with business services, the information society and community and personal services. Each chapter begins with a preliminary section explaining the sectoral coverage of the data provided.

NACE is a hierarchical classification made up of Sections (1-letter codes), Sub-sections (2-letter codes), Divisions (2-digit codes), Groups (3-digit codes) and Classes (4-digit codes). NACE establishes a direct link between the European classification and the internationally recognised ISIC Rev.3 developed under the auspices of the United Nations. These two classifications are directly compatible at the 2-digit level and the lower levels of ISIC Rev.3 can be calculated by aggregating the more detailed levels of NACE.

The compilation of industry and services data has followed a different historical development, and furthermore it is generally easier to compile activity and product statistics about goods/merchandise than it is to collect information relating to knowledge or information-based services. Hence, the balance of this publication reflects to some degree the information that is currently available from official statistical sources. For this reason, a different form of presentation is employed for industrial and service chapters.

It should be noted that there has already been a rapid improvement in data availability for services during the last few years and most EU Member States now compile annual statistics for the majority of the service activities covered in this publication. Clearly it will take a number of years to build up robust time-series and considerable work still needs to be done in the area of product statistics for services. The (non-) availability of services' data often renders it difficult to provide a standard set of information and where this is the case, Eurostat's functional databases have been used to complement structural business statistics. Non-official sources have also been used more extensively in several services' chapters where little official data exists.

(1) Published by Eurostat, ISBN 92-826-8767-8, available from the usual outlets for Commission publications.

GUIDE TO THE STATISTICS

Two main data sources should be distinguished when using this publication: those originating from official sources (collected by the national statistical institutes in each Member State and harmonised by Eurostat) and those provided by trade associations (representative organisations of manufacturers and service providers) and other non-official bodies. Non-official sources are easily recognised as they always appear in a shaded box, as does background information on Community legislation.

Time frame

The data within this publication was extracted from various Eurostat databases during October 2001. The accompanying text was written during the fourth quarter of 2001 and the first quarter of 2002.

The time-series for industrial activities are ideally presented for the EU between 1990 and 2000. Individual country data are generally available up until 1997, 1998 or 1999 depending upon the country and activity in question. EU totals have been estimated for 1998, 1999 and 2000 for industrial activities. The estimation procedures do not currently extend to cover services (other than distributive trades). Services data are usually presented in the form of a snapshot for the latest year available.

Exchange rates

All data are reported in ECU/EUR terms, with national currencies converted using average exchange rates prevailing for the year in question. As of 1 January 1999, eleven of the Member States entered into an economic and monetary union (EMU). These countries formed what has become known as the euro-zone. Technically data available prior to that date should continue to be denominated in ECU terms, whilst data available afterwards should be denominated in euro (EUR). However, as the conversion rate was equal to 1 ECU = 1 EUR, for practical purposes the terms may be used interchangeably and this publication denotes all such monetary series in euro. On 1 January 2001, Greece also became a member of the euro-zone.

Whilst the conversion of data expressed in national currencies to a common currency facilitates comparison, large fluctuations in currency markets are partially responsible for movements identified when looking at the evolution of a series in EUR terms (especially at the level of an individual country).

Geographical coverage

EU totals given in this publication cover all 15 Member States. Footnotes are added when a partial total is created from an incomplete set of country information.

Figures for Germany are on a post-unification basis, unless otherwise stated.

Non-availability

The colon (:) is used to represent data that is not available, either because it has not been provided to Eurostat or because it is confidential. In figures (charts), missing information is footnoted as not available.

OFFICIAL DATA SOURCES USED IN THIS PUBLICATION

SBS

The bulk of the information contained within European Business is derived from the SBS (Structural Business Statistics) database. This data has been collected within the legal framework provided by the SBS Regulation[2]. There are three main collections of SBS data that have been used in this publication.

The first (see table 1) covers long time-series[3] for enterprises with 20 or more persons employed (often available from 1985 onwards). These series are only published for industrial activities and they are used predominantly in the second section of this publication[4]. However, not all Member States have transmitted data relating to the enterprise as the statistical unit and the specified size threshold. The table below presents the main discrepancies with respect to these standards.

(2) Council Regulation (EC, EURATOM) No. 58/97 of 20 December 1996 concerning structural business statistics.
(3) Public access is available via the Eurostat Datashop network: NewCronos, theme 4, domain SBS, collection Enterpr, table Ent_L_MS.
(4) Except for energy (chapter 1) and construction (chapter 14) where there is poor data availability for EU-15 totals.

Table 1

Country	Year	Population covered
Belgium	1985-1994	Enterprises with 20 employees or more
	1995-1999	Enterprises with 1 person employed or more
Greece	1985-1998	Local kind-of-activity units employing 20 persons or more
Spain	1985-1999	Enterprises with 1 employee or more
France	1985-1999	Enterprises with 20 employees or more
Ireland	1985-1999	Enterprises with 3 persons employed or more for NACE Divisions 10 to 41
Luxembourg	1985-1994	Kind-of-activity units with 20 persons employed or more
	1995-1997	Kind-of-activity units with 1 person employed or more
Netherlands	1997-1998	Number of enterprises: data for this variable are rounded to multiples of 5; a "0" therefore means 2 or less enterprises
Austria	1985-1994	Establishments with 20 persons employed or more for NACE Divisions 10 to 37
Portugal	1985-1999	Enterprises with 1 person employed or more
Finland	1986-1994	Establishments with 5 persons employed or more
	1995-1999	Enterprises with 1 person employed or more

The second collection covers all enterprises[5] and these series have been used for services activities[6]. The data generally start in 1995 although for some services a small number of Member States have provided longer time-series. However, not all Member States have transmitted data relating to this population. In particular, some Member States can only provide data for units with employment above a certain size threshold. Table 2 presents the main deviations from the standard population as laid down in the SBS Regulation (enterprise with 1 person employed or more).

(5) Public access is available via the Eurostat Datashop network: NewCronos, theme 4, domain SBS, collection Enterpr, table enter_ms.
(6) In addition, for industrial activities where small enterprises carry an important weight (e.g. textiles and clothing), figures from this database are also cited.

Table 2

Country	Statistical unit and size coverage used from 1995 onwards			
	Industry (NACE Sections C, D and E)	**Construction (NACE Section F)**	**Trade (NACE Section G)**	**Services (NACE Sections H to K)**
Germany	1995 to 1998 for NACE Sections C and D and 1995 to 1997 for NACE Section E; data missing because it is only available for enterprises with 20 persons employed or more	1995 to 1998 data missing because it is only available for enterprises with 20 persons employed or more	No major deviations	No major deviations
Greece	1995 to 1998 data missing because it is only available for enterprises with 10 persons employed or more	1995 to 1998 data missing because it is only available for enterprises with 10 persons employed or more	Enterprises with a turnover of 15 million GDR or more	Enterprises with a turnover of 15 million GDR or more
Spain	Enterprises with 1 employee or more	Enterprises with 1 employee or more	No major deviations	No major deviations
France	1995 data missing because it is only available for enterprises with 20 employees or more	1995 data missing because it is only available for enterprises with 20 employees or more	No major deviations	In transport activities NACE 61.2Z and 61.2B, enterprises with 6 employees or more
Ireland	Enterprises with 3 persons employed or more	1995 to 1999 data missing because it is only available for enterprises with 20 persons employed or more	No major deviations	No major deviations
Italy	1996 turnover from the principal activity at the NACE 4-digit level: this code is supplied only for enterprises with 200 employees or more	No major deviations	No major deviations	No major deviations
Luxembourg	1996 onwards kind-of-activity units with 1 person employed or more	1996 onwards kind-of-activity units with 1 person employed or more	No major deviations	No major deviations
Netherlands	*Number of enterprises: data for this variable are rounded to multiples of 5; a "0" therefore means 2 or less enterprises*			
	Enterprises with 20 employees or more for NACE Section E; total intramural R&D expenditure and total number of R&D personnel refer to enterprises with 10 employees or more	No major deviations	No major deviations	Survey on holdings (NACE Class 74.11): enterprises with 5 employees or more
United Kingdom	1995 data missing because it is only available for enterprises with 20 persons employed or more	1995 data missing because it is only available for enterprises with 20 persons employed or more	No major deviations	No major deviations

Table 3

Country	Statistical unit coverage			
	Industry (NACE Sections C, D and E)	Construction (NACE Section F)	Trade (NACE Section G)	Services (NACE Sections H to K and M to 0)
Spain	1995 onwards enterprises with 1 employee or more	No major deviations	No major deviations	No major deviations
France	1995 enterprises with 20 employees or more	1995 enterprises with 20 employees or more	No major deviations	No major deviations
Ireland	1995 onwards enterprises with 3 persons employed or more	1995 onwards enterprises with 20 persons employed or more	No major deviations	No major deviations
Netherlands	1995 onwards employment size classes are defined in terms of employees; size class 250-499 has been approximated with size class 200-499 employees	1995 onwards employment size classes are defined in terms of employees; size class 250-499 has been approximated with size class 200-499 employees	1996 onwards employment size classes are defined in terms of employees; size class 1 has been approximated with size class 0 employee; size class 2-4 has been approximated with size class 1-4 employees; size class 250-499 has been approximated with size class 200-499 employees	1996 onwards employment size classes are defined in terms of employees; size class 1 has been approximated with size class 0 employee; size class 2-4 has been approximated with size class 1-4 employees; size class 250-499 has been approximated with size class 200-499 employees
Portugal	1996 onwards employment size classes are defined in terms of employees; size class 1-9 has been approximated with size class 0-9 employees	1996 onwards employment size classes are defined in terms of employees; size class 1-9 has been approximated with size class 0-9 employees	1996 onwards employment size classes are defined in terms of employees	1996 onwards employment size classes are defined in terms of employees
Sweden	1996 employment size classes are defined in terms of employees; size class 1-9 has been approximated with size class 0-9 employees	No major deviations	No major deviations	No major deviations
United Kingdom	1995 enterprises with 20 persons employed or more	1995 enterprises with 20 persons employed or more	No major deviations	No major deviations

The third collection of SBS data covers information broken down by employment size class. These series cover enterprises of all size classes. However, not all Member States have transmitted data to Eurostat that relates to this statistical unit or population. In particular some Member States can only provide data for units with employment above a certain size threshold. Table 3 summarises the main deviations from the standard statistical unit as laid down in the SBS Regulation (an enterprise with 1 person employed or more).

The series come from a combination of regular or ad hoc surveys conducted by the Member States and administrative sources. Data in this publication are generally available at the 3-digit NACE level, whilst more detailed information is available within the SBS Enter table covering 4-digit activity codes.

The definitions are standardised, and so the figures are largely comparable across industries and countries. Variable definitions do however vary somewhat between the countries. Until the reference year 1994 inclusive, EU Member States transmitted the data to Eurostat according to either the previous legal basis for industry or on a voluntary basis for services. As far as possible Eurostat and Member States have converted these data in line with the variable definitions as implemented in the SBS Regulation. However, the results of the conversion are not of the same quality as the data collected from the 1995 reference year onwards. For France, this conversion is applied until the reference year 1995 inclusive. For Greece, this conversion is applied until the reference year 1996 inclusive. Table 4 presents the main discrepancies with the standard variable definitions.

Estimates

EU-15 data for 1998-2000 are estimated. Estimates are made using individual country information and short-term indicators such as indices of production, output prices and employment. The individual country estimates are not published and as a result the information by Member State is only available up until 1997, 1998 or 1999 depending upon the country in question. Estimates are only made for series concerning 20 or more persons employed (SBS ent_l_ms). As such, the time-series presented for industrial activities normally underreport absolute values. This can be particularly important in industries where small and medium-sized enterprises play an important role (for example, textiles).

Table 4

SBS ent_l_ms: enterprises employing 20 or more persons			
Country	**Year**	**Variable**	**Discrepancy**
Denmark	1990-1998	Value added at factor cost Gross operating surplus	Value added at basic prices Value added at basic prices - personnel costs
Spain	1985-1999	Gross investment in tangible goods	Gross investment in land and gross investment in machinery and equipment
Ireland	1985-1999	Value added at factor cost Gross operating surplus	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures. Value added at market price excluding VAT - personnel costs
Italy	1992-1995	Number of persons employed	Number of employees
Finland	1986-1995	Value added at factor cost Gross operating surplus	Value added at market price Value added at market price - personnel costs
SBS enter_ms: Enterprises employing 1 or more persons			
Country	**Year**	**Variable**	**Discrepancy**
Germany	1999	Value added at factor cost for NACE Sections I to K	Value added at factor cost BUT does not include subsidies
Spain	1995-1998	Gross investment in tangible goods	Gross investment in land and gross investment in machinery and equipment
Ireland	1995-1999 1998	Value added at factor cost Personnel costs for NACE Sections H, I and K	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures. Wages and salaries
Finland	1995	Value added at factor cost Gross operating surplus	Value added at market price Value added at market price - personnel costs
Sweden	1995-1996	Number of persons employed: since self-employed are not included and since the variable collected for enterprises with less than 10 employees is the number of employees in full time equivalents then the number of persons employed and number of employees are very close	
United Kingdom	1996-1999 1997	Gross investment in existing buildings and structures Turnover from trading and intermediary activities	Includes gross investment in land Turnover from trading activities of purchase and resale

Table 4 (continued)

SBS sizclass/indus_ms - Industry (Sections C, D and E)			
Country	**Year**	**Variable**	**Discrepancy**
Denmark	1995-1996	Number of employees	Employees in full-time equivalents
Ireland	1995-1998	Value added at factor cost	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures.
Sweden	1996	Number of persons employed: since self-employed are not included and since the variable collected for enterprises with less than 10 employees is the number of employees full time equivalent, then the number of persons employed and number of employees are very close	
SBS sizclass/const_ms - Construction (Section F)			
Country	**Year**	**Variable**	**Discrepancy**
Denmark	1995-1996	Number of employees	Employees in full-time equivalents
Ireland	1995-1998	Value added at factor cost	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures.
SBS sizclass/trade_ms - Trade (Section G)			
Country	**Year**	**Variable**	**Discrepancy**
Denmark	1995-1996	Number of employees	Employees in full-time equivalents
Ireland	1996-1997	Value added at factor cost	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures.
SBS sizclass/servi_ms - Services (Sections H to K and M to O)			
Country	**Year**	**Variable**	**Discrepancy**
Ireland	1995-1997	Value added at factor cost	Irish value added is calculated at market prices excluding VAT; for sectors where other indirect taxes play an important role, for example where there are taxes on petroleum products, Irish value added is disproportionately large; this non-standard definition of value added influences the Irish manufacturing total (through aggregation of NACE), EU totals (through aggregation across countries) and ratios, notably labour productivity measures.

PRODCOM

The legal basis of the data is Council Regulation (EEC) No 3924/91 on the establishment of a Community survey of industrial production (Prodcom Regulation).

This Regulation requires that production be recorded according to the product headings of the Prodcom list. The list is based on the Community's external trade nomenclature, the Combined Nomenclature (CN). The list does not, however, cover all products. The list is divided into Divisions corresponding to the (2-digit) Divisions of NACE Rev. 1. Each Prodcom code is identified by an eight-digit code. The first six digits are the CPA code (Community Classification of Products by Activity). The last two digits normally provide a reference to the Combined Nomenclature (CN), although there are exceptions to this rule.

The physical volume and the value of production are normally recorded for the products in the Prodcom list. Different production concepts are used in the survey, namely:
a) production sold during the survey period;
b) actual production (total production) during the survey period. This includes any production which is incorporated into the manufacture of other products. Such production is normally taken to mean own products which are either processed into another product or fitted into another product in the reporting unit itself, in another plant belonging to it, or under contract in another unit;
c) production during the survey period which is intended for sale.

The value of production sold/production intended for sale should be calculated on the basis of the ex-works selling price obtained/-obtainable during the reporting period. It also includes packaging costs, even if they are charged separately. However, the following are not included:
any turnover tax and consumer tax charged;
separately charged freight costs;
any discounts granted to customers.

The particular physical units of the CN classification have normally been adopted for recording the volume of production. In exceptional cases a different and/or supplementary unit is recorded. All units belonging to the individual Prodcom headings are specifically indicated in the data set.

The Prodcom statistics normally cover all enterprises/local units which manufacture products contained in the Prodcom list. Among the rules on representativeness the Regulation stipulates that all enterprises in Sections C, D and E of NACE Rev. 1 employing at least 20 persons must be included. In addition, at least 90% of production in each (4-digit) Class of NACE Rev. 1 must also be recorded.

External trade

EU external trade statistics are available in the Comext database, broken down according to the product classification (CPA). The analysis focuses on trade data for the period between 1990 and 2000. No estimates are made for external trade statistics, although it is possible that subsequent revisions may occur. The data are processed by summing together product statistics (using a conversion table from CN to CPA). The data for EU-15 are reported in terms of trade flows with the rest of the world, in other words extra-EU trade. However, for the individual Member States total trade flows are used (in other words intra-EU and extra-EU trade). All trade figures are given in current ECU/EUR terms.

European Business Trends

Tracking the business cycle is indispensable for many economic actors. The European Business Trends (EBT) database provides politicians, government agencies, bankers, business owners, consumers and trade unionists with information that is crucial when making decisions on whether industries grow, stagnate or decline. The legal base of the European system of quantitative Short Term Statistics is the Council Regulation No. 1165/98 concerning short-term statistics, which was adopted on 19th May 1998 and is in the process of being implemented.

One variable from the EBT database is directly presented in this publication, namely the domestic output price index. Output price indices report the short-term changes in the prices of commodities produced and sold in a given Member State. Converted to an annual series, this index has also been used to deflate SBS turnover, production value and value added data, using appropriate activity indices to create series in constant price terms. Production and employment indices from the EBT database also provide valuable information that is used to "nowcast" structural business statistics for the latest years, extending time-series.

All price-determining characteristics of the products should be taken into account, including quantity of units sold, transport provided, rebates, service conditions, guarantee conditions and destination. The specification must be such that in subsequent reference periods, the observation unit is able to identify the product and to provide the appropriate price per unit. The appropriate price is the ex-factory price that includes all duties and taxes on the goods and services invoiced by the unit but excludes VAT invoiced by the unit vis-à-vis its customer and similar deductible taxes directly linked to turnover.

Labour Force Survey

The methodological basis and the contents of this survey are described in the publication "Labour Force Survey - Methods and Definitions", 1998 edition. The main statistical objective of the Labour Force Survey is to divide the population of working age (generally 15 years and above[7]) into three mutually exclusive and exhaustive groups - persons in employment, unemployed persons and inactive persons - and to provide descriptive and explanatory data on each of these categories. Respondents are assigned to one of these groups on the basis of the most objective information possible, obtained through a survey questionnaire, which relates principally to their actual activity within a defined reference week.

(7) For the classification of the labour force by educational attainment, use was made of the age group 25-59.

It is important to note that the information is not collected from enterprises (as with the SBS database) but through a survey addressed to individual households. The National Statistical Institutes are responsible for selecting the sample, preparing the questionnaires, conducting the interviews and forwarding the results to Eurostat in accordance with a common coding scheme. Eurostat devises the programme for analysing the results and is responsible for processing and disseminating the information.

The Community Labour Force Survey[8], is based upon a sample of the population. The results are therefore subject to the usual types of errors associated with sampling techniques. Eurostat implement basic guidelines intended to avoid the publication of figures which are statistically unreliable. Figures below these thresholds are not published. A second threshold is applied to data that may only be published with a warning concerning its reliability. These data are footnoted in the tables that use LFS data. In the case that non-response (unknown) for a breakdown characteristic of the labour force (for example, educational attainment, gender or full-time/part-time) exceeds 5% of the total, data have not been published.

There was a methodological change between 1998 and 1999 in the collection of Belgian Labour Force Survey data. As such there may well be a rupture in the series in 1999.

National Accounts

The European System of National and Regional Accounts (1995 ESA, or simply: ESA) is an internationally compatible accounting framework for a systematic and detailed description of a total economy (that is a region, country or group of countries), its components and its relations with other economies.

The 1995 ESA, replaces the European System of Integrated Economic Accounts published in 1970 (1970 ESA; a second, slightly modified, edition appeared in 1978).

(8) Council Regulation (EC) No. 577/98 of 9 March 1998 on the organisation of a labour force sample survey in the Community.

Table 5

Sample thresholds for the publication of LFS data (minimum sample size)

	A	B
EU-15	63,500	-
Belgium	2,500	4,500
Denmark	2,500	4,500
Germany	8,000	-
Greece	2,500	4,500
Spain	2,500	5,000
France	3,500	8,500
Ireland	2,500	4,500
Italy	3,500	7,500
Luxembourg	500	1,500
Netherlands	4,500	10,000
Austria	2,000	-
Portugal	7,500	15,000
Finland	2,500	4,500
Sweden	9,000	-
United Kingdom	10,000	-

A: threshold for publishing data.
B: threshold for reliable data.

The 1995 ESA is fully consistent with the revised world-wide guidelines on national accounting, the System of National Accounts (1993 SNA, or simply: SNA; these guidelines have been produced under the joint responsibility of the United Nations, the IMF, the Commission of the European Communities, the OECD and the World Bank). However, the ESA is focused more on the circumstances and data needs of the European Union. Like the SNA, the ESA is harmonised with the concepts and classifications used in many other, social and economic statistics. Cases in point are statistics on employment, statistics on manufacturing and statistics on external trade. The ESA can therefore serve as the central framework of reference for the social and economic statistics of the European Union and its Member States.

The ESA framework consists of two main sets of tables: (a) the sector accounts and (b) the input-output framework and the accounts by industry.

The sector accounts provide, by institutional sector, a systematic description of the different stages of the economic process: production, generation of income, distribution of income, redistribution of income, use of income and financial and non-financial accumulation. The sector accounts also include balance sheets to describe the stocks of assets, liabilities and net worth at the beginning and the end of the accounting period.

The input-output framework and the accounts by industry describe in more detail the production process (cost structure, income generated and employment) and the flows of goods and services (output, imports, exports, final consumption, intermediate consumption and capital formation by product group).

Foreign Direct Investment

FDI is cross-border investment for which a direct investor has the objective of a lasting interest in an enterprise resident in another economy (direct investment enterprise). Constitutional characteristics for a direct investment are the intention for a long-term relationship between the direct investor and the enterprise, and a significant influence in the management of the enterprise. These are assumed to be fulfilled when an investor owns ten per-cent or more of ordinary shares or voting power in an incorporated or unincorporated enterprise respectively (OECD benchmark definition).

Equity capital: includes equity in branches and ordinary shares in subsidiaries and associates.

Other capital: covers inter-company debt (including short-term loans such as trade credits) between direct investors and subsidiaries, branches and associates.

Reinvested earnings: consist of the direct investor's share (in proportion to direct equity participation) of earnings not distributed as dividends by subsidiaries or associates and earnings of branches not remitted to the direct investor.

Disinvestment: is formally defined as withdrawal of direct investment capital. The most frequent cases are those where the direct investor sells participation (e.g. shares) it had invested in the direct investment enterprise or where intercompany debt (e.g. loans) is paid back.

Reporting economy: is the country or economic zone from whose view data are reported.

Partner economy: is the country or economic zone that has a foreign direct investment relationship with the reporting economy.

FDI flows and positions: by direct investment flows the investor builds up a foreign direct investment position, making part of his balance sheet. The FDI position (referred to in this publication as FDI stocks) differs from accumulated flows because of revaluation (changes in prices or exchange rates, and other adjustments such as the rescheduling or cancellation of loans, debt forgiveness or debt-equity swaps with differing values).

Research and Development

These data were provided by the OECD. They are intended to provide internationally comparable indicators of resources devoted to R&D at an industry level. The business enterprise sector covers private and public enterprises and institutes serving such enterprises.

As from 1987, the classification is based on the International Standard Industrial Classification (ISIC Rev. 3). The breakdown between industries is, in principle, made at the enterprise level, although some countries are able to break down R&D data for multi-product enterprises between their main lines of business. National statistical regulations prevent publication of results where there are very few firms in the given category, hence the many gaps in the tables.

Community Innovation Survey

The second Community Innovation Survey (CIS2) was launched in the EEA Member States in 1997/1998. All the participating countries have agreed on a common set of methodology and a core questionnaire aimed at providing comparable, harmonised and representative data on a pan-European scale. The survey is based on the Oslo-manual. In general, it is either the National Statistical Institute or a Ministry that is directly responsible for the survey at the national level.

The reference year for the survey is 1996 for most of the countries. The data for Norway and Portugal refer to 1997. The results can deviate from national published results, mainly due to different target population.

The target population

The statistical unit is the enterprise.

The following economic activities have been included in the target population:

- all manufacturing industries
- electricity, gas and water supply
- service sectors: wholesale trade, transport, telecommunications, financial intermediation, computer and related activities and engineering services.

In Spain and Italy the survey was only done for manufacturing industry. In France the wholesale sector was not surveyed.

The cut off point for inclusion in the target population is 20 employees in the manufacturing sector and 10 employees in the service sector. Some Member States used lower cut-off points, but these enterprises are not included here. The sampling frames are business registers with as good quality as possible. Official statistical business register have been used whenever available.

The Survey method

A combination of sampling and census has been used; census down to a certain threshold of employees depending upon the country's enterprise population, and sampling for the rest. The samples have been selected by using a simple random selection in each stratum (defined by size class according to number of employees and economic activity based on NACE Rev. 1 at the 2-digit level). A full census was applied if the total number of enterprises in the frame population in a particular stratum was less than 5.

The results are based on answers from 39,500 enterprises. In total the response rate was about 57%, nationally the response rate varies from 24% to over 90%. To secure an acceptable response rate, at least two reminders were made to the enterprises. If the response rate was below 70% of the active enterprises in the sample in the manufacturing and service sectors respectively, a non-response analysis was performed. The non-response analysis was made on the basis of a simple random sample of the non-respondent population.

Quality of the data

The results presented are grossed-up figures for the whole population, using weighting factors. The weighting factors are based on shares between the numbers of enterprises in the realised sample and total number of enterprises in each stratum of the frame population.

The results of the non-response analysis were taken into account to adjust the weighting factors if the results proved to be different from the original survey results.

Whenever possible variables have been cross-checked to verify the consistency of the answers. In this process, a set of core variables has been considered to be more reliable than others.

In case of item non-response the missing values have been imputed. Other information from the same enterprise or the enterprise's NACE-group has been used to impute the missing data.

GLOSSARY OF TERMS

There follows a brief list of the main terms employed within this publication

Annual average growth rate: constant rate of growth that would be required in each year to achieve the same overall growth rate as that observed between two periods.

Apparent labour productivity: value added at factor cost/number of persons employed (expressed in thousand EUR per person employed); care should be taken in the interpretation of this ratio between different activities and countries because of the use of a simple head count for the labour input measure, as a proxy for the volume of work done; values may exceptionally be negative.

Average personnel costs: personnel costs/number of employees (expressed in thousand EUR per employee).

Constant prices: data presented with the effect of price fluctuations over time removed from them (deflated series); note that, as these are expressed in EUR, time series are influenced by fluctuations in the exchange rate.

Cover ratio: exports/imports (expressed as a percentage).

Current prices: data presented including the effects of price changes.

Domestic output price index: an index of the prices of commodities produced and sold within any given country in national currency terms; output price indices are often used to deflate production and value added data (in value) in order to obtain production and value added in constant price terms; this index shows the change in ex-works selling prices of all products sold on domestic markets, excluding VAT and similar deductible taxes.

Employees: are defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind; employees include part-time workers, seasonal workers, persons on strike or on short-term leave, but exclude those persons on long-term leave and voluntary workers.

Enterprise: an enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources; an enterprise carries out one or more activities at one or more locations; an enterprise may be a sole legal unit.

Extra-EU exports: goods which leave the statistical territory of a Member State bound for a non-Community country.

Extra-EU imports: goods which enter the statistical territory of a Member State from a non-Community country.

Gross operating surplus: is the surplus generated by operating activities after the labour factor input has been recompensed; it can be calculated from value added at factor cost less personnel costs.

Gross operating rate: gross operating surplus/turnover (profitability measure, expressed as a percentage).

Number of persons employed (employment): is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams); it includes persons absent for a short period (e.g. sick leave, paid leave or special leave), and also those on strike, but not those absent for an indefinite period; it also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll.

Personnel costs: the total remuneration, in cash or in kind, payable by an employer to an employee (regular and temporary employees as well as home workers) in return for work done by the latter during the reference period; personnel costs also include taxes and employees' social security contributions retained by the unit as well as the employer's compulsory and voluntary social contributions.

Production specialisation: relative index that compares the production share of a given manufacturing activity in total manufacturing production for a given country with the same ratio for the EU (expressed as a percentage - if a country displays a ratio above 100 then it is relatively more specialised than the average for the EU).

Production value: measures in value the amount actually produced by the unit, based on sales adjusted for changes in stocks and the resale of goods and services; the production value is defined as turnover, plus or minus the changes in stocks of finished products, work in progress and goods and services purchased for resale, minus the purchases of goods and services for resale, plus capitalised production, plus other operating income (excluding subsidies).

Simple wage adjusted labour productivity: value added at factor cost/personnel costs * 100 (expressed as a percentage).

Trade balance: exports - imports.

Turnover: comprises the totals invoiced by the observation unit during the reference period, corresponding to market sales of goods or services supplied to third parties; turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover; it also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice; reductions in prices, rebates and discounts as well as the value of returned packing must be deducted.

Value added at factor cost: can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production; alternatively it can be calculated from gross operating surplus by adding personnel costs; income and expenditure classified as financial or extra-ordinary in company accounts is excluded from value added.

Wage adjusted labour productivity: (value added at factor cost/personnel costs) * (number of employees/number of persons employed) * 100 (expressed as a percentage).

ABBREVIATIONS

Countries

EU	European Union
EU-15	Fifteen Member States of the European Union
B	Belgium
BENELUX	Belgium, the Netherlands and Luxembourg
DK	Denmark
D	Germany
EL	Greece
E	Spain
F	France
IRL	Ireland
I	Italy
L	Luxembourg
NL	the Netherlands
A	Austria
P	Portugal
FIN	Finland
S	Sweden
UK	the United Kingdom
AU	Australia
CA	Canada
CH	Switzerland
CIS	Commonwealth of Independent States
CN	China
CZ	Czech Republic
EEA	European Economic Area
EE	Estonia
HK	Hong Kong
HU	Hungary
IS	Iceland
JP	Japan
KR	South Korea
MX	Mexico
NO	Norway
PL	Poland
RO	Romania
RU	Russia
SG	Singapore
SK	Slovakia
SI	Slovenia
TH	Thailand
TR	Turkey
US	United States (of America)

Professional trade associations

ACEA	Association des Constructeurs Européens d'Automobiles (European Automobile manufacturers Association)
ACEM	Association des Constructeurs Européens de Motocycles (European Motorcycle manufacturers Association)
ACI	Airports Council International (European Region)
AEA	Association of European Airlines
AECMA	Association Européenne des Constructeurs de Matériel Aérospatial (European Association of Aerospace Industries)
AESGP	Association Européenne des Spécialités Pharmaceutiques Grand Public (Association of the European Self-Medication Industry)
AISE	Association Internationale de la Savonnerie, de la Détergence et des Produits d'Entretien (International Association of the Soap & Detergent industry)
APME	Association of Plastics Manufacturers in Europe
CAEF	Comité des Associations Européennes de Fonderie (Committee of European Foundry Associations)
CAOBISCO	Association of the Chocolate, Confectionery, Biscuit industries of the EU
CBMC	Confédération des Brasseurs du Marché Commun (Trade Confederation of the Brewing Industry in the European Union)
CCBE	Conseil des Barreaux de la Communauté européenne (Council of the Bars and Law Societies of the European Community)
CECCM	Confederation of European Community Cigarette Manufacturers
CEFIC	Conseil Européen de l'Industrie Chimique (European Chemical Industry Council)
CEI-BOIS	Confédération Européenne des Industries du Bois (European Confederation of Woodworking Industries)
Cembureau	The European Cement Association
CEPI	Confederation of European Paper Industries
CIETT	Confédération Internationale des Entreprises de Travail Temporaire (International Confederation of Temporary Work Businesses)
CLEPA	Comité de Liaison des Fabricants d'Équipements et Pièces Automobiles (Liaison Committee for Manufacturers of Car Equipment and Parts)
CLGE	Comité de Liaison des Géomètres Experts (The European Council of Geodetic Surveyors)
CONCAWE	Conservation of Clean Air and Water in Europe - the oil companies' European Organization for environmental and health protection
CPDP	Comité Professionnel du Pétrole (Association of oil refiners)
CPIV	Comité Permanent de l'Industrie du Verre de la CEE (Standing Committee of the EU Glass industries)
EAZA	European Association of Zoos and Aquaria
EBMA	European Bicycle Manufacturers Association
ECTAA	Group of National Travel Agents' and Tour Operators' Associations within the EU
EDA	European Dairy Association
EFCA	European Federation of Engineering Consultancy Associations

EFCI	Fédération Européenne du Nettoyage Industriel (European Federation of Cleaning Industries)
ELCA	European Landscape Contractors Association
EMF	European Mortgage Federation
EPF	European Panels Federation
ERMCO	European Ready-Mixed Concrete Association
ESBG	European Savings Bank Group
ESOMAR	European Society for Opinion and Marketing Research
ESTA	European Security Transport Association
ESTA	European Steel Tube Association
ETRA	European Tyre Recycling Association
EURATEX	European Apparel and Textile Organisation
EUROFINAS	European Federation of Finance House Associations
EUROPIA	European Petroleum Industry Association
EUROSPACE	Organisation of the European space industry
FBE	Fédération Bancaire Européenne (European Banking Federation)
FEACO	Fédération Européenne des Associations de Conseil en Organisation (European Federation of Management Consulting Associations)
FEDIOL	EC Seed Crushers' and Oil Processors' Federation
FEDMA	Federation of European Direct Marketing
FEE	Fédération des Experts Comptables Européens (European Federation of Accountants)
FEFCO	Fédération européenne des Fabricants de Carton Ondulé (European Federation of Corrugated Board Manufacterers)
FEFSI	Fédération Européenne des Fonds et Sociétés d'Investissement (European Federation of Investment Funds)
FEVE	Fédération Européenne du Verre d'Emballage (European Container Glass Federation)
FIBV	Fédération Internationale des Bourses de Valeurs (International Federation of Stock Exchanges)
FIEC	Fédération de l'Industrie Européenne de la Construction (European Construction Industry Federation)
GEBC	Groupement Européen des Banques Coopératives (European Association of Cooperative Banks)
GISEMES/ UNESEM	Groupement International et Union Européenne des Sources d'Eaux Minérales Naturelles (European Union Mineral Water producers)
IAAPA	International Association of Amusement Parks and Attractions
IACA	International Air Carriers Association
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization, European and North Atlantic Office
IISI	International Iron and Steel Institute
IMACE	International Federation of Margarine Associations
IPC	International Post Corporation
Leaseurope	European Federation of Leasing Company Associations
OETH	L'observatoire européen du textile et de l'habillement (European Observatory for Textiles and Clothing)
STD	Swedish Federation of Consulting Engineers and Architects (Svensk Teknik och Design)
UIC	Union Internationale des Chemins de Fer (International Union of Railways)
UITP	Union International des Transports Publics (International Union of Public Transport)
UNAFPA	Union des Associations de Fabricants de Pâtes Alimentaires de la Communauté Européene (Union of Organisations of Manufacturers of Pasta Products in the European Community)
UNESDA-CISDA	Union of EU Soft Drinks Associations
UNIFE	Union des Industries Ferroviaires Européennes (Union of European Railway Industries)
UPU	Union postale universelle (Universal Postal Union)
ZMP	Zentrale Markt- und Preisberichtstelle der Land- und Ernährungswirtschaft (German agricultural market watch)

Other organisations

CEESA	Centre européen d'Etudes pour la Santé Animale (European Animal Health Study Centre)
EIA	Energy Information Administration (US)
EITO	European Information Technology Observatory
FAO	Food and Agricultural Organization (of the United Nations)
IEA	International Energy Agency
ILO	International Labour Organization
LME	The London Metal Exchange Limited
UN	United Nations
USGS	US Geological Survey
WNA	World Nuclear Association
WTO	World Trade Organization

Statistical abbreviations

CIS	Community Innovation Survey
COICOP	Classification Of Individual Consumption according to Purpose
CPA	Classification of Products by Activity
FATS	Foreign Affiliates Trade Statistics
FDI	Foreign Direct Investment
HBS	Household Budget Survey
LFS	Labour Force Survey
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne (Statistical Classification of economic activities in the European Community)
PRODCOM	PRODucts of the European COMmunity
SBS	Structural Business Statistics
SME	Small and medium sized enterprises

Other abbreviations

ABS	Antilock Braking System
AM	After-Market
ATC	Agreement on Textiles and Clothing
ATM	Automatic Teller Machine
BSE	Bovine Spongiform Encephalopathy (Mad-cow disease)
CAP	Common Agriculture Policy
CFP	Common Fisheries Policy
DVD	Digital Versatile Disc
ECMT	European Conference of the Ministers of Transport
ECSC	European Coal and Steel Community
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
ICT	Information and Communications Technology
ISDN	Integrated Services Digital Network
IT	Information Technology
JIT	Just In Time
MDF	Medium Density Fibreboard
MMSD	Mining, Minerals and Sustainable Development Project of the International Institute for Environment and Development
NASDAQ	National Association of Securities Dealers' Quotation System
NYSE	New York Stock Exchange
OE	Original Equipment
OEM	Original Equipment Manufacturer
OJ	Official Journal (of the European Communities)
OPT	Outward Processing Trade
OSB	Oriented StrandBoard
PBX	Private Branch eXchange
PC	Personal Computer
PVC	Polyvinyl Chloride
R&D	Research and Development
SOHO	Small Office/Home Office
TENs	Trans-European Networks
TV	Television
VAT	Value Added Tax
VOC	Volatile Organic Compounds

Weights and measures

AAGR	Average Annual Growth Rate
CGT	Compensated Gross Tonnes
GW	Gigawatt (10^6 kW)
Ha	Hectare (ten thousand square metres)
Hl	Hectolitre (hundred litres)
Km	Kilometre
Kms	Kilometres
MW	Megawatt (10^3 kW)
PPS	Purchasing Power Standard
RPK	Revenue Passenger Kilometres
TEU	Twenty Foot Equivalent Unit
TOE	Tonne of Oil Equivalent (41,868 kilojoules net calorific value per kilogram)
tU	tonnes of contained Uranium
TW	Terawatt (10^9 kW)

Currencies

EUR	Euro
BEF	Belgian Franc
DKK	Danish Krone
DEM	German Mark
GRD	Greek Drachma
ESP	Spanish Peseta
FRF	French Franc
IEP	Irish Pound
ITL	Italian Lira
LUF	Luxembourg Franc
NLG	Dutch Guilder
ATS	Austrian Schilling
PTE	Portuguese Escudo
FIM	Finnish Markka
SEK	Swedish Krone
GBP	Pound sterling
JPY	Japanese Yen
USD	US Dollar

Symbols

:	not available
-	not applicable

Overview - the EU's business economy

The data presented in this overview brings together information on some key determinants of the EU's competitive performance. It examines factors such as the diffusion of information and communication technologies (ICT), innovation and foreign investment and links these to the structure of the EU's business economy and developments observed for value added, employment and productivity between 1990 and 2000.

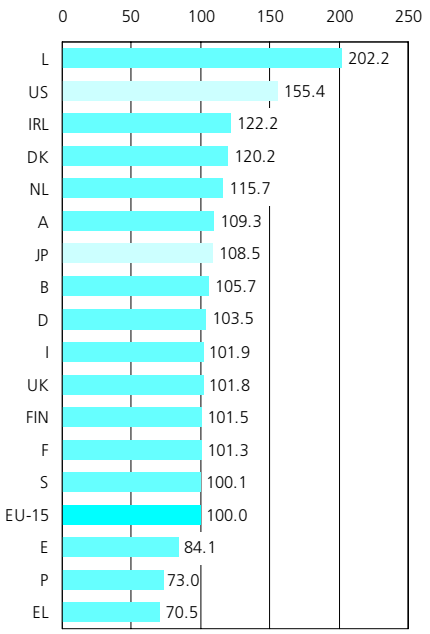
One of the most widely used economic indicators is GDP per inhabitant, which measures overall living standards. For the purpose of comparison this ratio is best adjusted to account for different price levels through use of a series expressed in PPS (see figure 1). During the 1990s the gap between living standards in the US and the EU widened. Ireland and Luxembourg were the only Member States to report that GDP per inhabitant was growing as fast as it was in the US between 1991 and 2001. Greece, Portugal, the Netherlands and Finland also reported relatively rapid growth of GDP per inhabitant, whilst Italy, Germany, Sweden, France and Denmark reported rates below the EU average.

Two key factors play an important role in the development of GDP per inhabitant: labour productivity[1] and the employment activity rate, the latter being determined by the size of the labour force and the level of employment (see table 1). During the 1990s the rapid growth of labour productivity was often more pronounced in economies that embraced ICT; with the diffusion of new technologies resulting in productivity gains across the whole economy, not just in ICT-producing sectors. Indeed, in every Member State where ICT expenditure as a percentage of GDP was above the EU average during the period 1995-2000, apparent labour productivity also grew at a faster than average pace. Lower than average levels of ICT expenditure were recorded in France, Spain, Belgium and Germany, accompanied by relatively low apparent labour productivity growth. Data for Austria, Greece and Italy does not however conform to this pattern, as labour productivity grew at a higher than average pace, whilst ICT expenditure as a share of GDP remained below the EU average. A similar analysis performed on the relationship between employment growth and levels of ICT expenditure reveals that in five out of the seven countries where ICT expenditure as a share of GDP was above the EU average, employment also grew at a faster than average pace[2].

(1) Defined as value added per person employed.
(2) IRL, NL, P, FIN and UK.

Figure 1

GDP per inhabitant, 2001 (EU-15=100) (1)



(1) At current market prices and PPS; forecasts, except for D and US.
Source: Eurostat, National Accounts - ESA95 - aggregates (theme2/aggs)

The number of persons employed in the EU's labour force increased at an average rate of 1.3% per annum between 1995 and 2000 (see table 1). The fastest growth was recorded in Ireland and Luxembourg, whilst the number of persons employed in Sweden, Germany, Austria and Greece grew on average by less than 1.0% per annum. Higher employment rates generate on the one hand more revenue for government, whilst at the same time normally removing some of the social security burden, as persons (re-)join the labour force. In 2000, the EU's activity rate (proportion of those employed between the ages of 15 and 64) averaged 63.1%, ranging from 53.7% in Italy and Spain to 76.3% in Denmark (see table SA.15 in the statistical annex to this overview). This ratio rose during the second half of the 1990s in the EU from 59.9% in 1995.

STRUCTURE OF THE EU'S BUSINESS ECONOMY

For the purpose of this publication the term business is used to cover activities classified within NACE Sections C to K, corresponding to industry and (the major part of) services. Industrial activities are grouped into three different Sections: mining and quarrying (C), manufacturing (D), electricity, gas and water supply (E), whilst data for construction (F) is provided separately. The sub-set of services covered in this publication are classified within distributive trades (G), hotels and restaurants (H), transport, storage and communication (I), financial intermediation (J) and real estate, renting and business activities (K)[3].

A breakdown of GDP by branch in 2000 (see Table 2 for the breakdown) shows that the two branches generally not covered by this publication, namely, agriculture, hunting and forestry, and public administration, community, social and personal services, accounted together for 23.6% of GDP.

(3) Selected parts of other community, social and personal services (Section O) are also covered in this publication. Agriculture, hunting and forestry; public administration, defence, social security; education; health and social work; private households with employed persons; and extra-territorial organizations are not considered as part of the business enterprise population for this publication (although some of them have market orientated enterprises).

In most developed nations, the share of industry (NACE Sections C to E) in GDP and employment peaked in either the 1960s or 1970s. From the 1970s onwards, there has been a tendency for the tertiary sector of the economy to grow faster than any other branch and this trend quickened during the 1990s. Indeed, the only two branches to report that their share of GDP rose between 1991 and 2000 were both services branches: financial intermediation, real estate, renting and business activities (up 2.6 percentage points); distributive trades, hotels and restaurants, transport, storage and communication (up 0.9 points). These two branches recorded the highest growth rates for value added in constant price terms between 1991 and 2000, gaining on average 3.3% and 2.6% per annum respectively. In the remaining branches of the EU economy, value added increased by between 1.5% and 1.6% per annum, except in the construction sector where average growth of 0.2% per annum was recorded (see figure 2 and table SA.4 of the statistical annex to this overview).

Table 1

Average level of ICT expenditure as a share of GDP and annual average growth rates for labour productivity and employment, 1995-2000 (%)

	ICT expenditure	Labour productivity (1)	Employment
IRL	5.5	5.3	5.7
L	:	5.1	4.2
E	5.1	3.5	2.9
NL	6.0	4.1	2.6
FIN	5.6	4.2	2.3
P	5.6	4.3	1.7
UK	6.5	5.1	1.3
EU-15 (2)	5.3	3.9	1.3
F	5.1	3.1	1.3
B (3)	5.0	3.0	1.1
DK	5.6	4.9	1.0
I	4.4	4.0	1.0
S	7.0	4.2	0.8
D	4.8	3.5	0.7
A	4.7	4.7	0.6
EL	4.7	5.8	0.4

(1) At current market prices and PPS.
(2) Includes NO and CH for ICT expenditure.
(3) Includes L for ICT expenditure.
Source: EITO, Eurostat, National Accounts - ESA95 - aggregates (theme2/aggs) and Eurostat, Labour Force Survey (theme3/lfs)

Table 2

Breakdown of GDP in the EU, 2000 (%)

Agriculture; hunting & forestry (Sections A+B)	2.1
Mining & quarrying; manufacturing; electricity, gas & water supply (Sections C to E)	22.8
Construction (Section F)	5.4
Distributive trades; hotels & restaurants; transport, storage & comm. (Sections G to I)	21.3
Financial intermediation; real estate, renting & business activities (Sections J+K)	26.9
Public administration, community, social & personal services (Sections L to Q)	21.5

Source: Eurostat, National Accounts - Breakdowns by branch of activity (theme2/brkdowns)

According to the Labour Force Survey (LFS), there was a net increase of 10.4 million persons in the EU's level of employment between 1995 and 2000. Services (NACE Sections G to Q) accounted for practically all of the net jobs created, although there was also a net increase of 485 thousand in the EU's construction workforce. Services registered a net gain of 11.3 million persons employed, 4.6 million of which were in financial intermediation, real estate, renting and business activities. On the other hand the number of persons employed in agriculture; hunting and forestry fell by 870 thousand and those employed in the industrial branch by 388 thousand (see table 3).

As such, LFS employment data supports the trends observed for GDP, with a continued shift towards the service sector during the second half of the 1990s. It is important to note that rapid structural change has been confined largely to business, information and communication services.

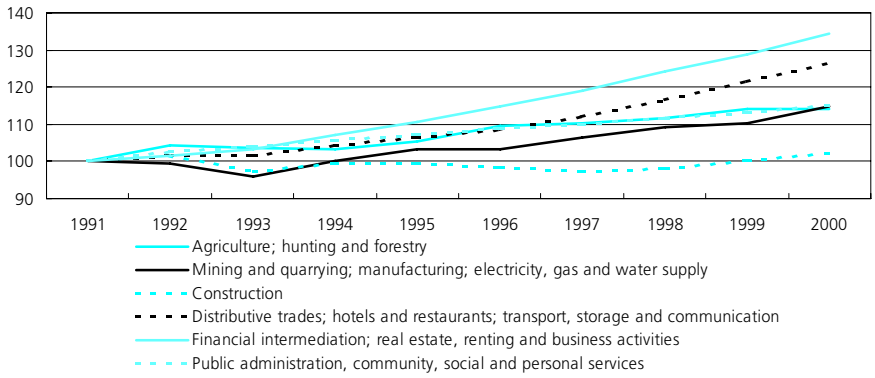
The increasing importance of the service sector may in part be attributed to industrial manufacturers switching from in-house supply to demanding external services from specialist suppliers (for example, management, financial, information and technology services, training, security, catering and cleaning), a phenomenon that is often referred to as out-sourcing.

There are a number of theories that explain why this trend has developed in recent years[4]. Firstly, changes in the structure of the EU economy favour the service sector, as efficient organisation, high-technological know-how, innovation, brand creation and customised services figure amongst sources of competitive advantage. At the same time, the EU's manufacturing sector has been restructured, with high wages and increasingly free trade driving out price sensitive segments of production to lower labour cost regions of the world (see for example, chapter 4 on the manufacture of textiles and clothing). Finally, the demand for manufactured goods is affected by physiological limits to further consumption (for example, food). As a result, many EU markets for manufactured goods are saturated, presenting little opportunity for rapid growth. On the other hand, the income elasticity of demand for immaterial sources of well-being is thought to be much higher and so as disposable income rises, consumers tend to devote an increasing share of their expenditure to services.

(4) For a more detailed explanation see, External services, structural change and industrial performance, Enterprise Papers, No 3 - 2001, Enterprise Directorate-General of the European Commission.

Figure 2

Breakdown of development of GDP in constant prices in the EU, 2000 (1991=100)



Source: Eurostat, National Accounts - Breakdowns by branch of activity (theme2/brkdowns)

Table 3

Evolution of the labour force in the EU (millions)

	1995	2000	Share (%) 1995	Share (%) 2000	Growth rate, 2000/1995 (%)	Average annual growth rate, 1995-2000 (%)
Total	154.4	164.8	100.0	100.0	6.7	1.3
Agriculture; hunting and forestry	8.0	7.1	5.2	4.3	-10.9	-2.3
Mining and quarrying; manufacturing; electricity, gas and water supply	32.6	32.2	21.1	19.6	-1.2	-0.2
Construction	11.5	11.9	7.4	7.2	4.2	0.8
Distributive trades; hotels & restaurants; transport, storage & communication	38.6	41.9	25.0	25.4	8.8	1.7
Financial intermediation; real estate, renting and business activities	18.3	22.9	11.9	13.9	25.2	4.6
Public administration, community, social and personal services	45.3	48.6	29.3	29.5	7.2	1.4

Source: Eurostat, Labour Force Survey (theme3/lfs)

GLOBALISATION AND INTANGIBLES

The process of globalisation has had a considerable impact on the location of production, with a marked expansion in the level of economic integration within the EU. Many firms have extended their operations beyond national borders in an attempt to (amongst other things) circumvent trade barriers, increase proximity to customers, reduce costs (labour, transportation or other inputs), guarantee supply of materials and avoid regulation. Globalisation encompasses a wide range of issues, such as the development of trade in goods, international financial flows, various forms of linkages between businesses, cross-border operations and the penetration of national economies. Groups of enterprises are at the core of the globalisation process and may be seen as agents of cross-border transactions, as they control entities situated in different countries with their decisions, information flows and strategies. The qualitative nature of information required to define a group's perimeter can often make it difficult to obtain reliable statistical information (such as the statistical system stands today). One of the key constraints is that global enterprises make their decisions against a worldwide backdrop, whilst these decisions continue to be analysed using national data collections that are truncated by geographical borders.

Data on the levels of foreign direct investment stocks within NACE Sections C to K is provided in table 4. It is important to note that the data for the EU concerns only foreign direct investment with non-Community countries, where manufacturing was the most important sector in terms of FDI stocks of both inward and outward investment. On the other hand, the data for the individual Member States includes both intra-EU and extra-EU stocks. With the inclusion of fellow Member States, service sectors became considerably more attractive for FDI, suggesting that the Internal Market has been successful in encouraging enterprises in the EU to expand into service sectors beyond their national boundaries.

Traditional economic theories are based upon the exchange of tradable, physical goods in a one-to-one relationship. As noted above, this model has progressively been replaced by one where consumer demand for customisation plays an increasing role in a world of saturated commodity markets. As such, intangibles ("non-material factors that contribute to enterprise performance in the production of goods or the provision of services, or that are expected to generate future economic benefits to the entities or individuals that control their deployment"[5]) are thought to play an important role in determining economic performance. The exploitation of property rights, brands, R&D, know-how, skills and supply networks are some of the key drivers of intangible wealth creation. These changes in business structure, conduct and performance have also created significant challenges for national statistical systems.

(5) The Intangible Economy - Impact and Policy Issues, Enterprise Directorate-General of the European Commission.

Table 4

Foreign direct investment, stocks of investment abroad and in the reporting economies, 1999 (million EUR)

	EU-15 (1)	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Abroad																
Mining and quarrying	123,411	:	37	3,209	:	20,520	18,860	:	:	:	1,539	248	149	:	:	98,120
Manufacturing	401,209	:	8,899	103,976	201	16,032	91,251	20,867	51,941	:	111,132	4,844	3,132	26,066	69,255	224,607
Electricity, gas and water supply	48,412	:	9	1,757	:	11,373	46,479	:	12,977	:	633	138	318	:	1,635	17,703
Construction	8,790	:	118	1,187	217	1,429	1,455	:	:	:	1,437	399	134	:	2,920	4,319
Distributive trades	64,093	:	3,706	41,369	98	3,308	10,119	:	7,251	:	23,569	2,559	-689	456	5,489	43,791
Hotels and restaurants	8,205	:	249	577	2	1,054	5,277	:	:	:	421	124	6	:	:	4,774
Transport, storage & comm.	146,995	:	3,703	7,088	1,605	14,454	6,870	:	3,709	:	8,035	69	489	1,239	:	116,833
Financial intermediation	199,669	:	3,407	74,385	:	26,715	57,394	879	62,199	:	80,564	4,142	2,981	2,874	:	94,521
Real estate, renting & business act.	168,102	:	15,825	155,884	1,165	10,919	36,410	:	:	:	20,873	6,399	3,295	217	9,927	60,910
In the reporting economy																
Mining and quarrying	21,290	:	817	544	936	476	307	:	:	:	3,000	257	93	:	:	34,843
Manufacturing	257,435	:	3,534	45,041	6,951	49,827	41,838	85,742	41,838	:	65,547	7,095	5,756	8,248	47,182	93,138
Electricity, gas and water supply	11,263	:	:	518	1	1,177	-229	:	2,194	:	1,412	32	294	:	5,723	15,787
Construction	2,663	:	328	471	646	2,336	186	:	:	:	808	81	400	:	1,401	909
Distributive trades	77,892	:	6,727	24,947	1,425	11,147	12,714	:	8,450	:	31,366	5,290	4,446	3,164	8,526	37,552
Hotels and restaurants	8,153	:	360	644	1,263	1,876	355	:	:	:	1,660	202	491	:	:	6,379
Transport, storage & comm.	24,179	:	8,694	1,555	3,224	2,557	1,345	:	3,077	:	10,133	1,444	623	460	:	75,773
Financial intermediation	147,268	:	4,343	26,898	215	14,389	25,725	3,610	35,707	:	47,872	2,234	4,333	4,392	3,153	76,722
Real estate, renting & business act.	131,468	:	10,201	182,223	:	29,334	65,565	:	:	:	20,908	6,658	5,566	529	7,358	17,262

(1) Extra-EU investment only.
Source: Eurostat, European Union Direct Investments (theme2/bop/fdi)

Table 6 provides information on the characteristics of innovating enterprises. It shows that there were large differences between the Member States in 1996 as regards the share of enterprises engaged in innovation. The differences may in part be explained by activity specialisation, whereby innovation is more likely in research-driven sectors such as electrical machinery and electronics. Another possible reason is the average size of enterprises within each Member State, as in certain activities scale economies result in larger enterprises being more likely to innovate (table 10 provides information on the importance of micro and small sized enterprises across different manufacturing activities). Generally the lowest levels of innovation were recorded in the southern Member States.

Table 5

Selected structural indicators relating to business enterprises, 2000

	Business enterprise R&D expenditure as a share of GDP (%) (1)	Number of patent applications at the EPO per million inhabitants (units)	Venture capital investment as a share of GDP - early stage (%)
EU-15	1.24	152.67	0.08
B	1.47	151.21	0.11
DK	1.25	169.48	0.02
D	1.72	296.78	0.08
EL	0.13	5.18	0.01
E	0.48	22.12	0.03
F	1.37	139.67	0.08
IRL	1.01	87.60	0.11
I	0.56	72.34	0.05
L	:	170.85	:
NL	1.05	217.65	0.09
A	:	154.08	0.03
P	0.17	3.89	0.03
FIN	2.18	320.29	0.10
S	2.86	346.43	0.09
UK	1.25	124.01	0.10
JP	2.15	148.46	:
US	2.00	158.21	0.31

(1) UK, 2001; DK, I, P, FIN and S, 1999; NL, 1998; EL and IRL, 1997.
Source: Eurostat, Structural indicators (theme1/strind)

Table 6

Innovation characteristics of EU enterprises within the manufacturing sector, 1996 (%)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Innovating enterprises	34	71	69	:	29	43	73	48	42	62	67	26	36	54	59
Innovating enterprises with unsuccessful or not yet completed projects	14	40	34	:	:	38	39	16	24	38	30	8	32	39	29
Innovating enterprises with products new to the market	14	27	24	:	11	20	27	26	21	28	24	7	18	25	19
Innovating enterprises with process innovations	22	51	53	:	25	31	54	41	29	46	49	23	25	38	37
Innovating enterprises with product innovations	31	57	65	:	24	38	66	37	32	56	60	15	29	48	52
Innovating enterprises having applied for a patent	23	27	31	:	:	30	23	20	27	22	33	11	41	36	19

Source: Eurostat, Survey on innovation in EU enterprises (theme9/innovat)

THE EU'S MANUFACTURING SECTOR

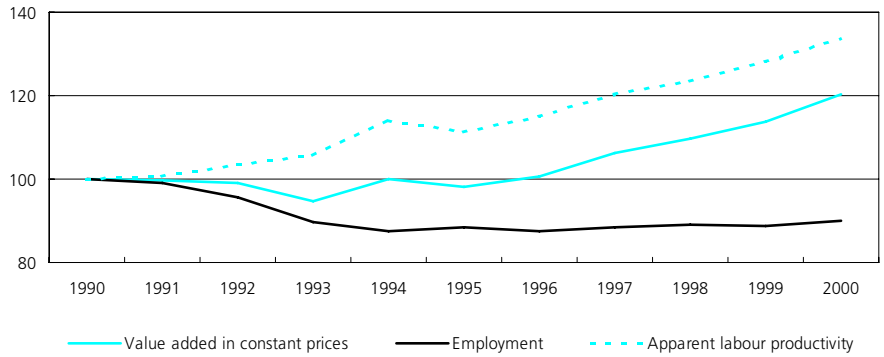
Whilst the collection of official statistics relating to some aspects of globalisation and the intangible economy are in their infancy, Structural Business Statistics (SBS) for manufacturing activities have a long established tradition. This section is based upon figures from the SBS database and traces the development of manufacturing value added and employment during the 1990s.

The manufacturing sector (NACE Section D) of the EU economy generated 1,322 billion EUR of value added in 2000. Figure 3 shows that during the first half of the 1990s constant price value added in the EU's manufacturing sector failed to rise above its 1990 level, reaching its cyclical low point in 1993. Manufacturing employment declined at a faster pace between 1990 and 1994 and did not start to grow until 1997, resulting in apparent labour productivity gains. Between 1993 and 2000 EU manufacturing value added in constant prices grew on average by 3.5% per annum.

The structure of the EU's manufacturing sector is provided in table 7; it is based upon the chapter headings that are employed in section 2 of this publication. The fastest growing sector in the second half of the 1990s (as measured by value added in constant prices) was electrical machinery and electronics (NACE Subsection DL), with average growth of 10.2% per annum between 1995 and 2000. Among the remaining sectors, transport equipment (NACE Subsection DM) and chemicals, rubber and plastics (NACE Subsections DG and DH) recorded the highest growth, whilst little or no growth was recorded for textiles, clothing and leather (NACE Subsections DB and DC). Table 8 provides information on the three most important NACE Divisions within each of the Member States; it is based on value added.

Figure 3

Evolution of main indicators for manufacturing in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs)

Table 7

Share of manufacturing value added in the EU, 2000 (%)

	NACE	Share
Chemicals, rubber and plastics	Subsections DG and DH	16.2
Electrical machinery and electronics	Subsection DL	13.7
Transport equipment	Subsection DM	12.0
Food, beverages and tobacco (1)	Subsection DA	11.3
Machinery and equipment	Division 29	10.5
Wood, paper, publishing and printing	Subsections DD and DE	10.4
Metal products	Division 28	7.6
Textiles, clothing, leather and footwear	Subsections DB and DC	4.5
Non-metallic mineral products	Division 26	4.4
Metals	Division 27	4.2
Other manufacturing industries (1)	Division 36	2.9
Coke, refined petroleum products and nuclear fuel	Division 23	2.2
Recycling	Division 37	0.1

(1) Estimate.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Table 8

Three largest manufacturing sectors, 1999 (1)

	Largest	Second largest	Third largest
EU-15 (2)	Chemicals	Machinery and equipment	Food and beverages
B	Chemicals	Food and beverages	Motor vehicles
DK (3)	Food and beverages	Machinery and equipment	Chemicals
D	Machinery and equipment	Motor vehicles	Chemicals
EL (3)	Food and beverages	Chemicals	Non-metallic mineral products
E	Food and beverages	Metal products	Chemicals
F	Chemicals	Food and beverages	Motor vehicles
IRL (3)	Chemicals	Food and beverages	Publishing and printing
I (4)	Machinery and equipment	Chemicals	Metal products
L (5)	Metals	Rubber and plastics	Non-metallic mineral products
NL (6)	Food and beverages	Chemicals	Publishing and printing
A (7)	Machinery and equipment	Metal products	Coke, refined petroleum & nuclear
P	Food and beverages	Non-metallic mineral products	Textiles
FIN	Radio, TV & communication equip.	Pulp, paper and paper products	Machinery and equipment
S	Motor vehicles	Machinery and equipment	Chemicals
UK (5)	Food and beverages	Chemicals	Machinery and equipment

(1) Based on value added for NACE Divisions.
(2) 2000.
(3) Value added is net of VAT but not of other taxes on products; these are important in the chemicals and food and beverages sectors and are likely to have inflated the importance of these sectors.
(4) 1998.
(5) 1997.
(6) Largest, 1997; second and third largest, 1998.
(7) Third largest, 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

It has already been suggested that the fastest growing areas of the EU's manufacturing economy are likely to be those driven by marketing, innovation and technology. Looking in more detail at the activity breakdown, the fastest growing sectors in the EU between 1994 and 1999 were office machinery and computers (NACE Group 30.0), aircraft and spacecraft (NACE Group 35.3), motor vehicles and their parts and accessories (NACE Groups 34.1 and 34.3) and pharmaceuticals (NACE Group 24.4)[6]. All of these sectors can be considered as either research-driven with a high degree of technological innovation, or alternatively marketing-driven, with brand image playing an important role in differentiating products. Table 9 provides details of the importance of marketing and technology-driven sectors in each of the Member States.

The manufacturing sectors to report the biggest percentage declines in output in the EU between 1994 and 1999 included leather luggage, handbags and the like (NACE Group 19.2), knitted and crocheted articles (NACE Group 17.7), clocks and watches (NACE Group 33.5) and the tanning and dressing of leather (NACE Group 19.1). All of these industries could be described as traditional or mainstream industries, characterised by a high degree of labour input.

(6) Analysis based on those activities where an EU total is available for both reference years; according to partial data (based on available country information) all three NACE Groups that form part of radio, television and communication equipment (NACE Division 32) also experienced high growth rates.

Table 9

Importance of marketing-driven and technology-driven sectors, 1999 (% of manufacturing) (1)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Value added																
Marketing-driven industries (2)	19.7	20.7	31.9	16.4	32.2	24.9	20.8	:	18.9	13.3	31.3	:	23.9	14.3	13.8	25.9
Technology-driven industries (3)	23.3	22.0	17.2	25.7	8.8	13.5	29.2	:	15.7	0.6	17.8	:	9.9	25.5	32.9	24.7
Employment																
Marketing-driven industries (2)	20.9	24.9	32.7	18.5	33.1	27.1	22.7	30.2	18.0	20.1	:	20.1	25.5	20.9	16.7	24.1
Technology-driven industries (3)	18.2	16.4	12.1	22.5	7.6	9.0	22.9	27.3	14.4	1.3	:	10.6	5.1	15.4	23.4	18.9

(1) Estimates; DK, EL, IRL, I, A, P and S, 1998; EU-15, L, NL and UK, 1997.
(2) NACE 15+16+19+22+24.5+28.2+28.6+33.5+36.3+36.4+36.5+36.6.
(3) NACE 24.2+24.4+24.6+30+31.2+32+33.1+33.2+33.3+33.4+34.1+35.3.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Table 10

Share of micro and small enterprises in total value added, 1999 (%) (1)

	NACE codes	B (2)	DK (3)	D	EL	E (2)	F (4)	IRL (5)	I (2)	L	NL (6)	A (7)	P (8)	FIN	S (9)	UK (10)
Mining & quarrying; manufacturing; electricity, gas & water supply	Sections C to E	:	:	:	:	30.9	22.0	:	38.6	:	:	18.4	30.2	16.3	18.6	17.1
Mining of metal ores	Division 13	:	:	:	:	:	15.0	:	:	:	:	:	:	:	:	:
Other mining and quarrying	Division 14	:	:	:	:	81.2	51.2	:	:	:	63.5	:	:	:	:	:
Coke, refined petroleum & nuclear	Division 23	:	:	:	:	:	2.5	:	11.3	:	:	:	:	:	:	4.8
Non-metallic mineral products	Division 26	22.9	24.6	:	:	32.7	16.6	21.7	42.3	:	32.2	21.9	27.4	20.3	19.5	18.5
Metals	Division 27	3.6	14.8	:	:	12.5	:	:	19.9	:	4.6	2.7	14.8	3.0	4.0	12.8
Metal products	Division 28	47.1	47.6	:	:	63.1	:	:	68.5	:	49.8	34.9	61.3	54.8	50.2	49.5
Machinery and equipment	Division 29	22.1	23.5	:	:	42.2	27.0	23.8	36.5	:	37.5	17.1	45.8	21.5	18.4	25.5
Other manufacturing industries	Division 36	:	:	:	:	:	40.8	:	65.7	:	55.4	45.6	65.7	:	31.7	38.2
Electricity, gas, steam & hot water supply	Division 40	:	:	:	:	4.6	2.2	:	3.5	:	3.8	3.8	11.3	14.8	:	:
Collection, purif. & distrbn. of water	Division 41	11.4	:	:	:	13.1	6.1	:	18.0	:	:	39.5	8.6	29.7	:	:
Food, beverages and tobacco	Subsection DA	27.8	12.7	:	:	32.8	33.8	8.2	45.7	:	17.2	:	29.5	18.3	15.4	7.7
Textiles, clothing, leather and footwear	Subsections DB and DC	30.5	41.7	:	:	56.2	36.3	:	54.7	:	42.5	23.8	35.0	35.5	:	28.7
Wood, paper, publishing and printing	Subsections DD and DE	40.6	34.6	:	:	48.6	39.0	:	49.8	:	34.0	27.6	40.3	12.2	23.4	30.1
Chemicals, rubber and plastics	Subsections DG and DH	9.1	12.8	:	:	20.1	12.1	3.4	26.5	:	12.4	12.3	23.8	16.8	12.4	12.6
Electrical machinery and electronics	Subsection DL	12.2	20.8	:	:	21.2	15.6	3.9	35.4	:	16.2	9.7	12.2	5.1	10.8	16.7
Transport equipment	Subsection DM	5.8	18.8	:	:	6.8	8.4	14.1	10.8	:	18.9	3.7	9.2	16.1	4.6	6.9
Manufacturing	Section D	20.7	24.2	:	:	33.7	23.9	8.7	42.3	:	25.5	19.9	32.6	16.0	17.6	20.0
Electricity, gas and water supply	Section E	:	:	:	:	5.4	2.5	:	4.1	:	3.2	5.5	10.9	16.5	27.4	3.9

(1) Enterprises with between 1 and 49 persons employed. (2) 1998. (3) 1998, except NACE 15+16, 1997. (4) NACE 13, 14 and 15+16, 1998.
(5) 1998, except NACE 29, 30+31+32+33 and 34+35, 1997. (6) 1998, except NACE 17+18+19, 20+21+22 and 24+25, 1997. (7) NACE 30+31+32+33, 1998.
(8) NACE 36, 1997. (9) NACE 15+16, 1998. (10) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Table 11

Development of output prices in the EU (1995=100)

	NACE	1995	1996	1997	1998	1999	2000
Mining and quarrying; manufacturing; electricity, gas and water supply	Sections C to E	100.0	100.4	101.3	100.7	100.4	105.3
Mining of metal ores	Division 13	100.0	87.9	99.6	89.7	86.8	:
Other mining and quarrying	Division 14	100.0	102.4	103.9	105.1	106.2	108.4
Manufacturing	Section D	100.0	101.1	101.8	100.9	101.2	106.5
Food, beverages and tobacco	Subsection DA	100.0	102.1	103.3	103.0	102.2	103.8
Textiles, clothing, leather and footwear	Subsections DB and DC	100.0	101.4	102.4	103.3	103.2	104.6
Wood, paper, publishing and printing	Subsections DD and DE	100.0	99.4	98.8	99.6	99.4	103.0
Coke, refined petroleum products and nuclear fuel	Division 23	100.0	112.3	117.2	101.0	115.0	170.3
Chemicals, rubber and plastics	Subsections DG and DH	100.0	98.8	99.2	97.9	97.3	102.1
Non-metallic mineral products	Division 26	100.0	100.8	101.7	102.7	104.0	106.0
Metals	Division 27	100.0	95.2	95.4	95.4	90.1	98.7
Metal products	Division 28	100.0	101.5	102.0	102.9	103.5	105.1
Machinery and equipment	Division 29	100.0	102.6	104.0	105.1	106.0	107.1
Electrical machinery and electronics	Subsection DL	100.0	99.3	98.2	96.7	95.2	95.1
Transport equipment	Subsection DM	100.0	101.9	102.1	103.1	103.6	103.8
Other manufacturing industries	Division 36	100.0	102.8	103.8	105.0	106.3	107.8
Electricity, gas, steam and hot water supply	Division 40	100.0	98.1	100.1	97.7	93.5	99.8
Collection, purification and distribution of water	Division 41	100.0	104.9	108.8	111.9	114.1	114.7

Source: Eurostat, European Business Trends (theme4/ebt)

Whilst globalisation widens the horizon for production-related decision making, it also increases the speed with which information, technology and ultimately competition can be diffused. One theory put forward to explain this shift is that smaller economies are faster at adapting their manufacturing structure. Taking the shares of each NACE Division in national manufacturing and summing their absolute differences between two periods (1994 and 1999) it is possible to create an indicator that measures adaptation. Ireland reported the most rapid change in the composition of its manufacturing sector, followed by Finland, whilst France, Germany and the United Kingdom were the slowest economies to adapt. This shift may have been encouraged by some of the smaller Member States successfully concentrating on certain high growth manufacturing sectors (for example, chemicals and computers in Ireland, telecommunications equipment in Finland). Alternatively it could have resulted from the fact that some of the more recent countries to join the EU were at an earlier stage in the process of industrialisation and so industrial activities in these countries become relatively more important, whilst the tertiary sector grew in other Member States. Finally, one should also note that exchange rate fluctuations may also contribute to shifts in the structure of output across the Member States.

COUNTRY SPECIALISATION IN MANUFACTURING

Whilst the larger Member States may often be slower at adapting the structure of their manufacturing sectors, this does not prevent them from specialising in key activities. Smaller countries will generally register much higher (and lower) relative specialisation ratios than larger countries, as some manufacturing sectors do not exist in smaller countries (which rely on imports), thus magnifying the relative importance of those that do. In addition, specialisation ratios, per se, provide no information as to whether or not an industry accounts for an important share of manufacturing value added. For this reason the data presented in table 12 has been filtered so that only sectors accounting for more than 0.5% of national manufacturing are included. France, Germany, Ireland, the Netherlands, Finland, Sweden and the United Kingdom were all highly specialised in at least one technology-driven sector, whilst the southern Member States tended to be specialised in labour-intensive activities.

Table 12

Manufacturing specialisation in the Member States, 1999 (1)

B	**DK (2)**	**D**	**EL (2)**	**E**
Made-up textile articles	Building & repairing of ships	Electricity distribn. & control app.	Cement, lime & plaster	Ceramic tiles & flags
Other first processing of iron & steel	Fish	Machine tools	Textile fibres	Stone
Other textiles	Games & toys	Motor vehicles	Fruit & vegetables	Oils & fats
F	**IRL**	**I (2)**	**L (3)**	**NL (2)**
Aircraft & spacecraft	Electronic components	Ceramic tiles & flags	Basic iron & steel (ECSC)	Audio-visual household goods
Processing of nuclear fuel	Medical & surgical equipment	Motorcycles & bicycles	Other textiles	Prepared animal feeds
Steam generators	Office machinery & computers	Tanning & dressing of leather	Rubber products	Oils & fats
A	**P**	**FIN**	**S**	**UK (3)**
Railway rolling stock	Footwear	Pulp, paper & paperboard	Pulp, paper & paperboard	Aircraft & spacecraft
Sawmilling & planing of wood	Knitted & crocheted fabrics	Sawmilling & planing of wood	Sawmilling & planing of wood	Office machinery & computers
Sports goods	Other wood products	Telecommunications equipment	Telecommunications equipment	Refined petroleum products

(1) Three most specialised manufacturing activities per country; based on NACE Groups and their specialisation ratios in terms of value added at factor cost; excluding recycling; only NACE Groups with a share >0.5% of national manufacturing are included; activities are ranked in alphabetical order.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

TRADE DEVELOPMENTS

As a result of the globalisation process and the opening up of the Internal Market, the share of output destined for domestic consumption has generally declined at the expense of output for export. This trend has generally spread from manufactured goods to trade in services. Nevertheless, the value of goods exported from the EU to non-Community countries was three times that of service transactions in 2000. Travel, transportation and other business services accounted for three-quarters (74.6%) of the EU's external transactions in services in 2000. The United Kingdom had the largest share of service transactions with both EU and non-Community countries, with just under one-fifth of total credits in 2000 (see table 13) and was particularly specialised in insurance services, financial services and other business services.

Table 13

International trade in services, 2000 (million EUR)

	Credit	Debit
EU-15 (1)	298,196	292,590
B/L	47,425	41,991
DK	22,440	19,932
D	91,158	145,555
EL	20,990	12,257
E	58,227	34,011
F	88,472	67,707
IRL	18,327	31,392
I	60,796	60,806
NL	58,727	57,644
A	32,808	31,761
P	9,168	7,214
FIN	6,819	9,604
S	22,019	25,437
UK	127,402	103,347

(1) Trade with non-Community countries only.
Source: Eurostat, International trade in services, foreign direct investment, balance of payments (theme2/bop)

Table 14

EU-15 international trade in services with non-Community countries, 2000 (million EUR)

	Credit	Debit	Net balance
Services, of which	298,196	292,590	5,606
Transportation	76,381	73,332	3,049
Travel	74,658	77,694	-3,036
Communication services	5,571	6,260	-689
Construction services	9,268	6,621	2,646
Insurance services	9,095	3,747	5,347
Financial services	18,692	9,349	9,343
Computer and information services	9,370	6,302	3,068
Other business services	71,696	75,262	-3,566
Personal, cultural and recreational services	3,249	6,584	-3,335
Government services n.e.c.	6,946	6,570	376

Source: Eurostat, International trade in services, foreign direct investment, balance of payments (theme2/bop)

Table 15

Extra and intra-EU trade for manufactured goods (CPA Section D), 2000 (million EUR)

	Exports	Share in total (%)	Imports	Share in total (%)	Trade balance	Cover ratio (%)
EU-15 (1)	859,793	-	804,889	-	54,904	106.8
B	182,478	8.1	157,827	7.4	24,651	115.6
DK	47,044	2.1	44,716	2.1	2,329	105.2
D	551,932	24.4	447,473	21.0	104,459	123.3
EL	9,987	0.4	26,354	1.2	-16,367	37.9
E	114,812	5.1	143,306	6.7	-28,494	80.1
F	331,792	14.7	323,473	15.2	8,320	102.6
IRL	75,151	3.3	49,714	2.3	25,437	151.2
I	249,456	11.0	214,721	10.1	34,735	116.2
L	8,811	0.4	11,009	0.5	-2,197	80.0
NL	203,654	9.0	186,274	8.7	17,379	109.3
A	65,959	2.9	71,960	3.4	-6,002	91.7
P	25,818	1.1	37,711	1.8	-11,893	68.5
FIN	49,069	2.2	30,658	1.4	18,412	160.1
S	88,313	3.9	67,052	3.1	21,260	131.7
UK	259,156	11.4	317,617	14.9	-58,461	81.6

(1) Trade with non-Community countries only.
Source: Eurostat, Comext

External trade statistics of manufacturing goods are available within the Comext database, and can be compiled according to the Classification of Products by Activity (CPA). Germany accounted for almost one-quarter (24.4%) of the manufactured goods that were exported by Member States in 2000 and recorded the largest trade surplus (104.5 billion EUR) including both intra and extra-EU trade. However, Finland, Ireland and Sweden all recorded higher cover ratios (exports divided by imports) - see table 15. Ireland, Greece, Finland and Portugal reported the quickest change in the structure of their exports between 1990 and 2000, whilst Italy, Spain and Germany had the slowest adaptation rates.

Table 16 shows that external trade of electrical machinery and electronic products (CPA Subsection DL) with non-Community countries grew at a rapid pace between 1990 and 2000, by which time these products accounted for 21.3% of the EU's manufactured exports and 30.8% of its imports. Using the chapter breakdowns from section 2 of this publication, the other product groups to report that exports were growing at a faster pace than the manufacturing average were coke, refined petroleum products and nuclear fuel (CPA Division 23), chemicals, rubber and plastics (CPA Subsections DG and DH) and transport equipment (CPA Subsection DM). Electrical machinery and electronic products also registered the fastest growth rates for imports, followed by metal products (CPA Division 28), non-metallic mineral products (CPA Division 26), other manufactured goods (CPA Division 36) and transport equipment.

The US accounted for 24.7% of the EU's manufactured exports in 2000, which marked a 3.6 percentage point increase on 1990. Poland, China, the Czech Republic and Hungary all moved into the top ten export destinations for EU manufactured goods between 1990 and 2000, whilst the relative share of Turkey (already in the top ten in 1990) also increased.

In 1990 approximately half of the EU's imports of manufactured goods came from just three countries; the US, Japan and Switzerland. By 2000 their share had fallen to below 40%, as China took over from Switzerland as the third most important origin of imports. Chinese imports had accounted for 3.3% of total EU imports from non-Community countries in 1990, a share that rose to 8.5% by 2000. Other countries to report noticeable increases in their relative share of EU manufactured imports during the course of the 1990s included the Czech Republic, Hungary and Poland, as well as Indonesia, Malaysia and South Korea.

Table 16

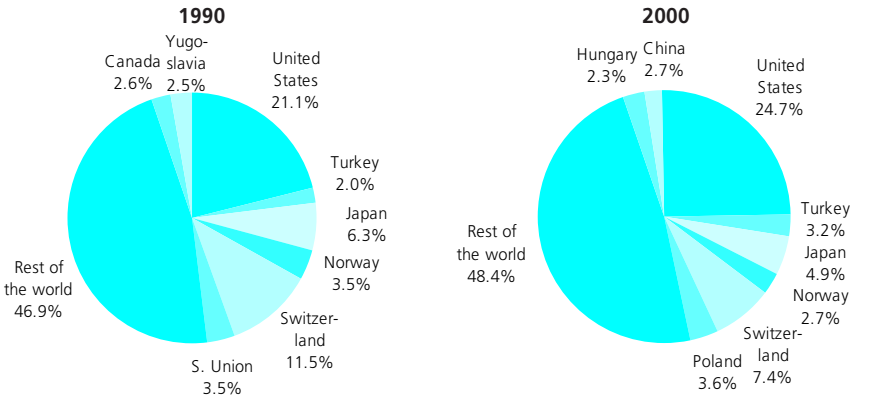
EU-15 external trade flows with non-Community countries (share of manufacturing total, %)

	CPA	Exports 1990	Exports 2000	Imports 1990	Imports 2000
Electrical machinery and electronics	Subsection DL	13.8	21.3	23.1	30.8
Transport equipment	Subsection DM	16.0	17.5	12.1	13.3
Chemicals, rubber and plastics	Subsections DG and DH	15.0	16.6	11.7	11.3
Machinery and equipment	Division 29	18.5	14.5	8.5	8.2
Textiles, clothing, leather and footwear	Subsections DB and DC	7.7	6.1	12.1	10.5
Food, beverages and tobacco	Subsection DA	7.5	5.4	7.4	4.7
Metals	Division 27	6.0	4.3	8.5	6.8
Wood, paper, publishing and printing	Subsections DD and DE	3.9	3.7	5.0	3.7
Other manufacturing industries	Division 36	4.0	3.4	4.0	4.5
Metal products	Division 28	3.2	2.8	1.9	2.2
Coke, refined petroleum & nuclear	Division 23	2.0	2.4	4.8	2.8
Non-metallic mineral products	Division 26	2.3	1.9	1.0	1.1

Source: Eurostat, Comext

Figure 4

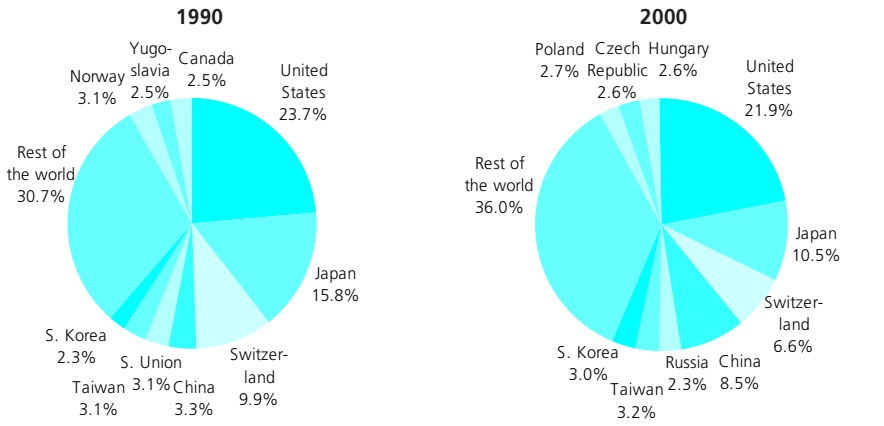
Destination of EU manufacturing exports (CPA Section D)



Source: Eurostat, Comext

Figure 5

Origin of EU manufacturing imports (CPA Section D)



Source: Eurostat, Comext

Statistical annex

There follows a short set of tables giving some general information which may be of use in interpreting the data that follows in the remaining chapters. This data is of a horizontal nature and may prove relevant for a number of chapters

Table SA.1

Exchange rates, annual average rates (1 ECU/EUR=... national currency)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BEF/LUF	42.4257	42.2233	41.5932	40.4713	39.6565	38.5519	39.2986	40.5332	40.6207	40.3399	40.3399	40.3399
DKK	7.85652	7.90859	7.80925	7.59359	7.54328	7.32804	7.35934	7.48361	7.49930	7.43556	7.45382	7.45207
DEM	2.05209	2.05076	2.02031	1.93639	1.92453	1.87375	1.90954	1.96438	1.96913	1.95583	1.95583	1.95583
GRD	201.412	225.216	247.026	268.568	288.026	302.989	305.546	309.355	330.731	325.820	336.678	340.750
ESP	129.411	128.469	132.526	149.124	158.918	163.000	160.748	165.887	167.184	166.386	166.386	166.386
FRF	6.91412	6.97332	6.84839	6.63368	6.58262	6.52506	6.49300	6.61260	6.60141	6.55957	6.55957	6.55957
IEP	0.767768	0.767809	0.760718	0.799952	0.793618	0.815525	0.793448	0.747516	0.786245	0.787564	0.787564	0.787564
ITL	1,522.0	1,533.2	1,595.5	1,841.2	1,915.1	2,130.1	1,959.0	1,929.3	1,943.7	1,936.3	1,936.3	1,936.3
NLG	2.31212	2.31098	2.27482	2.17521	2.15827	2.09891	2.13973	2.21081	2.21967	2.20371	2.20371	2.20371
ATS	14.4399	14.4309	14.2169	13.6238	13.5396	13.1824	13.4345	13.8240	13.8545	13.7603	13.7603	13.7603
PTE	181.109	178.614	174.714	188.370	196.896	196.105	195.761	198.589	201.695	200.482	200.482	200.482
FIM	4.85496	5.00211	5.80703	6.69628	6.19077	5.70855	5.82817	5.88064	5.98251	5.94573	5.94573	5.94573
SEK	7.52051	7.47927	7.53295	9.12151	9.16308	9.33192	8.51472	8.65117	8.91593	8.80752	8.44519	9.25511
GBP	0.713851	0.701012	0.737650	0.779988	0.775903	0.828789	0.813798	0.692304	0.676434	0.658735	0.609478	0.621874
JPY	183.6600	166.4930	164.2230	130.1480	121.3220	123.0120	138.0840	137.0770	146.4150	121.3170	99.4748	108.6820
USD	1.273430	1.239160	1.298100	1.171000	1.189520	1.308010	1.269750	1.134040	1.121090	1.065780	0.921937	0.895630

Source: Eurostat, Monetary and other financial statistics (theme2/mny)

Table SA.2

Population, as of 1 January (thousands)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 (1)
EU-15	363,763	365,435	367,073	368,994	370,433	371,589	372,670	373,717	374,584	375,346	376,455
B	9,948	9,987	10,022	10,068	10,101	10,131	10,143	10,170	10,192	10,214	10,239
DK	5,135	5,146	5,162	5,181	5,197	5,216	5,251	5,275	5,295	5,314	5,330
D	79,113	79,753	80,275	80,975	81,338	81,539	81,817	82,012	82,057	82,037	82,163
EL	10,121	10,200	10,294	10,349	10,410	10,443	10,465	10,487	10,511	10,522	10,543
E	38,826	38,875	38,965	39,051	39,121	39,177	39,242	39,299	39,348	39,394	39,442
F	56,577	56,893	57,218	57,530	57,779	58,020	58,258	58,492	58,728	58,977	59,226
IRL	3,507	3,521	3,547	3,569	3,583	3,598	3,620	3,652	3,694	3,735	3,777
I	56,694	56,744	56,757	56,960	57,138	57,269	57,333	57,461	57,563	57,613	57,680
L	379	384	390	395	401	407	413	418	424	429	436
NL	14,893	15,010	15,129	15,239	15,342	15,424	15,494	15,567	15,654	15,760	15,864
A	7,690	7,769	7,868	7,962	8,015	8,040	8,055	8,068	8,075	8,083	8,103
P	9,920	9,877	9,865	9,869	9,892	9,912	9,921	9,934	9,957	9,979	9,998
FIN	4,974	4,998	5,029	5,055	5,078	5,099	5,117	5,132	5,147	5,160	5,171
S	8,527	8,591	8,644	8,692	8,745	8,816	8,837	8,844	8,848	8,854	8,861
UK	57,459	57,685	57,907	58,099	58,293	58,500	58,704	58,905	59,090	59,391	59,623

(1) E, F, IRL and L, estimates.
Source: Eurostat, Population and social conditions - demography (theme3/demo)

Table SA.3

Gross domestic product in constant prices, annual rate of change (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 (1)
EU-15 (2)	:	:	1.3	-0.4	2.8	2.4	1.6	2.5	2.9	2.6	3.3	2.7
B	2.9	1.8	1.6	-1.5	2.8	2.6	1.2	3.6	2.2	3.0	4.0	3.0
DK	1.0	1.1	0.6	0.0	5.5	2.8	2.5	3.0	2.8	2.1	3.2	2.1
D	:	:	2.2	-1.1	2.3	1.7	0.8	1.4	2.0	1.8	3.0	2.2
EL	0.0	3.1	0.7	-1.6	2.0	2.1	2.4	3.5	3.0	3.4	4.3	4.4
E	:	:	:	:	:	2.9	2.4	4.0	4.3	4.1	4.1	3.2
F	2.6	1.0	1.5	-0.9	2.1	1.7	1.1	1.9	3.4	2.9	3.1	2.9
IRL	:	1.9	3.3	2.7	5.8	10.0	7.8	10.8	8.6	10.8	11.5	7.5
I	2.0	1.4	0.8	-0.9	2.2	2.9	1.1	2.0	1.8	1.6	2.9	2.5
L	:	:	:	:	:	:	3.6	9.1	5.9	5.7	9.5	5.6
NL	4.1	2.5	1.7	0.9	2.6	2.9	3.0	3.8	4.3	3.7	3.5	3.4
A	4.7	3.3	2.3	0.4	2.6	1.6	2.0	1.6	3.5	2.8	3.0	2.5
P	4.0	4.4	1.1	-2.0	1.0	4.3	3.7	3.8	3.8	3.3	3.3	2.6
FIN	0.0	-6.3	-3.3	-1.1	4.0	3.8	4.0	6.3	5.3	4.0	5.7	4.0
S	:	:	:	:	4.1	3.7	1.1	2.1	3.6	4.1	3.6	2.7
UK	0.8	-1.4	0.2	2.5	4.7	2.9	2.6	3.4	3.0	2.1	2.9	2.7

(1) Forecasts.
(2) 1992 to 1995, estimates.
Source: Eurostat, National Accounts - ESA95 - aggregates (theme2/aggs)

Table SA.4

Gross domestic product in constant prices in the EU, annual rate of change (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	1.3	-0.4	3.0	2.4	1.6	2.5	2.9	2.5	3.5
Agriculture, hunting, forestry and fishing	4.3	-0.6	-0.4	2.1	4.4	0.7	1.1	2.1	0.1
Industry	-0.6	-3.5	4.3	3.0	0.0	3.0	2.8	0.8	4.2
Construction	1.5	-4.1	2.2	-0.2	-1.3	-1.1	0.8	2.3	2.0
Distributive trades; hotels and restaurants; transport, storage & communication	1.4	0.1	2.6	2.3	1.5	3.4	3.9	4.4	4.1
Financial intermediation; real estate, renting and business activities	1.5	1.6	3.8	3.4	3.7	3.7	4.1	3.7	4.5
Public administration; education; health; other community, social and personal services; private households with employees	2.6	1.3	1.6	1.5	1.7	1.0	1.5	1.2	1.6

Source: Eurostat, National Accounts - Breakdowns by branch of activity (theme2/brkdowns)

Table SA.5

Long-term interest rate for government bond yields following the Maastricht Treaty, annual average rates (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15 (1)	11.1	10.2	9.8	8.3	8.5	8.9	7.5	6.3	4.9	4.7	5.4	5.0
B	10.0	9.3	8.7	7.2	7.8	7.5	6.5	5.8	4.8	4.8	5.6	5.1
DK	10.7	9.2	8.9	7.3	7.8	8.3	7.2	6.3	4.9	4.9	5.6	5.1
D	8.7	8.5	7.9	6.5	6.9	6.9	6.2	5.6	4.6	4.5	5.3	4.8
EL	:	:	24.1	23.3	20.7	17.0	14.5	9.9	8.5	6.3	6.1	5.3
E	14.6	12.3	11.7	10.2	10.0	11.3	8.7	6.4	4.8	4.7	5.5	5.1
F	9.9	9.0	8.6	6.8	7.2	7.5	6.3	5.6	4.6	4.6	5.4	4.9
IRL	10.1	9.3	9.3	7.7	7.9	8.3	7.3	6.3	4.8	4.7	5.5	5.0
I	12.1	13.1	13.3	11.2	10.5	12.2	9.4	6.9	4.9	4.7	5.6	5.2
L	8.6	8.1	7.9	6.9	7.2	7.2	6.3	5.6	4.7	4.7	5.5	4.9
NL	8.9	8.7	8.1	6.4	6.9	6.9	6.2	5.6	4.6	4.6	5.4	5.0
A	8.7	8.6	8.3	6.7	7.0	7.1	6.3	5.7	4.7	4.7	5.6	5.1
P	15.1	14.2	11.7	11.2	10.5	11.5	8.6	6.4	4.9	4.8	5.6	5.2
FIN	:	11.3	12.0	8.8	9.1	8.8	7.1	6.0	4.8	4.7	5.5	5.0
S	13.2	10.8	10.0	8.5	9.7	10.2	8.0	6.6	5.0	5.0	5.4	5.1
UK	11.0	9.9	9.1	7.6	8.2	8.3	7.9	7.1	5.6	5.0	5.3	5.0

(1) Excluding EL and FIN, 1990; excluding EL, 1991.
Source: Eurostat, Monetary and other financial statistics (theme2/mny)

Table SA.6

Harmonised consumer price indices, annual rate of change (%)

	1990 (1)	1991 (1)	1992 (1)	1993 (1)	1994 (1)	1995 (1)	1996 (2)	1997 (2)	1998	1999	2000	2001 (3)
EU-15	5.3	5.2	4.0	3.4	2.8	2.8	2.4	1.7	1.3	1.2	2.1	2.4
B	:	:	2.3	2.5	2.4	1.3	1.8	1.5	0.9	1.1	2.7	2.4
DK	2.5	2.2	1.9	0.9	1.8	2.0	2.1	1.9	1.3	2.1	2.7	2.3
D	:	:	:	:	:	:	1.2	1.5	0.6	0.6	2.1	2.4
EL	:	:	:	:	:	:	7.9	5.4	4.5	2.1	2.9	3.7
E	:	:	:	4.9	4.6	4.6	3.6	1.9	1.8	2.2	3.5	3.7
F	:	3.4	2.4	2.2	1.7	1.8	2.1	1.3	0.7	0.6	1.8	1.8
IRL	:	:	:	:	:	:	2.2	1.2	2.1	2.5	5.3	4.0
I	6.2	6.2	5.0	4.5	4.2	5.4	4.0	1.9	2.0	1.7	2.6	2.7
L	:	:	:	:	:	:	1.2	1.4	1.0	1.0	3.8	2.4
NL	2.4	3.2	2.8	1.6	2.1	1.4	1.4	1.9	1.8	2.0	2.3	5.1
A	2.8	3.1	3.5	3.2	2.7	1.6	1.8	1.2	0.8	0.5	2.0	2.3
P	13.3	11.4	8.9	5.9	5.0	4.0	2.9	1.9	2.2	2.2	2.8	4.4
FIN	5.8	4.5	3.3	3.3	1.6	0.4	1.1	1.2	1.4	1.3	3.0	2.7
S	10.2	8.7	1.3	4.8	2.9	2.7	0.8	1.8	1.0	0.6	1.3	2.7
UK	7.0	7.5	4.2	2.5	2.0	2.7	2.5	1.8	1.6	1.3	0.8	1.2

(1) EU-15, B, DK, E, F, I, P, FIN, S and UK, estimates.
(2) EU-15 and IRL, estimates.
(3) EU-15, F, L and NL, provisional.
Source: Eurostat, Harmonized indices of consumer prices (theme2/price)

Table SA.7

Share in total mean consumption expenditure by households, 1999 (%)

	EU-15 (1)	B	DK	D	EL	E	F (1)	IRL	I	L	NL	A	P (1)	FIN	S	UK
Food and non-alcoholic beverages	16.1	13.3	13.1	11.1	16.6	18.3	16.2	:	19.0	10.1	10.5	13.4	21.2	14.2	15.4	10.5
Alcoholic beverages, tobacco and narcotics	2.8	2.3	4.2	2.8	3.5	2.7	2.7	:	1.9	2.0	2.1	2.6	2.8	2.9	2.9	3.0
Clothing and footwear	6.9	5.4	5.5	5.7	8.6	7.4	5.6	:	7.5	5.9	6.0	6.6	6.3	4.6	5.2	5.5
Housing, water, electricity, gas and other fuels	24.6	26.2	28.4	31.2	21.9	27.5	23.2	:	24.7	27.4	26.7	23.9	19.9	28.1	26.8	28.3
Furnishings, household equipment & maintenance	7.0	6.5	6.4	7.4	7.5	5.0	7.6	:	7.6	8.2	7.2	7.2	6.7	4.5	5.0	7.3
Health	3.1	4.7	2.4	3.6	6.3	2.5	5.2	:	4.4	2.4	1.1	2.4	4.6	3.7	3.0	1.1
Transport	13.1	12.5	14.1	13.3	11.2	12.5	14.5	:	13.7	15.4	10.3	14.4	15.7	17.0	13.4	13.6
Communication	2.0	2.2	2.1	2.5	3.3	2.0	2.0	:	2.5	2.1	2.2	2.6	2.0	2.8	2.6	2.3
Recreation and culture	9.4	10.7	11.2	11.9	4.5	6.2	7.6	:	6.3	8.7	10.4	12.3	3.7	10.7	14.6	13.4
Education	0.7	0.5	0.4	0.5	2.4	1.4	0.5	:	0.8	0.1	1.2	0.3	1.3	0.2	0.1	1.3
Restaurants and hotels	6.4	5.7	4.1	4.9	8.8	9.3	6.9	:	4.6	9.6	7.0	5.4	9.2	4.1	3.8	7.9
Miscellaneous goods and services	7.9	10.0	8.1	5.0	5.5	5.1	8.1	:	7.1	8.0	15.3	8.9	6.5	7.1	7.2	5.8

(1) 1994.
Source: Eurostat, Household Budget Survey (theme3/hbs)

Table SA.8

Consumer confidence (balance)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15 (1)	-9.6	-16.2	-19.3	-25.7	-13.5	-8.0	-14.3	-9.7	-3.9	-2.9	1.0	-4.3
B	0.8	-6.5	-13.3	-24.7	-10.3	-8.6	-13.1	-12.8	1.7	2.6	13.5	0.6
DK	-6.8	-4.0	-2.4	-2.6	11.3	14.3	8.0	14.0	10.3	4.3	11.3	9.2
D	-1.7	-10.8	-15.4	-25.3	-10.9	-6.0	-19.9	-18.0	-5.1	-1.6	2.9	-3.3
EL	-26.2	-33.3	-37.0	-31.1	-29.6	-37.3	-27.3	-29.9	-34.8	-27.0	-15.3	-26.6
E	-10.7	-13.4	-25.9	-30.9	-16.3	-12.8	-9.4	-2.9	0.1	1.7	2.3	-4.0
F	-15.3	-28.2	-27.3	-29.9	-18.6	-13.8	-29.8	-21.5	-11.6	-8.7	-2.8	-11.1
IRL	-9.9	-23.8	-25.7	-20.8	-10.3	-4.6	-0.2	11.7	12.4	14.0	12.5	-1.6
I	-9.8	-15.4	-21.9	-31.9	-13.1	-5.3	-12.0	-14.1	-7.7	-9.9	-7.6	-2.8
L	:	:	:	:	:	:	:	:	:	:	:	:
NL	6.2	-5.3	-4.5	-15.6	-2.3	7.2	7.9	19.5	23.2	19.3	24.4	3.8
A	:	:	:	:	:	:	-12.7	-9.2	-1.7	4.7	5.9	3.0
P	-6.4	-3.8	-13.7	-33.2	-30.9	-22.8	-25.1	-17.4	-14.8	-13.8	-17.9	-24.2
FIN	:	:	:	:	:	:	12.0	18.3	18.2	17.4	19.7	11.9
S	:	:	:	:	:	:	-4.8	4.4	10.0	12.4	21.8	5.0
UK	-20.8	-17.3	-17.0	-17.8	-15.8	-10.4	-5.5	3.2	-1.8	-3.6	-3.8	-4.6

(1) Average of available data.
Source: Eurostat, European and national short term indicators (theme1/euroind)

Table SA.9

Gross fixed capital formation as a percentage of GDP (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 (1)	2000 (1)	2001 (2)
EU-15 (3)	:	21.1	20.8	19.7	19.7	19.8	19.9	20.0	20.6	21.1	21.3	21.6
B	21.4	20.1	20.2	19.9	19.3	19.9	19.9	20.5	20.9	21.0	20.7	20.9
DK	18.7	17.9	17.4	16.8	17.1	18.6	18.9	20.3	21.3	21.2	22.6	22.4
D	:	22.9	23.4	22.6	23.0	22.4	22.1	21.9	22.1	22.6	22.5	22.5
EL	:	:	:	:	:	18.6	19.7	21.5	22.6	23.4	24.6	26.0
E	24.4	24.2	22.9	21.0	21.0	22.0	21.9	22.1	23.2	24.3	24.6	24.9
F	21.1	20.5	19.9	18.8	18.7	18.8	18.6	18.2	18.9	19.5	20.0	20.7
IRL	19.3	17.6	17.1	15.8	16.7	17.2	18.6	19.8	21.0	21.6	20.8	20.7
I	20.8	20.7	20.2	18.2	17.8	18.3	18.8	18.8	19.3	19.8	20.5	20.7
L	:	:	:	:	:	21.7	21.4	22.4	21.7	24.6	21.8	21.8
NL	21.7	21.3	21.1	20.2	20.1	20.3	20.9	21.5	21.5	22.3	22.4	22.5
A	22.9	23.6	23.2	22.9	23.4	23.3	23.3	23.4	23.4	23.1	23.6	23.6
P	22.3	22.0	22.8	22.0	22.3	22.4	23.0	25.4	26.6	27.5	28.0	28.5
FIN	25.9	22.5	19.4	16.3	15.3	16.3	17.0	17.9	18.6	18.4	18.3	18.4
S	:	:	:	14.4	14.7	15.5	16.1	15.6	16.3	16.9	17.1	17.6
UK	18.1	16.8	16.7	16.3	16.3	16.3	16.7	17.2	19.0	18.7	19.1	19.2

(1) EU-15 and EL, estimates.
(2) Estimates.
(3) Average of available data.
Source: Eurostat, National Accounts - ESA95 - aggregates (theme2/aggs)

Table SA.10

Business enterprise expenditure on R&D as a percentage of GDP (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15 (1)	1.27	1.24	1.22	1.22	1.20	1.19	1.18	1.19	1.19	1.25	1.24	:
B (2)	:	1.08	1.16	1.23	1.22	1.23	1.30	1.34	1.35	1.42	1.47	:
DK (3)	0.90	0.96	0.98	1.02	:	1.05	1.13	1.19	1.32	1.25	:	:
D (4)	1.80	1.76	1.66	1.58	1.51	1.50	1.49	1.54	1.57	1.69	1.72	:
EL	:	0.09	:	0.13	:	0.14	0.12	0.13	:	:	:	:
E (5)	0.47	0.47	0.44	0.42	0.38	0.39	0.40	0.40	0.47	0.46	0.48	:
F (6)	1.43	1.46	1.49	1.48	1.45	1.41	1.41	1.39	1.35	1.38	1.37	:
IRL (1)	0.50	0.59	0.67	0.80	0.91	0.96	1.01	1.01	:	:	:	:
I (7)	0.75	0.68	0.66	0.61	0.56	0.53	0.54	0.52	0.52	0.56	:	:
L	:	:	:	:	:	:	:	:	:	:	:	:
NL	1.09	0.98	0.93	0.95	1.01	1.04	1.06	1.11	1.05	:	:	:
A	:	:	:	0.82	:	:	:	:	:	:	:	:
P (8)	0.14	:	0.13	:	:	0.12	:	0.14	:	0.17	:	:
FIN	1.18	1.16	1.21	1.27	1.42	1.45	1.68	1.79	1.94	2.18	:	:
S (9)	:	1.91	:	2.23	:	2.57	:	2.75	2.85	2.86	:	:
UK	1.50	1.39	1.40	1.42	1.36	1.30	1.25	1.20	1.21	1.27	1.26	1.25

(1) Estimates.
(2) 1992, estimate.
(3) 1990, 1992, 1996 and 1999, estimates.
(4) 1990, 1996 and 1998 to 2000, estimates.
(5) 1996, estimate; 2000, provisional.
(6) 2000, estimate.
(7) 1999, estimate.
(8) 1990 and 1992, estimates.
(9) 1991 and 1998, estimates.
Source: Eurostat, Research and Development - expenditure and personnel (theme9/rd_ex_p)

Table SA.11

Industrial confidence (balance)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15 (1)	-3.4	-13.2	-18.4	-25.4	-5.4	-0.9	-14.2	-3.7	-3.0	-8.4	3.7	-9.4
B	-3.2	-15.0	-20.4	-28.8	-6.3	-9.1	-17.8	-2.9	-7.8	-8.6	1.9	-14.0
DK	-3.9	-7.8	-7.3	-9.5	12.5	5.4	-8.7	5.5	-0.8	-12.9	5.7	-1.7
D	8.4	0.7	-17.3	-33.3	-14.8	-5.9	-21.2	-10.1	-5.0	-14.4	-2.3	-14.8
EL	-1.8	-6.6	-3.7	-6.0	-0.1	3.8	-2.4	3.6	4.3	1.3	8.8	4.3
E	-13.5	-21.8	-24.8	-34.8	-8.7	-3.3	-14.4	-1.4	1.4	-3.1	3.2	-4.2
F	-4.8	-21.0	-21.2	-34.4	-3.3	-2.3	-17.5	-5.3	5.3	-2.2	11.8	-4.2
IRL	-0.3	-8.8	-3.9	-12.8	2.5	7.1	-1.1	3.3	3.2	5.0	9.8	-7.7
I	-0.7	-12.6	-15.4	-17.6	1.3	6.4	-11.5	-0.3	0.3	-4.0	11.7	-2.8
L	-2.9	-24.1	-27.7	-25.0	-7.7	9.7	-22.0	4.2	6.7	-11.0	5.3	-15.5
NL	-0.2	-4.4	-6.3	-10.3	-0.9	1.5	-2.4	2.5	1.7	-0.4	4.1	-3.5
A	4.6	-8.8	-17.4	-27.2	-7.5	-12.2	-23.9	-9.5	-8.6	-13.8	-2.8	-13.3
P	-4.9	-7.3	-11.8	-24.8	-3.9	-3.9	-9.6	0.4	2.2	-4.3	2.1	-5.8
FIN	:	:	:	-4.5	18.2	7.8	-11.3	11.2	2.0	-3.8	17.4	-6.8
S	:	:	:	:	:	:	-15.9	-0.9	3.1	-7.1	10.8	-18.7
UK	-17.8	-31.8	-23.6	-10.9	1.8	2.6	-5.1	-1.4	-15.5	-14.3	-6.6	-15.6

(1) Average of available data.
Source: Eurostat, European and national short term indicators (theme1/euroind)

Table SA.12

Capacity utilisation rates for total industry (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15 (1)	84.9	82.9	81.1	78.1	79.3	82.8	81.0	81.6	83.1	81.6	83.4	82.7
B	81.1	79.4	77.4	74.8	77.6	80.9	79.5	81.4	82.7	80.9	84.0	82.3
DK	82.3	81.0	79.7	77.7	81.8	83.4	81.7	83.3	85.5	82.2	82.5	82.8
D	89.2	88.2	84.8	78.8	80.2	84.6	82.2	83.2	85.5	84.0	85.9	85.1
EL	77.0	77.2	78.3	76.0	74.5	76.6	75.6	74.4	75.8	75.7	78.1	77.6
E	80.0	77.6	76.6	72.8	74.5	78.4	77.1	78.3	80.3	79.7	80.6	79.6
F	88.7	86.0	84.3	81.4	80.4	85.4	83.5	82.3	83.8	85.3	87.5	87.6
IRL	76.7	75.5	77.1	73.6	74.9	79.9	77.6	75.9	76.6	75.9	78.6	78.4
I	79.9	77.3	76.3	74.4	75.2	78.1	76.5	76.4	78.5	76.0	78.8	78.9
L	83.3	82.1	79.8	80.1	81.3	82.9	79.0	82.4	88.0	84.9	87.8	88.7
NL	86.0	84.6	83.5	81.0	82.4	84.4	83.9	84.4	85.3	84.0	84.7	84.6
A	:	:	:	:	:	:	80.2	82.0	83.7	81.9	84.5	83.1
P	80.6	79.1	77.4	73.9	77.3	79.7	78.9	80.9	81.4	80.8	81.2	81.7
FIN	:	:	:	82.3	86.9	87.7	83.2	87.2	88.9	86.1	86.8	85.7
S	:	:	:	:	:	:	85.0	85.8	85.0	85.8	87.5	83.6
UK	83.9	79.2	78.5	80.0	82.8	84.4	82.5	83.8	83.7	79.4	81.3	79.7

(1) Average of available data.
Source: Eurostat, European and national short term indicators (theme1/euroind)

Table SA.13

Trade balance of goods at constant prices (million EUR) (1)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
EU-15	:	:	-34,709	11,946	21,293	28,225	43,040	70,137	44,985	12,874	-53,541
B/L	:	1,674	2,879	5,039	5,740	7,297	6,848	6,909	11,326	10,919	10,636
DK	3,922	4,135	5,738	6,672	6,397	5,093	6,077	4,741	3,450	6,309	7,862
D	54,485	15,405	21,563	35,171	42,970	48,814	54,737	62,097	68,556	65,836	61,762
EL	-7,994	-8,160	-8,939	-9,015	-9,556	-11,092	-12,278	-13,647	-12,364	-16,901	-21,935
E	-23,271	-24,924	-23,304	-12,764	-12,426	-14,046	-12,818	-11,838	-18,391	-28,585	-35,642
F	-10,344	-7,602	1,857	6,349	6,719	8,417	11,784	23,728	23,437	18,791	1,717
IRL	3,142	3,391	5,434	6,927	7,844	10,359	12,391	16,472	20,809	22,733	27,698
I	924	-155	2,414	28,236	29,865	33,680	47,796	41,412	31,854	22,051	11,773
NL	:	:	9,523	14,482	15,739	16,862	16,007	20,663	18,873	19,170	21,046
A	:	:	-7,900	-7,706	-8,924	-5,087	-5,734	-3,761	-3,268	-3,376	-2,984
P	-5,343	-6,350	-7,274	-6,806	-6,788	-6,860	-7,120	-8,709	-10,852	-12,951	-15,319
FIN	:	:	2,915	5,342	6,339	9,443	8,856	10,136	11,157	11,453	14,896
S	:	:	5,216	6,442	8,059	12,301	14,660	16,067	15,180	15,806	16,460
UK	-26,349	-14,670	-17,765	-17,257	-13,959	-13,975	-16,862	-17,827	-32,247	-41,783	-49,846

(1) EU-15, trade with non-Community countries; Member States, trade with all partners (intra-EU and extra-EU).
Source: Eurostat, Balance of payments (theme2/bop)

Table SA.14

Trade balance of services at constant prices (million EUR) (1)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
EU-15	:	:	13,840	12,904	11,852	12,017	12,837	16,183	10,207	5,785	5,606
B/L	:	1,381	2,065	2,591	3,015	1,806	2,297	3,272	3,630	4,689	5,434
DK	1,407	2,240	1,775	1,397	447	544	1,020	293	-502	1,564	2,508
D	-14,582	-18,208	-24,366	-28,878	-34,509	-35,012	-34,866	-36,445	-41,002	-48,669	-54,397
EL	4,349	4,887	4,963	6,898	7,892	6,580	7,012	9,253	6,073	6,852	8,733
E	9,224	10,292	9,598	10,002	12,515	14,224	16,100	17,636	19,532	21,524	24,216
F	11,798	12,864	13,573	13,749	15,622	13,712	12,821	16,176	16,837	17,930	20,765
IRL	-980	-945	-2,354	-2,526	-3,463	-4,808	-6,048	-7,945	-11,859	-10,688	-13,065
I	-1,592	-641	-2,688	706	1,594	1,301	1,599	1,772	3,582	1,104	-10
NL	:	:	206	587	1,162	1,690	3,054	3,737	3,272	2,341	1,083
A	:	:	9,053	8,471	8,346	3,527	3,586	870	2,107	1,647	1,047
P	1,088	937	817	1,198	1,064	1,234	1,118	1,292	1,716	1,645	1,953
FIN	:	:	-1,896	-1,700	-1,189	-1,618	-987	-1,056	-930	-1,574	-2,785
S	:	:	-2,191	-657	-838	-1,136	-1,421	-2,179	-1,952	-2,197	-3,419
UK	5,194	4,766	6,632	6,885	5,587	8,440	11,793	18,096	18,725	17,701	24,055

(1) EU-15, trade with non-Community countries; Member States, trade with all partners (intra-EU and extra-EU).
Source: Eurostat, Balance of payments (theme2/bop)

Table SA.15

Labour force characteristics, 2000

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of persons employed (thousands)																
Total	158,372	4,120	2,716	36,324	3,946	14,450	23,388	1,672	20,930	181	7,860	3,683	4,898	2,367	4,125	27,711
Male	90,923	2,378	1,451	20,423	2,457	9,060	12,904	990	13,223	110	4,492	2,061	2,686	1,244	2,150	15,294
Female	67,448	1,742	1,266	15,901	1,489	5,390	10,484	682	7,708	71	3,367	1,622	2,211	1,123	1,976	12,418
Activity rate (% share of persons employed aged 15-64)																
Total	63.1	61.3	76.3	65.0	55.4	53.7	60.5	66.2	53.7	62.2	73.0	67.2	72.1	68.4	72.5	71.1
Male	72.4	70.3	80.5	71.9	69.0	67.3	66.9	78.1	67.8	74.2	82.3	74.7	80.7	71.1	74.4	77.7
Female	53.8	52.2	72.0	57.8	41.8	40.1	54.2	54.1	39.5	49.7	63.5	59.6	63.9	65.6	70.6	64.4
Full-time and part-time work (% share of persons employed)																
Part-time	18.0	20.7	21.7	19.4	4.6	8.2	16.9	16.8	8.8	11.3	41.2	17.0	10.7	12.2	22.8	24.9
Full-time	82.0	79.3	78.3	80.6	95.4	91.8	83.1	83.2	91.2	88.7	58.8	83.0	89.3	87.8	77.2	75.1
Educational attainment (% share of persons employed) (1)																
Lower secondary education	35.0	31.7	16.1	13.9	44.1	53.9	30.4	41.7	45.1	32.8	27.1	18.1	76.8	22.0	19.7	14.2
Upper secondary education	41.6	34.1	55.1	57.7	34.5	17.7	43.8	29.0	41.8	44.8	43.9	64.5	12.1	41.0	48.2	54.1
Higher education degree	23.4	34.2	28.7	28.4	21.4	28.4	25.8	29.3	13.2	22.3	29.0	17.4	11.2	37.0	32.1	31.7
Unemployment rate (% share of labour force aged 15-64)																
Total	8.4	6.6	4.5	7.9	11.1	14.0	10.2	4.3	10.8	2.3	2.7	4.7	3.9	11.1	5.5	5.6
Male	7.2	5.3	4.0	7.6	7.3	9.7	8.6	4.3	8.3	1.8	2.2	4.8	3.1	10.4	5.9	6.1
Female	9.9	8.3	5.0	8.3	16.7	20.4	12.2	4.2	14.9	3.1	3.5	4.6	4.8	12.0	5.0	4.9

(1) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey (theme3/lfs)

Table SA.16

Labour cost indicators, 1999 (1)

	EU-15	B	DK	D (2)	EL	E	F	IRL	I	L (3)	NL	A	P	FIN	S	UK
Industry and services (NACE Sections C to K)																
Hourly labour cost (EUR)	21.5	26.2	27.0	26.8	:	15.3	23.8	16.2	18.8	22.7	21.7	27.2	7.0	20.8	25.8	19.3
Direct cost (%)	:	68.3	90.4	74.7	:	74.0	67.1	84.0	65.5	84.1	75.6	70.4	76.2	75.9	67.4	87.3
Direct remuneration (%)	:	57.5	75.9	63.2	:	73.8	57.8	73.8	60.7	71.8	65.9	61.2	69.9	64.5	60.4	74.8
Indirect cost (%)	:	31.7	9.6	25.3	:	26.0	32.9	16.0	34.5	15.9	24.4	29.6	23.8	24.1	32.6	12.7
Social security (%)	:	29.9	6.4	23.1	:	24.4	28.6	13.4	32.7	14.5	22.1	25.3	20.4	21.8	29.8	12.6
Industry (NACE Sections C to E)																
Hourly labour cost (EUR)	:	27.4	25.4	28.4	9.5	16.2	23.7	15.6	17.9	22.8	24.4	25.1	6.2	20.9	25.6	19.2
Direct cost (%)	:	68.3	92.2	74.6	69.8	73.3	66.7	83.7	65.0	:	74.5	70.4	75.0	75.5	67.2	86.5
Direct remuneration (%)	:	56.4	77.7	63.1	57.6	73.2	57.4	73.4	59.3	:	64.7	61.2	68.8	64.2	:	73.7
Indirect cost (%)	:	31.8	7.8	25.4	30.2	26.7	33.3	16.3	35.0	:	25.6	29.6	25.1	24.5	32.8	13.5
Social security (%)	:	29.8	6.3	23.6	27.1	25.4	29.2	13.4	32.8	:	23.2	25.3	20.9	22.2	30.0	13.5
Services (NACE Sections G to K)																
Hourly labour cost (EUR)	:	:	:	25.4	:	14.8	:	:	21.2	24.7	20.1	:	8.3	20.6	36.3	:
Direct cost (%)	:	:	:	75.1	:	74.4	:	:	66.4	83.5	76.2	:	77.6	:	67.5	:
Direct remuneration (%)	:	:	:	63.8	:	74.0	:	:	63.5	71.4	66.9	:	71.1	:	60.5	:
Indirect cost (%)	:	:	:	24.9	:	25.7	:	:	33.7	16.5	23.8	:	22.4	:	32.5	:
Social security (%)	:	:	:	22.0	:	23.8	:	:	32.5	14.3	21.4	:	19.9	:	29.7	:

(1) Direct costs are mainly direct remuneration, payments to employees saving schemes, payments for days not worked and benefits in kind; direct remuneration are wages and salaries (in cash and in kind), irregular bonuses (before deduction of taxes and social security contributions payable by employees) and gratuities; indirect costs include social security expenses the employer must pay, vocational training expenditure, taxes, etc.; for hourly labour cost - EL, F and P, 1998; for the breakdown of costs - EL and P, 1998; I, 1997; B, DK, E, F, IRK, NL and UK, 1996.
(2) Excluding NACE Sections H, I, and K.
(3) Excluding NACE Sections I and K and Division 67.
Source: Eurostat, Statistics in Focus, EU labour costs, 1999 (Theme 3 - 3/2001)

Table SA.17

Average hours worked per week, 2001 (hours) (1)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Total (NACE Sections A to Q)	38.4	37.5	36.1	37.1	43.2	40.0	36.8	37.7	39.1	38.4	31.8	38.3	39.7	38.4	36.6	37.7
Agriculture, hunting & forestry	44.3	43.1	42.3	46.0	45.1	45.5	44.9	52.8	42.2	50.9	38.1	48.8	36.2	46.9	38.2	45.8
Fishing	44.9	:	:	:	50.5	51.9	55.4	:	43.8	:	:	:	53.7	:	:	57.8
Mining and quarrying	39.7	38.6	:	40.3	41.4	40.1	39.0	42.0	:	:	35.5	38.0	42.1	:	37.6	50.8
Manufacturing	39.4	38.9	37.3	37.5	43.6	40.8	37.8	39.5	40.2	39.6	35.5	38.5	40.7	39.3	38.3	42.0
Electricity, gas & water supply	38.0	38.7	39.9	38.4	39.8	39.8	35.9	39.1	39.1	39.7	35.9	38.9	38.8	38.8	39.2	41.0
Construction	40.8	40.5	39.7	40.2	43.1	41.1	39.4	42.1	41.6	40.5	38.7	39.4	41.8	41.5	40.1	44.1
Distributive trades	39.9	39.6	34.0	35.9	45.9	41.5	37.8	35.4	42.1	39.2	30.5	36.4	42.7	37.4	37.2	34.4
Hotels and restaurants	41.9	42.5	31.8	40.0	50.0	43.8	41.1	34.3	42.4	45.6	25.1	39.6	48.6	36.6	36.0	30.3
Transport, storage & communication	39.6	40.1	38.7	39.6	46.8	42.3	37.2	40.2	40.2	39.5	34.7	39.8	42.4	39.7	37.1	43.1
Financial intermediation	38.1	38.3	37.5	37.8	40.4	39.5	37.2	37.8	38.6	39.5	35.0	36.8	37.2	38.4	37.5	38.7
Real estate, renting & business activities	38.2	38.3	37.4	36.9	43.2	38.1	37.8	38.1	39.2	38.0	33.5	36.1	39.0	37.2	37.2	38.9
Public admin. & defence; compulsory social security	36.7	35.6	37.1	37.0	39.6	37.9	36.8	37.2	35.8	37.1	34.3	38.5	37.3	37.5	37.4	38.3
Education	30.6	30.0	34.9	33.3	29.2	33.1	31.1	29.3	27.7	31.4	30.1	37.5	33.1	35.0	36.5	33.5
Health and social work	35.8	34.5	33.5	34.1	39.4	37.3	35.2	32.8	36.5	35.6	25.6	35.9	37.8	36.8	33.4	33.0
Other community, social, personal service activities	36.7	38.1	32.2	35.1	41.3	37.9	34.7	33.8	38.1	38.5	29.6	36.3	39.3	35.3	33.3	33.6
Private households with employed persons	27.1	21.1	25.2	19.5	37.1	27.6	25.4	27.8	30.9	23.7	:	24.6	28.4	:	:	23.9
Extra-territorial organizations and bodies	39.2	39.7	:	38.0	:	:	38.8	:	38.8	38.5	:	40.3	:	:	:	43.9

(1) DK, D, EL, L, NL, P, S and UK, 2000.
Source: Eurostat, Labour Force Survey (theme3/lfs)

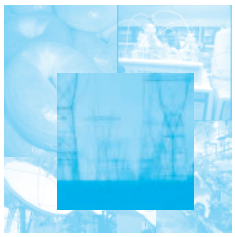
Table SA.18

Unemployment rate (% share of labour force aged 15-64)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15	:	:	:	:	:	:	11.0	10.9	10.3	9.5	8.4	9.4
B	7.3	7.0	6.7	8.1	9.7	9.4	9.5	9.0	9.3	8.7	6.6	6.2
DK	8.5	9.2	9.2	10.9	8.1	7.0	6.9	5.4	5.0	5.2	4.5	:
D	4.9	5.3	6.4	7.7	8.8	8.2	8.9	9.9	9.9	8.9	8.0	:
EL	7.2	7.8	8.1	8.8	9.1	9.3	9.9	9.8	11.0	12.0	11.3	:
E	16.4	16.1	17.9	22.4	24.5	22.9	22.4	21.0	19.0	15.8	14.1	13.0
F	9.4	9.2	10.3	11.4	12.7	11.9	12.5	12.7	12.2	12.1	10.3	8.4
IRL	14.4	16.1	15.3	15.9	14.8	12.2	11.9	10.4	7.8	5.8	4.3	3.7
I	9.9	10.2	9.6	10.4	11.5	11.9	12.3	12.5	12.3	11.8	11.0	9.7
L	1.9	1.2	1.8	2.4	3.6	3.0	3.5	2.3	2.9	2.2	2.3	:
NL	7.7	7.3	5.6	6.3	7.2	7.2	6.5	5.6	4.4	3.6	2.7	:
A	:	:	:	:	:	4.4	5.3	5.2	5.5	4.7	4.7	4.0
P	4.8	4.1	4.1	5.5	6.9	7.4	7.7	6.9	4.9	4.9	4.1	:
FIN	:	:	:	:	:	17.2	15.7	15.1	13.3	11.8	11.2	10.4
S	:	:	:	:	:	:	9.7	10.5	9.1	7.7	5.5	:
UK	7.0	8.6	9.9	10.4	9.8	8.8	8.3	7.2	6.3	6.1	5.6	:

Source: Eurostat, Labour Force Survey (theme3/lfs)

Energy



The energy sector (including water supply) plays a significant role in the EU's economy, generating gross value added (at basic prices) of 224 billion EUR in 1999, according to National Accounts[1]. This sector accounted for between 2.3% (Germany) and 4.0% (the Netherlands) of total value added, with the exception of Luxembourg at the lower end (1.2%) and the United Kingdom at the upper end (4.6%)[2].

Price and quality of energy supply are crucial for the growth and competitiveness of businesses, as well as the general standard of living. These two aspects form the background against which the internal electricity and gas markets have been developed, based on two Directives[3], which foresee market opening spread over a period of several years - see box 1.1.

(1) NACE Subsections CA and DF for E and S, 1996; NACE Subsections CA and DF for IRL, not available; NACE Section E for E, 1998 and for S, 1996.
(2) E and S, 1996; IRL, not available.
(3) Gas Market Directive (98/30/EC) and Electricity Market Directive (96/92/EC).

Energy plays a crucial role with respect to sustainable development, linked to concerns about global warming. The Kyoto Protocol was turned into a legal framework in October 2001, when the EU and several other industrialised countries agreed to reduce greenhouse gas emissions by an average of 5.2% compared to 1990 levels by 2012.

Changes in energy supply and demand are also strongly linked to technological change, which is a very research-intensive activity that requires long lead-in periods and faces uncertain returns on investment. Technological change may also result from changes in the legal framework (in particular environmental standards) faced by the energy sector. For example, in Germany, investment in electricity generation using wind power or biomass is supported by favourable compensation paid by electricity distributors through a fee fixed by the government.

Box 1.1: Gas and Electricity Market Directives

In March 2001 the European Commission adopted a Communication to the Council and the European Parliament on completing the Internal Energy Market[4], where it drew a positive conclusion on the implementation of the two Directives so far. However, it noted the necessity of further measures to avoid competitive distortions, particularly for SMEs, as well as to encourage cross-border trade to create one integrated Single Market. The report highlighted the need for fair conditions regarding access to the transmission and distribution grids ("third party access"), combined with effective unbundling of vertically integrated enterprises (separation of grid operation from electricity / gas supply). Further information on developments within the gas and electricity markets are given in sub-chapters 1.1 and 1.2.

(4) COM(2001) 125 final.

This chapter describes the activities involved in the supply of energy, which include the mining and quarrying of energy producing materials (NACE Divisions 10 to , 11 and 12), the manufacture of coke, refined petroleum products and nuclear fuel (NACE Division 23) and electricity, gas and water supply (NACE Divisions 40 and 41). This overview concentrates on the energy sector in general, but also looks at the extraction and processing of solid fuels and nuclear fuels, which are not covered in the sub-chapters that follow.

NACE

10: mining of coal and lignite; extraction of peat;
10.1: mining and agglomeration of hard coal;
10.2: mining and agglomeration of lignite;
10.3: extraction and agglomeration of peat;
11: extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying;
11.1: extraction of crude petroleum and natural gas;
11.2: service activities incidental to oil and gas; extraction, excluding surveying;
12: mining of uranium and thorium ores;
23: manufacture of coke, refined petroleum products and nuclear fuel;
23.1: manufacture of coke oven products;
23.2: manufacture of refined petroleum products;
23.3: processing of nuclear fuel;
40: electricity, gas, steam and hot water supply;
40.1: production and distribution of electricity;
40.2: manufacture of gas; distribution of gaseous fuels through mains;
40.3: steam and hot water supply;
41: collection, purification and distribution of water;
60.3: transport via pipelines;
90: Sewage and refuse disposal, sanitation and similar activities.

Box 1.2: security of energy supply

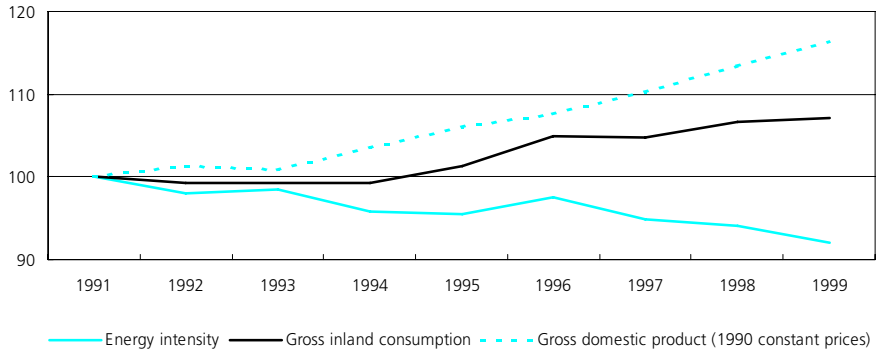
In November 2000 the Commission published a Green paper entitled "Towards a European strategy for energy security supply"[5], listing three challenges for European energy policy: over time the EU is consuming and importing more energy resulting in a higher dependence on external energy sources as its own production is insufficient to meet demand; energy issues need to be balanced with environmental, social, technical and economic objectives; and new and renewable energy technologies, diversification measures and energy efficient practices need to be supported.

(5) Brussels, 29 November 2000, COM(2000) 769 final.

In the field of conventional power plants, combined-cycle gas turbines (CCGT) have become the most popular type of plant. Alternatives such as advanced coal technologies (for example, supercritical steam technology) may reach a competitive level of capital costs and efficiency within the coming decade, perhaps resulting in a return to coal. Integrated combined-cycle gasification (ICCG) is also seen as a future option for power generation, especially if more stringent emission standards are introduced. More generally the energy sector has seen a trend towards developing gas turbines, CCGTs and combustion engines for small-scale industrial co-generation of heat and electricity.

Figure 1.1

Energy intensity in the EU (1991=100)



Source: Eurostat, Energy statistics (theme8/sirene)

STRUCTURAL PROFILE

The statistical indicators used to study energy products are sometimes different from traditional business statistics measures. "Primary production" measures the sum of energy extraction, heat produced in reactors and the use of renewable energy sources. The sum of primary production, net imports and stock changes amounts to "gross inland energy consumption", which is the key aggregate in the energy balance sheet. This indicator refers to the quantity of energy necessary to satisfy inland consumption and corresponds to the amount available for final consumption plus the sum of distribution and transformation losses and consumption by the energy branch itself. "Energy available for final consumption" refers to the sum of all energy products placed at the disposal of consumers, and includes non-energy consumption, for example by the chemical industry.

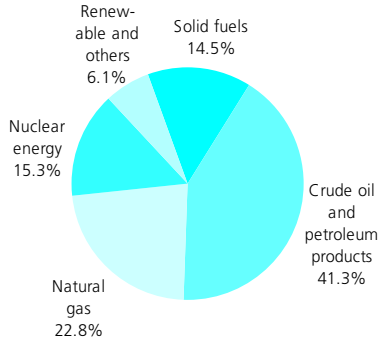
Gross inland energy consumption in the EU was equal to 1.4 billion TOE (tonnes of oil equivalent) in 1999, which marked an increase of 10.1% compared to 1989. Growth occurred in most of the ten intervening years (the exceptions being 1992 and 1997). Primary production in the EU grew at a slower rate, rising by 6.5% between 1989 and 1999 to reach 766.4 million TOE.

The energy intensity of the EU economy, calculated as gross inland consumption per unit of GDP (in constant 1990 prices), declined by 8 percentage points between 1991 and 1999, meaning that less energy was required to produce the same fixed amount of GDP. However, economic activity grew at a faster pace than efficiency gains, resulting in increased consumption (see figure 1.1).

Fossil fuels dominate the EU's energy mix, accounting for 78.6% of total gross inland consumption in 1999, equivalent to 1.1 billion TOE (see figure 1.2). Whilst the share of crude oil and petroleum products (41.3%) remained stable when compared to 1989 (41.1%), there was an increase in demand for natural gas, whose share increased by 6.3 percentage points between 1989 and 1999. In contrast, the share of solid fuels in the EU's energy mix dropped to 14.5% from 23.4% ten years before.

Figure 1.2

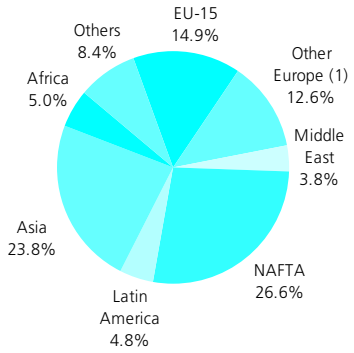
Gross inland energy consumption by fuel type in the EU, 1999



Source: Eurostat, Energy statistics (theme8/sirene)

Figure 1.3

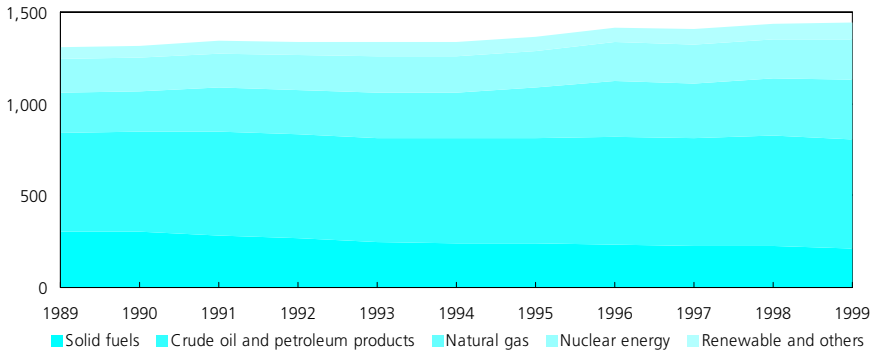
Gross inland energy consumption by world region, 1998



(1) EFTA, central and eastern European countries, the CIS and Baltic States.
Source: Annual Energy Review 2000, Directorate-General of the European Commission for Transport and Energy

Figure 1.4

Gross inland consumption by fuel type in the EU (million TOE)



Source: Eurostat, Energy statistics (theme8/sirene)

Solid fuels lost ground in the EU's energy mix, as primary production and gross inland consumption fell each year between 1989 and 1999, despite the general increase in energy demand. Solid fuels are characterised by high extraction costs within the EU, whilst they generate more significant emissions and are less efficient than other energy sources. As a result, solid fuels faced increased competition in their main market, supplying conventional thermal power stations, as electricity generators increasingly switched to natural gas as their preferred input. The share of solid fuels as an input for the EU's conventional thermal power stations fell from 67.5% in 1989 to 50.9% in 1999.

By 1993 natural gas replaced solid fuels as the second largest energy source in the EU and in 1999 nuclear energy also moved above solid fuels. Gross inland consumption of solid fuels fell, on average, by 3.7% per annum between 1989 and 1999, whilst the demand for natural gas grew by 4.3% per annum, nuclear energy by 1.9% per annum and crude oil/petroleum products by 1.0% per annum.

One of the main objectives of the EU's energy policy (as found in the Green Paper) is to double the share of renewable energy in gross inland consumption by 2010, on the one hand for environmental reasons and on the other improving the EU's security of supply. In 1999 renewable energy sources[6] accounted for 5.9% of total gross inland consumption in the EU, only 0.9 percentage points more than in 1989, despite rapid growth for some renewable sources. Wind energy grew on average by 38.9% per annum between 1989 and 1999, contributing 1.4% to the renewable energy total (compared to 0.1% in 1989). Biomass/waste, with gross inland consumption of 53.8 million TOE (1999) was the largest renewable energy source and reported average growth of 2.8% per annum over the period 1989 to 1999.

In the EU, the mining of uranium and thorium ores existed only in Spain, France and Portugal in 1999. In general, mines have been closed because of exhausted deposits and high extraction costs relative to world prices. France and Portugal plan to shut down all uranium mining by around 2005. According to the WNA, the production of uranium in these three Member States totalled 580 tU in 2000, which was less than half the production level of 1995 (1.3 thousand tU). In contrast, global mining of uranium reached 34.7 thousand tU in 2000.

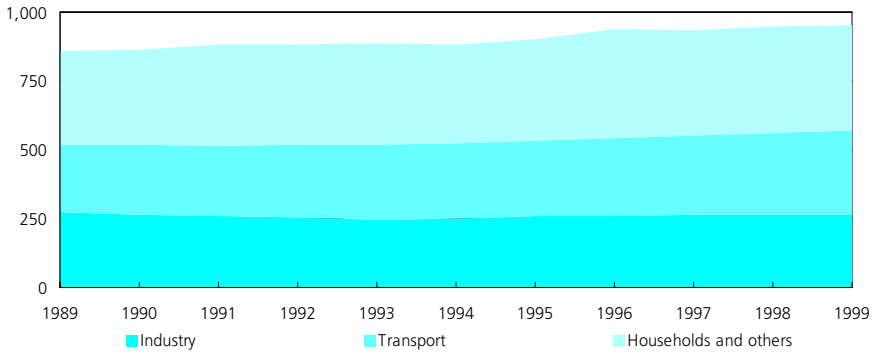
(6) Hydro-electric, wind, solar, geothermal energy and biomass/waste.

The mining and processing of nuclear fuels is related to the demand for electricity from nuclear power stations and the supply of material from secondary sources. The use of nuclear fuels remains controversial in the EU. On the one hand, they are seen as an alternative to fossil fuels in terms of reduced emissions of greenhouse gases; on the other hand, public acceptance of nuclear energy has declined (due to security reasons and waste management problems). As a result, some Member States have decided to opt out of using nuclear energy, with the latest being Germany, which in December 2001 amended its Atomic Energy Act in order to stop the use of nuclear power stations by around 2020. There are no nuclear power plants in six Member States (Denmark, Greece, Ireland, Luxembourg, Austria and Portugal), whilst since 1999 the Italian nuclear sector has been limited to the decommissioning of nuclear power plants. Contrary to these trends, TVO, a Finnish electricity supply company, is planning to build a new nuclear power plant. More information on electricity generation from nuclear power plants is included in sub-chapter 1.2.

As regards final energy consumption (rather than gross inland consumption), the fuel mix saw a shift from solid fuels and derived heat to natural gas and electricity between 1989 and 1999. Final energy demand may be split into three principal sectors: industry; transport; households and others. With the exception of industry, whose consumption fell by 0.1% per annum on average (or from 31.8% of the total in 1989 to 27.6% in 1999), the other two sectors reported increased consumption in the ten years to 1999. The relative share of the transport sector rose to 32.0% of total final consumption, equivalent to 305.8 million TOE in 1999 (see figure 1.5).

Figure 1.5

Final energy consumption by end-use in the EU (million TOE)



Source: Eurostat, Energy statistics (theme8/sirene)

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

The EU's electricity, gas and hot water supply sector (NACE Division 40) reported a stock of 48.4 billion EUR of foreign direct investment outside of the EU in 1999, of which 51.5% was in the US. Non-Community countries had some 11.3 billion EUR of direct investment in the EU (with 88.9% of this total originating from the US).

Total intramural R&D expenditure for the electricity, gas and hot water supply sector was 1.1 billion EUR in 1998[7], some 8.4% higher than in 1993[8]. The sector's share in total intramural manufacturing R&D expenditure was 1.4% in 1998, slightly below the share recorded in 1993 (1.5%).

(7) D, EL, IRL, P and S, 1997; L and A, not available.
(8) L, A and P, not available.

Table 1.1

Energy
(NACE Divisions 10 to 12, 23 and 40)
Composition of the labour force, 2000 (%)

	Men	Full-time	Higher level of education (1)
EU-15	82.8	95.2	25.9
B	82.5	91.2	34.4
DK	96.5	96.9	43.0
D	85.3	95.3	28.8
EL	82.2	100.0	20.3
E	87.8	97.4	40.1
F	81.1	95.4	23.9
IRL (2)	80.8	94.2	23.0
I	85.1	96.6	6.4
L (3)	89.0	98.2	:
NL	82.8	81.1	32.2
A	83.7	92.9	19.9
P	89.7	98.1	:
FIN	73.6	98.8	40.3
S	71.2	97.3	31.9
UK	77.5	94.1	40.5

(1) EU-15 and IRL, 1997.
(2) Unreliable data for highly-educated.
(3) Unreliable data.
Source: Source: Eurostat, Labour Force Survey

EMPLOYMENT

LFS data shows that the energy sector (NACE Divisions 10 to 12, 23 and 40) employed 1.4 million persons in the EU in 2000. The supply of electricity, gas and hot water accounted for two-thirds of this total, equivalent to 954 thousand persons, whilst one-fifth of those employed worked in the energy mining sector. Between 1995 and 2000 employment in the EU's energy sector was reduced by 15.0% in net terms. The workforce in the mining of coal and lignite contracted by over one-third over the same period, equal to net reduction of 78 thousand persons employed.

EXTERNAL TRADE

The EU recorded 363.6 million TOE of exports of energy products in 1999, whilst imports were three times this amount, resulting in net imports of 705.5 million TOE. Since 1989 net imports increased by an average of 13.4% per annum (despite a decrease of 2.5% between 1998 and 1999). In 1999 EU net imports covered 48.9% of total gross inland consumption. This ratio was highest for crude oil/petroleum products (76.8% in 1999), compared to 44.9% for natural gas.

1.1: CRUDE OIL AND NATURAL GAS

This sub-chapter looks at the extraction of crude oil and natural gas and related supporting service activities (NACE Division 11), the manufacture of refined petroleum products (Group 23.2) and transport via pipelines (NACE Group 60.3). The related activities of exploration and surveying are covered in chapter 19 and the retail sale of automotive fuels in chapter 15.

Box 1.3: implementation of the Gas Directive

By the end of 2000 almost all Member States had implemented the Gas Directive[9], which lays down common rules for the Internal Market in natural gas. In the Directive, market opening of at least 20% was initially foreseen by covering all gas-fired power generators, as well as other final customers consuming more than 25 million m³ of gas annually; the annual consumption threshold falling to 5 million m³ in two further stages after 5 and 10 years. Several Member States have liberalised gas markets beyond these legal requirements, with the degree of market opening varying widely from 20% in France and 30% in Denmark to 100% in Germany and the United Kingdom[10]. All Member States, except Denmark and France, envisage full market opening before 2008.

In a Commission Paper on completing the Internal Energy Market[11] it was concluded that beside taking the steps towards liberalisation of the gas market, only six Member States were either pursuing or seriously considering legal or ownership separation of transportation and commercial supply activities of integrated companies. In addition, gas prices were seen to be linked to the oil price parity in most Member States and did not reflect the supply and demand situation of the gas market. The objective of further deregulation is to establish upstream supply-side "gas-to-gas" competition, through ensuring non-discriminatory tariffs for third party access to the EU's gas network.

(9) 98/30/EC Directive of the European Parliament and of the Council concerning common rules for the Internal Market in natural gas.
(10) In EL and P gas markets have not been opened at all, based on derogations.
(11) Brussels, 13 March2001, COM(2001) 125 final.

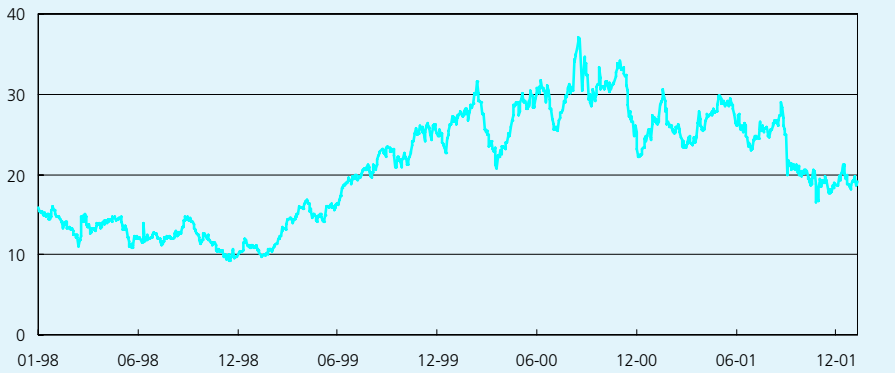
Box 1.4: volatility of crude oil prices

The petroleum industry (from extraction to processing) has to deal with volatile crude oil prices. In 1999 the spot price for Brent crude rose throughout the year, from a very low starting point of 10.44 US dollars per barrel on 4 January 1999. The rise continued into 2000 and reached a high of 37.03 US dollars on 7 September 2000, reflecting a large excess of demand over production. By the end of November 2000 Brent crude still traded above 30 US dollars per barrel.

December 2000 marked a turnaround, as the spot price dropped and finished the year at 22.50 US dollars. Between the end of 2000 and the middle of September 2001 oil prices were within the range of 30.61 US dollars (8th February 2001) and 22.93 US dollars (18 July 2001). However, on 25 September 2001 the spot price for Brent crude fell by 5 US dollars compared to the day before and subsequently was below 20 US dollars for the first time since August 1999. Oil markets were characterised by demand weakness (global economic slowdown and oversupply for jet fuel), and by concerns about possible supply interruptions (which would lead to oil prices rising). In an environment of uncertainty about the future strategy of OPEC, the price of oil dropped to 16.57 US dollars by 15 November 2001. With an agreement reached by OPEC on 14 November 2001 and the consent of other oil producing countries (such as Russia, Mexico and Norway) also to reduce production levels, the price of oil stabilised in the range of 18 to 20 US dollars at the beginning of 2002.

Figure 1.6

Crude oil spot price for Brent (US dollars per barrel)



Source: EIA

STRUCTURAL PROFILE

EU primary production of crude oil and natural gas was 352.9 million TOE in 1999, some 106 million TOE more than in 1989. EU production increased by 3.0% between 1998 and 1999, which may partly be explained by the rise in crude oil prices during 1999.

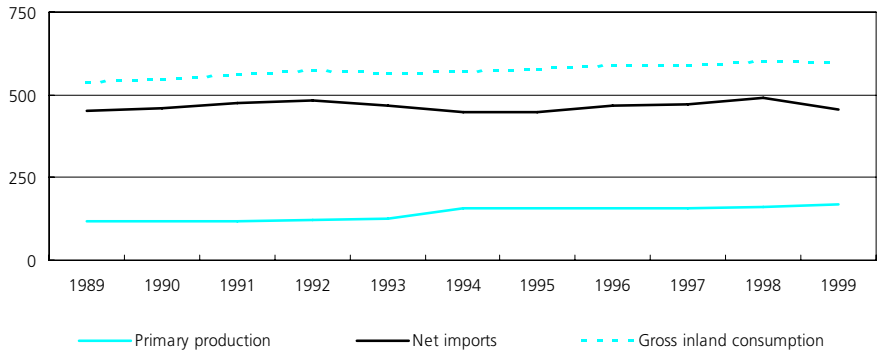
Among the Member States, the United Kingdom contributed 83.1% to the EU's production of crude oil and 48.0% towards the output of natural gas in 1999. Denmark accounted for 8.8% of the EU's production of crude oil, whilst 29.2% of the EU's natural gas was produced in the Netherlands.

In terms of gross inland consumption, demand for crude oil, petroleum products and natural gas reached 923.6 million TOE in 1999. Natural gas accounted for one-third (35.5%) of this total, a share which was nearly 7 percentage points higher than ten years before, as a result of consumption growing by 4.3% per annum on average between 1989 and 1999. In contrast, gross inland consumption of crude oil/petroleum products increased, on average, by 1.0% per annum.

Crude oil is mainly used as a transformation input in refineries. EU output of derived petroleum products was 644.0 million TOE in 1999, broken down as follows: gas/diesel oil 34.8%, motor spirit 22.6%, residual fuel oils 15.6%, kerosene and jet fuels 7.3%, naphtha 6.3%, refinery gas 3.6%, liquefied petroleum gases (LPG) 3.0% and various other petroleum products 6.9%.

Figure 1.7

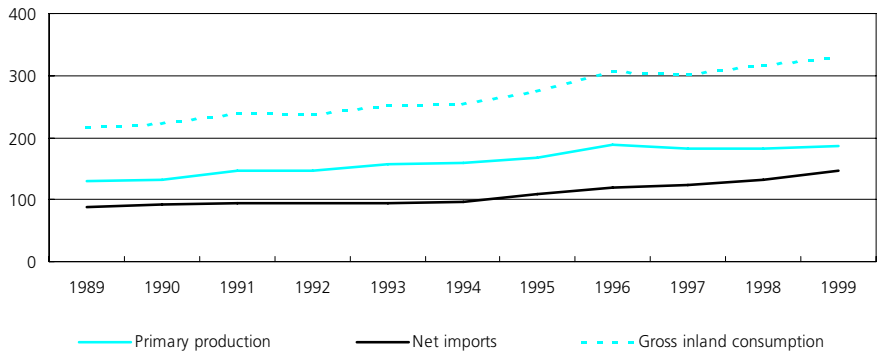
Main indicators for crude oil and petroleum products in the EU (million TOE)



Source: Eurostat, Energy statistics (theme8/sirene)

Figure 1.8

Main indicators for natural gas in the EU (million TOE)



Source: Eurostat, Energy statistics (theme8/sirene)

Box 1.5: oil pipelines in Western Europe

According to CONCAWE, Western Europe[12] had a network of cross-country oil pipelines that stretched 30.7 thousand kilometres in 1999, transporting 674 million m³ of crude oil and refined petroleum. In 1999 there were eleven spillage incidences with a gross spillage total of 516 m³, of which two-thirds were recovered, involving repair and clean-up costs of 1.5 million EUR. In general, pipeline performance (in terms of the number and extent of spillages) increased considerably between 1971 and 1999.

(12) EU-15, Iceland, Norway and Switzerland.

Table 1.2

Performance of cross-country oil pipelines in Western Europe (1)

	1999	Annual average between 1971 and 1999
Number of spillages	11	12.9
of which, the cause was:		
Mechanical failure	0	3.1
Operational	1	1.0
Corrosion	4	3.9
Natural hazard	0	0.4
Third party activity	6	4.4
Spillages per thousand km of pipeline (spills per thousand km)	0.4	0.6
Gross volume spilled (m³ per thousand km of pipeline) (2)	17.0	101.0
Net volume spilled (m³ per thousand km of pipeline) (3)	6.0	46.0

(1) EU-15, IS, NO and CH. (2) Volume spilled before clean-up.
(3) Net loss of oil into the environment after clean-up.
Source: Oil Pipelines Management Group's Special Task Force on oil pipeline spillages, CONCAWE

Box 1.6: crude oil reserves

Table 1.3

Proven reserves of crude oil relative to production (years) (1)

	1997	2001
Canada	7.3	6.4
United States	8.0	8.3
Argentina	7.8	10.2
Brazil	16.3	17.4
Colombia	11.8	9.8
Ecuador	14.4	14.0
Mexico	39.6	21.8
Venezuela	54.6	62.9
Algeria	21.2	18.7
Angola	20.8	20.3
Egypt	11.2	10.2
Gabon	10.0	20.8
Libya	57.8	57.0
Nigeria	20.1	29.5
Norway	9.9	8.2
United Kingdom	4.7	5.4
Russia	22.0	21.0
Iran	69.0	65.6
Iraq	511.0	119.8
Kuwait	124.4	124.7
Oman	15.8	15.7
Qatar	19.1	48.5
Saudi Arabia	82.1	80.9
United Arab Emirates	116.5	116.3
Australia	9.2	11.1
Brunei	22.7	19.4
China	20.7	20.2
India	16.2	17.7
Indonesia	9.2	10.0
Malaysia	15.9	14.7
World	41.6	39.5

(1) Ratio of reserves as of 1 January divided by production of the year before.
Source: CPDP

In contrast to crude oil, 71.4% of gross inland consumption of natural gas is available for final consumption, whilst one-quarter (24.9%) is used as transformation input. However, the use of natural gas as an energy input has gained importance when compared to 1989 (15.6%), mainly due to increased demand from conventional thermal power stations.

The transport sector was the main market for final consumption of petroleum products, whilst households and industry accounted for 83.3% of the final energy consumption of natural gas in 1999 (see tables 1.17 to 1.20 in the statistical annex of this chapter).

LABOUR AND PRODUCTIVITY

SBS data shows that EU employment in the manufacture of refined petroleum products was 111.6 thousand persons in 1999, some 5.5% more than in 1995. There is no comparable data available for the extraction of crude petroleum and natural gas, however, the LFS indicates that the size of the workforce was 116.9 thousand persons in 2000, a net reduction of 8.3 thousand persons since 1995.

The manufacture of refined petroleum products reported high apparent labour productivity in the EU, with 152.9 thousand EUR of value added being generated for each person employed in 1999, nearly 3 times higher than the EU's manufacturing average.

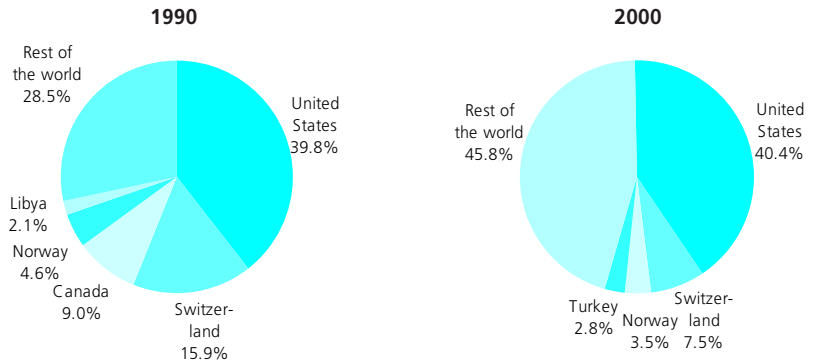
EXTERNAL TRADE

The EU is dependent on crude oil imports, as 76.8% of gross inland consumption was covered by net imports in 1999. As EU production has risen faster than imports, this share was even lower than in 1989 (84.3%). For natural gas the situation was different: net imports accounted for 44.9% of gross inland consumption in 1999, which was the highest in the period 1989 to 1999, as imports rose faster than primary production.

Norway was the most important supplier of crude oil and natural gas to the EU, together with Russia and the Middle East, as well as Libya, Algeria and Nigeria. The main suppliers of refined petroleum products were similar, although the Middle East accounted for a smaller share (see figure 1.10).

Figure 1.9

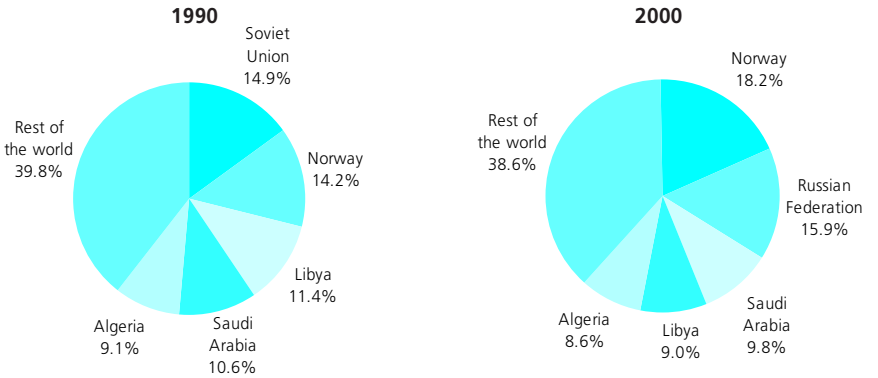
Crude petroleum and natural gas; refined petroleum products (CPA Division 11 and Group 23.2)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 1.10

Crude petroleum and natural gas; refined petroleum products (CPA Division 11 and Group 23.2)
Origin of extra-EU imports



Source: Eurostat, Comext

1.2: ELECTRICITY GENERATION AND DISTRIBUTION

This sub-chapter covers production, transmission and distribution of electricity, whether generated from fossil, nuclear or renewable fuels. These activities are classified in NACE Group 40.1.

Box 1.7: implementation of the Electricity Directive

The Electricity Directive[13] legislates for access to networks to be based on objective, transparent and non-discriminatory criteria. By 2001, all Member States had adopted national legislation to implement the Directive. In terms of market opening, several Member States went beyond the legally required degree of market opening of about 33% by 2003, which is considered to be equivalent to access for final consumers with annual consumption of 9 GWh and more. By 2001, five Member States (Austria, Germany, Finland, Sweden and the United Kingdom) had fully liberalised their electricity markets and six others were planning to do so by 2007. In contrast, Greece, France and Portugal have liberalised 30% of their electricity markets, but were not planning to go further than the Directive requirements.

The Commission concluded in a Communication[14] that the creation of a real single electricity market still required a legal framework for cross border access to transmission networks in order to ease third party access and to encourage cross border trade. At present, several national electricity markets are characterised by high network tariffs which form a barrier to competition and the market domination of a few generators with large imports being the only potential source of real competition.

(13) 96/92/EC Directive of the European Parliament and of the Council concerning common rules for the Internal Market in electricity.
(14) Communication from the Commission to the Council and the European Parliament on completing the internal energy market, COM(2001) 125 final, Brussels, 13 March 2001.

Table 1.4

Change in electricity prices between 1 January 1998 and 1 January 2001, prices before taxes and VAT (%) (1)

	Large industrial consumer (2)	Household consumer (3)
B	0.4	-12.1
DK	-9.3	8.6
D	-24.3	-4.4
EL	6.1	-1.9
E	-7.0	-9.8
F	-7.2	-3.6
IRL	0.1	0.0
I	31.7	77.1
L	-19.6	-4.6
NL	-2.4	-0.2
A	:	-3.6
P	-9.5	-4.1
FIN	-6.9	-10.1
S	-24.5	-4.6
UK	-5.9	-8.6

(1) D, Südliches Gebiet; EL, Athinai; E, Madrid; F, Paris; IRL, Southern and Eastern; NL, Rotterdam; A, Oberösterreich/Tirol/Wien; P, Lisboa; UK, London for household consumer.
(2) Industrial consumer consuming 24 GWh per year; L, 50% power reduction; DK and NL, between 1 January 1998 and 1 July 1999.
(3) Households consuming 600 kWh per year for a standard dwelling of 50 m²; NL, between 1 January 1998 and 1 January 2000.
Source: Eurostat, Energy statistics (theme8/sirene)

When studying price movements of electricity, it should be noted that they reflect the level of market competition as well as other factors, such as the price of the transformation inputs (often oil or gas). In addition, the tariff each consumer faces depends on the volume of electricity purchased. Since the Electricity Directive was implemented, prices for industrial consumers have gone down in almost all Member States, as have prices for households, though generally at a slower pace. Table 1.4 shows prices changes for large, industrial consumers and household consumers between January 1998 and January 2001[15].

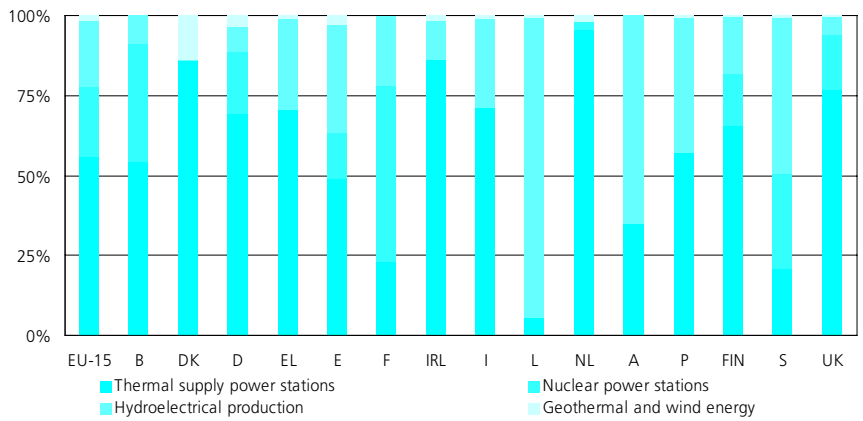
STRUCTURAL PROFILE

Total net installed capacity of electricity generation in the EU was 574.6 GW in 1999, compared to 496.8 GW in 1989. Thermal power stations provided 56.1% of this capacity, nuclear power plants 21.7%, hydro-electric plants 20.6% and the remainder was split between wind energy (1.6%) and geothermal energy (0.1%) - see figure 1.11. Within the category of thermal power plants, combined cycle power plants saw their importance rise, with capacity increasing from 3.2 GW in 1989 to 37.1 GW in 1999.

(15) Prices collected on a six-monthly basis (1 January and 1 July each year) in application of Directive 90/377/EEC for the transparency of gas and electricity prices.

Figure 1.11

Mix of net electricity capacity in the EU, 1999



Source: Eurostat, Energy statistics (theme8/sirene)

EU net electricity production was 2.4 thousand TWh in 1999, an average increase of 2.4% per annum since 1989. Among the Member States, net production grew between 0.8% per annum (Sweden) and 5.6% per annum (Denmark) over the same period, except for in Luxembourg, where a decline of 2.7% per annum was registered.

The differences in the energy source used for electricity generation across the EU reflect access to primary energy as well as differences in national energy policies. In 1999 nuclear power plants generated 74.8% of total net electricity production in France. Over 90% of electricity supply in Denmark, Ireland and the Netherlands originated from conventional thermal power stations, compared to less than 10% in France and Sweden. Hydro-electric energy dominated production in Luxembourg (74.6%) and Austria (70.2%), whilst Denmark led in wind energy (8.2%). Information on final electricity consumption is provided in tables 1.28 and 1.29 (in the statistical annex of this chapter).

EMPLOYMENT

The EU's electricity generation and distribution sector employed 853 thousand persons in 1998[19], compared to 1.0 million in 1989. Whilst in France employment remained stable between 1989 and 1999, the United Kingdom reported an average net reduction of 8.7% per annum in its number of persons employed between 1989 and 1997. In 1999 average personnel costs varied between 35.0 thousand EUR per employee in Portugal and 88.8 thousand EUR in Belgium, reflecting the high educational level in this sector.

(19) I, 1998; D, L and UK, 1997; DK, EL and NL, not available.

Box 1.8: co-generation of heat and electricity in the EU

In the Action Plan to improve energy efficiency in the European Community[16], the Commission noted that combined heat and power production (CHP) should be promoted to achieve higher energy efficiency and reduce CO2 emissions. CHP plants simultaneously produce electricity and heat and are designed for all types of combustible fuels in small and large units. The objective is to reach a minimum share of CHP in total EU electricity generation of 18% by 2010[17]. Between 1994 and 1998 this share rose from 9.0% to 10.9%. However, in 1998 the importance of CHP varied widely among the Member States from 1.9% (Ireland) to 62.3% (Denmark)[18]. CHP is not only used by public supply enterprises classified in NACE Groups 40.1 and 40.3 but also by enterprises classified within other sectors that consume their own CHP output; the latter are referred to as auto-producers. In 1998, public supply generated 106.4 TWh of electricity in CHP plants, compared to 164.3 TWh by auto-producers.

(16) Brussels, 26 April 2000, COM(2000) 247 final.
(17) Green Paper, COM(2000) 769 final.
(18) This high share can be explained by the well-developed district heating network.

Table 1.5

Electricity, gas, steam and hot water supply (NACE Division 40) Composition of the labour force, 2000 (%)

	Men	Full-time	Higher level of education (1)
EU-15	81.1	94.5	26.1
B	81.5	93.3	30.7
DK (2)	95.7	96.2	37.6
D	83.5	94.2	33.7
EL	78.5	100.0	21.7
E	85.3	96.6	46.3
F	80.5	95.0	22.4
IRL (2)	77.6	93.8	25.4
I (2)	85.3	96.6	4.5
L (3)	89.0	98.2	:
NL (2)	77.2	78.9	22.6
A	84.7	93.2	21.7
P	93.2	97.4	:
FIN	73.8	98.9	38.8
S	67.6	97.4	36.7
UK	71.8	91.9	39.1

(1) EU-15 and IRL, 1997.
(2) Unreliable data for highly-educated.
(3) Unreliable data.
Source: Eurostat, Labour Force Survey

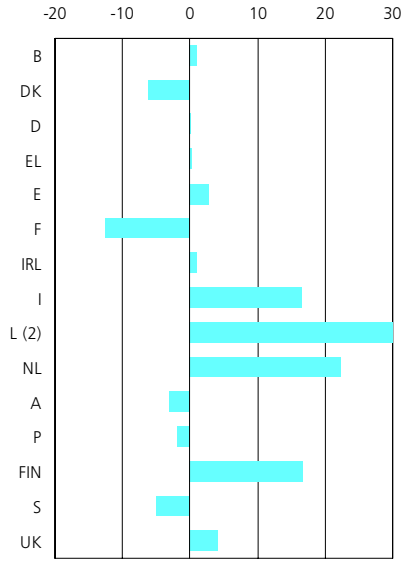
EXTERNAL TRADE

In 1999 EU electricity imports were 194.7 TWh, a total increase of 35.6% since 1989. The EU imported more electricity than it exported, resulting in a trade deficit of 23.6 TWh in 1999, equal to 1.0% of net production (see figure 1.12). In the ten years since 1989, the EU only once recorded a trade surplus (1996).

Trade with non-Community countries is still very limited owing to the lack of interconnections. Only Switzerland and Norway currently exchange significant amounts of electricity with the EU.

Figure 1.12

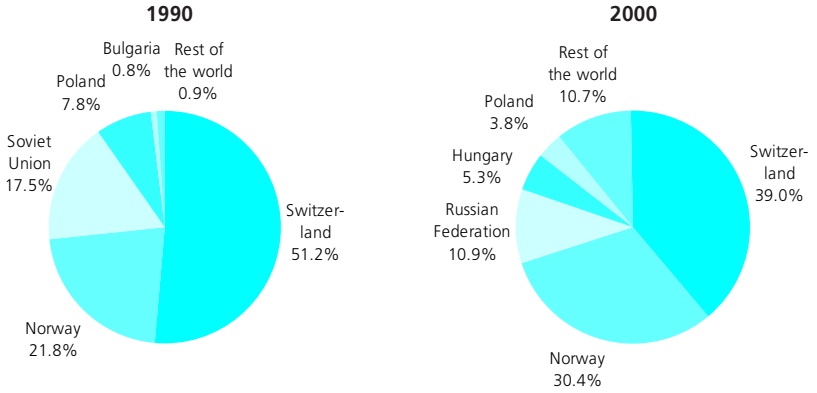
Net electricity imports as a share of national net production, 1999 (%) (1)



(1) A negative sign indicates net exports.
(2) Luxembourg = 552.4
Source: Eurostat, Energy statistics (theme8/sirene)

Figure 1.13

Production and distribution of electricity (CPA Group 40.1)
Origin of extra-EU imports



Source: Eurostat, Comext

1.3: WATER SUPPLY AND SEWERAGE

Water supply provides for the collection, purification, desalinisation and distribution of water (NACE Division 41) and is treated in NACE separately from sewerage treatment (part of NACE Division 90). This sub-chapter does not include the construction of sewage systems which is classified as part of the construction sector.

The organisation of water supply and sewerage treatment varies across the EU, from direct public administration management (local administrative bodies or groups thereof) and publicly owned enterprises with varying degrees of autonomy, through to public administration ownership with fixed period operating contracts for private enterprises and private enterprises operating under independent regulatory authorities.

The water supply and sewerage sectors may be described as natural monopolies, considering the high capital costs of laying down network infrastructure. The EU's water sector is generally organised around local, independent networks, however, water is transported over longer distances into regions with particular need, such as Flanders (Belgium) or some Spanish provinces. Closer relationships have developed between the supply of drinking water (Division 41) and waste water treatment (part of Division 90).

Box 1.9: water protection and management

The EU Water Framework Directive[20] was adopted on 23 October 2000 and has to be implemented by 22 December 2003. The framework foresees protection and management of inland surface waters, transitional waters, coastal waters and groundwater, with the aim of establishing sustainable water use to prevent deterioration, protect the aquatic ecosystem and mitigate the effects of floods and droughts. One pillar of the Directive is the introduction of pricing regimes to reflect the true costs of water use in order to conserve supplies in the face of continuously increasing demand. By 2010, Member States must ensure that water pricing policies provide adequate incentives for efficient use of water resources and that various economic sectors contribute to the recovery of the costs of water services, including those related to the environment and resources. The framework also foresees quality standards combined with emission limits for hazardous substances, with a proposal for a list being prepared by the European Commission.

(20) Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.

STRUCTURAL PROFILE

The EU's water supply sector (NACE Division 41) reported value added of 11.8 billion EUR in 1999[21], with the largest share, some 3.9 billion EUR, being generated in the United Kingdom (1997), followed by 2.9 billion EUR in Germany (1997) and 1.7 billion EUR in France (1999). Over a longer period, between 1990 and 1998, the French water industry saw its value added (in constant price terms) falling on average by 4.6% per annum, whilst in the United Kingdom there was growth of 0.9% per annum between 1990 and 1997.

The EU's output price index for water supply went up each year between 1995 and 2000 (in total by 14.7%), at a faster pace than the index for manufacturing, which rose by 6.5%. Sweden was the only Member State to report its price index falling, down by 0.8% between 1995 and 2000[22].

(21) I, 1998; D, L and UK, 1997;
DK, EL and NL, not available.
(22) DK, E, IRL, L and NL, no recent data available.

Table 1.6

Total fresh water resources, long term annual average: potential renewable sources (km³) (1)

B	16.5
DK	6.1
D	182.0
EL	72.0
E	111.0
F	191.0
IRL	52.2
I	175.0
L	1.6
NL	91.0
A	84.0
P	72.9
FIN	110.0
S	179.0
UK	68.3

(1) The long term annual average represents the average over 20 consecutive years or more and illustrates the estimated resources of water within a country; it compares resources to water abstraction.
Source: Eurostat, Environment statistics (theme8/milieu)

The volume of abstracted fresh water in the EU is shown in table 1.7. The breakdown by abstracting sector differs amongst the Member States, as in Luxembourg (62.3%, 1999) and Denmark (53.5%, 1996) public water supply was responsible for more than half of the total volume abstracted, whilst in Greece (87.4%, 1997), Portugal (78.7%, 1998) and Spain (68.2%, 1997) abstraction for agricultural purposes was the largest use. In several Member States water abstraction has fallen since 1985[23], by as much as 50.2% in the Netherlands (between 1985 and 1996), largely due to a reduction in water abstraction for electricity cooling purposes.

There were 39.8 thousand public sewage treatment plants operating in the EU in 1998[24]. Most Member States saw an increase in their number of plants in operation since 1991, whilst in Denmark there was a reduction of one-fifth[25]. In several of the Member States biological treatment systems were most common, whilst advanced treatment systems were prevalent in the Nordic countries (see table 1.8).

(23) B, 1995; D, 1991; DK and IRL, 1980.
(24) EL and UK, 1997; B, 1996, D and E, 1995, IRL, I, P and FIN, no recent data available.
(25) B and S, 1991 not available.

Table 1.7

Fresh water abstraction (million m³ per year)

			of which,		
	Year	Total surface and ground water (1)	Public water supply	Electricity production	Agriculture (2)	Manufacturing
B	1998	7,443	730	4,244	18	1,404
DK	1996	961	514	:	360	53
D	1995	43,374	5,810	27,777	616	6,043
EL	1997	8,695	861	124	7,600	110
E	1997	40,855	5,393	5,679	27,863	1,920
F	1997	30,341	5,890	17,211	3,350	3,890
IRL	1994	1,176	470	277	179	250
I	1998	56,200	10,116	10,678	25,852	9,554
L	1999	61	38	:	:	14
NL	1996	4,655	1,267	2,411	230	740
A	1997	3,561	604	1,571	100	1,286
P	1998	11,136	759	1,237	8,767	373
FIN	1999	2,328	404	256	50	1,569
S	1995	2,711	936	:	137	1,440
UK (3)	1998	15,256	6,119	232	2,149	907

(1) D and EL, estimate.
(2) Mainly for irrigation.
(3) Excluding Scotland and Northern Ireland.
Source: Eurostat, Environment statistics (theme8/milieu)

Table 1.8

Share of the population connected to sewerage systems (%)

	Year	Public sewerage system with treatment	Mechanical treatment (1)	of which, Biological treatment (2)	Advanced treatment (3)	Public sewerage system without treatment	Independent sewerage	of which, Independent treatment (4)
B	1998	38.1	-	22.0	16.1	44.4	17.3	:
DK	1998	89.0	1.6	3.4	84.0	0.0	10.9	10.9
D	1995	91.5	4.1	12.2	72.3	0.6	7.9	:
EL	1997	56.2	32.4	14.2	9.6	11.3	32.2	:
E	1995	48.3	10.6	34.4	3.3	:	:	:
F	1995	79.0	:	:	:	2.0	:	10.0
IRL	1995	57.6	24.0	31.8	1.8	:	32.0	:
I	1995	75.0	2.9	36.1	24.1	:	:	:
L	1999	93.0	:	:	:	-	7.0	7.0
NL	1998	97.7	-	19.6	78.1	-	2.3	:
A	1998	81.4	0.5	17.2	63.7	0.1	18.5	18.5
P	1998	46.0	17.8	26.0	2.3	36.0	18.0	4.7
FIN	1999	80.0	-	-	80.0	-	20.0	:
S	1998	93.0	-	6.0	87.0	-	7.0	:
UK	1997	84.0	12.0	52.0	20.0	10.0	6.0	:

(1) Processes of a physical and mechanical nature which result in decanted effluents and separate sludge such as sedimentation, flotation.
(2) Processes which employ aerobic or anaerobic micro-organisms.
(3) Process capable of reducing specific constituents in waste water not normally achieved by other treatment options such as mechanical or biological.
(4) Individual private treatment facilities to treat domestic and other waste water in cases where a public sewerage network is not available.
Source: Eurostat, Environment statistics (theme8/milieu)

LABOUR AND PRODUCTIVITY

In 1999, the EU's water supply sector (NACE Division 41) employed 153.4 thousand persons[26]. Employment in France increased, on average, by 2.5% per annum between 1989 and 1999, whilst Germany and the United Kingdom reported an average reduction of 2.0% and 1.3% per annum in their respective employment levels between 1989 and 1997. The water supply sector recorded higher wage adjusted labour productivity than the average for manufacturing in most Member States[27], with the exceptions being France and Italy.

LFS data shows that the EU's workforce in the water supply industry consisted 98.1% of paid employees in 2000 compared to 91.8% for the manufacturing average. Men accounted for 77.6% of persons in employment in 2000, which was lower than in 1995 (80.2%), but still higher than the manufacturing average (71.6%, 2000).

(26) I, 1998; D, L and UK, 1997;
DK, EL and NL, not available.
(27) DK, EL, IRL and NL, not available.

Table 1.9

Interior flows of solid fuels, 1999 (thousand TOE)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Primary production	108,417	0	0	62,506	8,003	8,566	2,951	1,251	5	0	0	239	0	1,966	215	22,716
Recovery	1,756	154	0	790	0	8	230	0	0	0	0	0	0	0	0	574
Total imports	107,259	8,305	4,302	17,498	783	12,142	12,535	1,531	11,938	113	12,140	2,662	3,791	2,644	2,114	14,761
Variation of stocks	380	-69	454	203	-211	-363	-167	-234	-90	0	288	133	54	679	98	-395
Total exports	8,100	969	120	398	51	261	378	12	84	0	4,942	0	54	13	58	758
Net imports	99,159	7,336	4,182	17,099	732	11,881	12,158	1,519	11,854	113	7,198	2,661	3,736	2,630	2,056	14,003
Cover ratio (%)	7.6	11.7	2.8	2.3	6.6	2.1	3.0	0.8	0.7	0.0	40.7	0.0	1.4	0.5	2.8	5.1
Gross inland consumption	209,711	7,421	4,637	80,598	8,524	20,092	15,171	2,537	11,768	113	7,486	3,033	3,790	5,274	2,368	36,898
Transformation input	194,812	5,870	4,424	76,126	7,252	20,283	13,111	2,029	11,013	0	7,669	2,947	3,637	4,730	2,221	33,501
-conventional thermal power stations	145,066	2,247	4,422	62,318	7,235	17,406	6,707	1,871	5,176	0	4,590	925	3,256	3,302	451	25,160
Transformation output	28,351	2,140	0	8,452	35	1,587	3,802	179	3,397	0	1,584	1,095	247	613	779	4,440
Consumption of the energy branch	581	8	0	220	0	5	286	0	34	0	0	0	0	0	0	29
Available for final consumption	42,668	3,683	213	12,705	1,307	1,392	5,577	687	4,117	113	1,401	1,181	401	1,157	926	7,808
Final non-energy consumption	473	0	0	180	0	0	0	0	161	0	105	11	0	0	16	0
Chemical industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	473	0	0	180	0	0	0	0	161	0	105	11	0	0	16	0
Final energy consumption	40,489	3,271	303	10,822	770	1,697	5,960	573	3,725	109	1,445	1,365	403	1,200	1,017	7,830
Industry	34,260	3,071	283	9,416	733	1,546	5,271	64	3,660	107	1,406	1,028	403	1,174	1,016	5,081
-iron and steel industry	22,818	2,664	1	6,168	0	1,270	3,425	0	2,821	29	1,253	859	116	562	728	2,922
-non ferrous metals industry	664	19	0	128	105	45	0	0	53	0	8	4	0	0	39	261
-chemical industry	1,738	23	13	644	0	60	344	0	5	0	48	30	13	27	5	526
-non-metallic mineral products	5,283	299	187	1,815	628	145	218	36	578	78	54	84	228	194	140	598
-ore extraction industry	133	0	22	71	0	1	0	0	0	0	0	0	0	0	39	0
-food, drink and tobacco industry	629	20	60	280	0	5	33	28	0	0	18	3	0	0	17	163
-textile, leather and clothing industry	75	4	0	28	0	0	2	0	0	0	0	0	0	0	0	42
-paper and printing industry	1,093	8	0	387	0	3	178	0	0	0	0	45	0	338	25	110
-engineering and others metal industry	256	7	0	56	0	20	28	0	48	0	0	0	0	0	12	85
-others industries	807	29	0	19	0	0	342	0	2	0	0	0	0	53	0	363
-adjustment	764	0	1	-179	-1	-4	701	0	152	0	25	2	46	0	11	10
Transport	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
-railways	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Households, etc.	6,228	199	20	1,406	36	151	689	509	65	1	39	336	0	26	1	2,749
-households	5,608	199	3	1,163	24	141	689	504	65	1	4	291	0	15	0	2,508
-agriculture	31	0	17	0	13	0	0	0	0	0	0	0	0	0	1	0
-others	589	0	0	243	0	10	0	5	0	0	35	45	0	10	0	241
Statistical divergence	1,707	412	-90	1,702	537	-305	-383	114	232	5	-150	-195	-2	-43	-106	-22

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.10

Evolution of interior flows of solid fuels, EU-15 (thousand TOE)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Primary production	225,728	208,219	188,121	175,011	153,958	136,769	136,607	130,165	125,122	113,579	108,417
Recovery	1,580	1,656	1,965	1,047	1,040	728	1,416	1,255	1,147	1,045	1,756
Total imports	93,223	102,351	106,697	106,421	93,627	94,964	101,378	101,420	105,368	110,911	107,259
Variation of stocks	1,270	3,028	108	-8,546	4,956	18,769	5,291	8,172	-1,243	7,060	380
Total exports	15,726	14,069	10,596	7,766	7,002	8,607	6,949	6,110	6,884	9,444	8,100
Net imports	77,496	88,281	96,101	98,655	86,625	86,357	94,429	95,310	98,483	101,467	99,159
Cover ratio (%)	16.9	13.7	9.9	7.3	7.5	9.1	6.9	6.0	6.5	8.5	7.6
Gross inland consumption	306,074	301,184	286,295	266,168	246,578	242,623	237,742	234,902	223,509	223,152	209,711
Transformation input	289,220	282,744	266,424	248,340	227,759	223,493	220,589	216,296	204,315	207,401	194,812
-conventional thermal power stations	178,264	182,318	184,349	176,327	163,185	162,824	161,820	160,862	149,973	154,336	145,066
Transformation output	73,128	66,028	52,734	45,077	40,017	37,495	34,714	34,275	32,064	30,690	28,351
Consumption of the energy branch	1,054	952	1,222	863	753	768	493	521	506	600	581
Available for final consumption	88,928	83,515	71,383	62,042	58,083	55,857	51,375	52,360	50,753	45,841	42,668
Final non-energy consumption	3,399	3,010	2,451	2,467	2,224	2,550	1,661	1,599	503	563	473
Chemical industry	1,992	1,971	1,915	1,932	1,719	1,729	1,166	1,093	0	0	0
Others	1,407	1,039	536	535	505	821	494	506	503	563	473
Final energy consumption	85,676	80,545	69,352	61,250	54,770	52,118	49,072	46,320	46,454	42,848	40,489
Industry	57,279	53,904	48,132	45,150	39,926	40,350	39,225	36,341	37,697	35,973	34,260
-iron and steel industry	26,494	26,051	24,887	23,158	21,625	23,926	24,696	22,772	24,872	23,453	22,818
-non ferrous metals industry	1,411	1,194	886	1,025	956	878	740	703	669	670	664
-chemical industry	7,335	6,277	4,387	3,899	3,341	3,253	2,724	2,555	2,518	1,793	1,738
-non-metallic mineral products	10,564	10,312	9,993	9,622	8,083	7,657	6,907	6,432	5,892	5,124	5,283
-ore extraction industry	645	506	219	225	144	91	158	92	122	166	133
-food, drink and tobacco industry	2,628	2,238	1,701	1,561	1,412	1,294	987	835	716	825	629
-textile, leather and clothing industry	1,012	857	615	536	388	341	260	181	132	114	75
-paper and printing industry	1,797	1,820	1,568	1,745	1,594	1,608	1,591	1,302	1,268	1,282	1,093
-engineering and others metal industry	3,207	2,584	1,774	1,443	1,041	796	501	380	260	251	256
-others industries	1,604	1,747	1,211	1,485	1,135	400	339	845	948	1,245	807
-adjustment	583	318	892	449	205	107	322	244	300	1,050	764
Transport	36	32	24	21	14	12	14	15	7	2	1
-railways	36	32	24	21	14	12	14	15	7	2	1
Households, etc.	28,360	26,609	21,196	16,079	14,830	11,756	9,833	9,964	8,751	6,873	6,228
-households	20,430	19,754	18,791	12,670	12,093	10,156	8,086	8,294	7,646	6,153	5,608
-agriculture	103	92	98	120	117	117	114	103	39	31	31
-others	7,826	6,763	2,307	3,289	2,620	1,484	1,633	1,567	1,065	689	589
Statistical divergence	-147	-41	-420	-1,676	1,089	1,190	642	4,441	3,796	2,430	1,707

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.11

Mining and agglomeration of hard coal (NACE Group 10.1)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	28	0	3,158	0	908	462	:	0	0	0	0	0	0	0	:
Purchases of goods and services (million EUR)	16	0	3,994	0	498	426	:	0	0	0	0	0	0	0	:
Value added (million EUR)	12	0	3,571	0	639	6	:	0	0	0	0	0	0	0	:
Personnel costs (million EUR)	5	0	3,634	0	592	366	:	0	0	0	0	0	0	0	:
Number of persons employed (thousands)	0.2	0.0	75.6	0.0	18.6	9.1	:	0.0	0.0	:	0.0	0.0	0.0	0.0	:
Gross investment in tangible goods (million EUR)	6	:	:	:	66	:	:	:	:	:	:	:	0	:	:
Gross operating rate (%)	25.1	:	-2.0	:	5.4	-98.4	:	:	:	:	:	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	73.9	:	47.2	:	34.3	0.7	:	:	:	:	:	:	:	:	:
Simple wage adjusted labour productivity (%)	252.2	:	98.3	:	107.8	1.6	:	:	:	:	:	:	:	:	:
Output price index (1995=100) (2)	99.9	:	46.8	:	93.7	99.3	:	78.9	:	109.0	:	:	:	:	:

(1) DK, EL and P, 1998; L, 1997; D, 1998, except for output price index; I and NL, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.12

Hard coal (CPA Group 10.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	69	39	21	30	28	27	30	46	41	32	41
Extra-EU imports (million EUR)	5,606	6,290	5,993	4,682	5,123	5,246	5,408	5,682	5,713	5,274	6,485
Trade balance (million EUR)	-5,537	-6,251	-5,972	-4,652	-5,095	-5,219	-5,379	-5,636	-5,672	-5,242	-6,444
Cover ratio (%)	1.2	0.6	0.3	0.7	0.6	0.5	0.5	0.8	0.7	0.6	0.6

Source: Eurostat, Comext

Table 1.13

Mining and agglomeration of lignite (NACE Group 10.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	0	0	3,027	:	:	0	0	0	0	0	:	0	0	0	:
Purchases of goods and services (million EUR)	0	0	1,297	:	:	0	0	0	0	0	:	0	0	0	:
Value added (million EUR)	0	0	1,748	:	:	0	0	0	0	0	:	0	0	0	:
Personnel costs (million EUR)	0	0	1,259	:	:	0	0	0	0	0	:	0	0	0	:
Number of persons employed (thousands)	0.0	0.0	25.3	:	:	0.0	0.0	0.0	0.0	:	:	0.0	0.0	0.0	:
Gross investment in tangible goods (million EUR)	0	:	406	:	:	:	0	:	:	:	:	:	0	:	:
Gross operating rate (%)	:	:	16.0	:	:	:	:	:	:	:	:	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	69.1	:	:	:	:	:	:	:	:	:	:	:	:
Simple wage adjusted labour productivity (%)	:	:	138.9	:	:	:	:	:	:	:	:	:	:	:	:
Output price index (1995=100) (2)	:	:	96.7	153.5	88.7	:	:	:	:	:	:	:	:	:	:

(1) DK and I, 1998; L and NL, 1997; D, 1998, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.14

Lignite (CPA Group 10.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2	18	6	3	4	2	2	4	3	3	2
Extra-EU imports (million EUR)	46	88	92	83	77	73	73	64	51	45	38
Trade balance (million EUR)	-44	-70	-85	-80	-73	-71	-71	-61	-48	-42	-36
Cover ratio (%)	3.4	20.3	7.1	3.3	5.3	3.4	3.4	5.6	5.7	7.2	5.0

Source: Eurostat, Comext

Table 1.15

Manufacture of coke oven products (NACE Group 23.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	:	:	:	:	601	525	451	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	478	426	368	:
Value added (million EUR)	:	:	:	:	:	:	:	120	96	85	:
Personnel costs (million EUR)	:	:	:	:	:	:	:	106	82	73	:
Number of persons employed (thousands)	:	:	:	:	:	:	:	:	2	2	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	:	:	:	:	2.3	2.7	2.5	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	:	:	:	:	:	42.6	39.8	:
Simple wage adjusted labour productivity (%)	:	:	:	:	:	:	:	113.2	117.1	116.4	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.4	103.9	100.1	94.9	92.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.16

Coke oven products (CPA Group 23.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	67	52	50	48	48	42	35	50	52	38	61
Extra-EU imports (million EUR)	246	298	278	344	465	644	544	585	656	539	823
Trade balance (million EUR)	-179	-247	-229	-296	-418	-602	-509	-535	-604	-501	-762
Cover ratio (%)	27.2	17.3	17.8	13.9	10.2	6.5	6.5	8.5	7.9	7.0	7.4

Source: Eurostat, Comext

Table 1.17

Interior flows of crude oil and petroleum products, 1999 (thousand TOE)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Primary production	167,455	0	14,762	2,778	16	297	1,805	0	5,051	0	2,555	1,005	0	0	0	139,185
Recovery	317	11	0	185	0	0	74	0	0	0	46	0	0	0	0	0
Total imports	756,452	47,983	10,785	146,161	21,533	74,989	109,033	9,360	107,874	2,120	96,973	12,641	17,852	15,384	25,477	58,286
Variations of stocks	10,175	967	561	4,246	852	-399	1,207	-1	107	47	1,381	-40	-310	162	962	433
Total exports	299,461	22,070	15,183	18,364	3,752	6,855	19,297	1,096	20,095	19	60,368	1,592	1,388	5,093	9,368	114,920
Net imports	456,990	25,913	-4,398	127,797	17,781	68,134	89,736	8,264	87,778	2,100	36,605	11,049	16,465	10,291	16,109	-56,634
Cover ratio (%)	39.6	46.0	140.8	12.6	17.4	9.1	17.7	11.7	18.6	0.9	62.3	12.6	7.8	33.1	36.8	197.2
Marine bunkers	39,624	4,365	1,291	2,072	3,088	5,823	2,877	171	2,421	0	12,598	0	582	550	1,496	2,289
Gross inland consumption	595,313	22,527	9,635	132,933	15,560	62,209	89,945	8,093	90,515	2,147	27,990	12,014	15,572	9,902	15,576	80,695
Transformation input	692,504	35,184	9,789	120,592	20,938	66,094	88,586	4,163	115,209	0	79,365	10,277	15,777	14,000	22,153	90,378
-conventional thermal power stations	37,814	163	1,439	1,183	1,877	4,981	1,669	1,357	19,039	0	1,470	693	2,234	508	502	699
-refineries	652,886	35,002	8,308	118,487	19,061	60,949	86,803	2,806	96,165	0	77,895	9,408	13,542	13,492	21,338	89,629
Transformation output	644,024	34,673	8,276	116,484	18,978	60,501	83,682	2,842	95,091	0	76,994	9,292	13,432	13,307	21,175	89,298
Exchanges, transfers, returns	2,107	1,164	0	208	42	259	57	-15	-83	0	-14	0	44	0	-39	485
Consumption of the energy branch	35,644	1,803	337	6,988	910	4,288	5,332	106	3,455	0	3,277	618	735	600	513	6,683
Available for final consumption	513,296	21,376	7,784	122,045	12,732	52,588	79,766	6,650	66,859	2,147	22,327	10,412	12,537	8,609	14,045	73,418
Final non-energy consumption	81,053	3,789	290	22,130	408	8,107	14,292	288	8,957	21	6,204	1,083	2,333	875	2,278	9,999
Chemical industry	57,498	3,273	0	16,983	25	5,018	10,098	0	6,312	1	5,294	446	1,698	386	706	7,258
Others	23,555	515	290	5,148	382	3,089	4,194	288	2,645	20	911	637	634	489	1,572	2,741
Final energy consumption	438,927	17,447	7,527	101,140	12,634	43,863	72,962	6,382	57,602	2,123	16,032	9,392	10,089	7,783	11,896	62,056
Industry	42,823	2,039	810	5,994	1,913	5,180	4,852	797	7,009	87	842	788	2,473	1,352	1,759	6,927
-iron and steel industry	3,099	38	4	1,139	51	370	100	5	96	21	3	175	38	399	319	341
-non ferrous metals industry	1,363	25	2	140	305	140	288	252	88	0	0	18	17	24	29	35
-chemical industry	4,766	652	29	93	152	749	402	129	1,109	7	566	31	99	284	105	358
-non-metallic mineral products	9,896	235	233	1,277	342	1,964	1,432	46	2,746	10	41	122	973	88	174	214
-ore extraction industry	1,010	1	32	105	107	125	5	30	50	2	30	18	54	43	62	346
-food, drink and tobacco industry	4,473	153	200	839	259	578	597	164	707	5	35	58	245	123	180	329
-textile, leather and clothing industry	1,511	22	5	142	85	182	137	33	419	0	1	59	277	33	39	78
-paper and printing industry	2,204	42	10	267	97	304	255	11	175	0	1	76	336	63	484	84
-engineering and others metal industry	3,319	38	80	831	33	361	296	72	792	0	19	77	40	85	183	413
-others industries	11,170	833	215	1,162	482	397	1,341	56	827	42	146	154	393	209	185	4,729
-adjustment	11	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0
Transport	300,677	9,454	4,862	65,436	7,436	31,573	49,406	3,675	40,019	1,698	13,626	5,980	6,012	4,354	7,499	49,644
-railways	2,503	64	82	586	40	485	373	115	140	8	30	0	51	52	8	469
-road transport	250,202	7,596	3,781	57,537	5,256	25,297	41,797	2,991	36,371	1,358	9,535	5,434	5,179	3,699	6,409	37,962
-air transport	41,915	1,554	885	7,012	1,284	4,208	6,476	529	3,283	332	3,393	542	744	511	944	10,218
-inland navigation	6,058	241	114	301	857	1,584	760	40	225	0	667	4	38	93	138	995
Households, etc.	95,427	5,954	1,854	29,710	3,285	7,110	18,703	1,910	10,574	338	1,564	2,623	1,604	2,076	2,637	5,485
-households	57,671	3,816	971	19,770	2,211	3,953	10,924	915	7,360	314	87	1,404	708	1,194	1,030	3,016
-fisheries	237	0	0	0	0	0	0	0	237	0	0	0	0	0	0	0
-agriculture	13,750	552	718	1,748	835	1,712	2,589	253	2,354	9	275	561	578	523	342	701
-others	23,769	1,586	166	8,192	239	1,445	5,190	742	623	16	1,203	657	319	359	1,265	1,767
Statistical divergence	-6,684	140	-32	-1,225	-309	617	-7,488	-19	300	3	91	-63	116	-49	-128	1,363

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.18

Evolution of interior flows of crude oil and petroleum products, EU-15 (thousand TOE)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Primary production	117,786	117,481	117,872	121,083	127,409	156,468	158,859	158,697	157,807	161,276	167,455
Recovery	155	166	200	182	176	175	358	396	266	371	317
Total imports	677,145	698,867	712,094	730,345	727,680	726,658	719,107	745,816	756,460	784,403	756,452
Variations of stocks	-1,574	1,458	2,363	519	4,716	-1,311	4,390	-83	313	-8,278	10,175
Total exports	223,715	238,011	235,761	246,522	260,152	280,341	272,398	280,441	287,072	294,815	299,461
Net imports	453,430	460,856	476,333	483,823	467,528	446,317	446,709	465,375	469,388	489,588	456,990
Cover ratio (%)	33.0	34.1	33.1	33.8	35.8	38.6	37.9	37.6	37.9	37.6	39.6
Marine bunkers	31,840	34,166	33,893	34,180	35,082	33,746	34,714	36,841	40,121	41,540	39,624
Gross inland consumption	537,957	545,795	562,875	571,427	564,747	567,903	575,602	587,543	587,653	601,418	595,313
Transformation input	630,095	639,233	651,769	671,459	674,116	681,486	680,929	698,857	707,592	725,618	692,504
-conventional thermal power stations	42,204	42,552	44,274	46,114	42,253	40,398	43,713	41,670	38,489	38,733	37,814
-refineries	584,922	593,671	603,850	622,006	628,692	638,247	635,161	655,046	666,697	684,758	652,886
Transformation output	581,189	589,768	600,820	618,642	625,210	634,152	630,947	649,144	661,868	678,578	644,024
Exchanges, transfers, returns	1,277	1,743	2,164	2,628	6,253	6,971	6,228	5,781	5,211	1,559	2,107
Consumption of the energy branch	32,461	32,291	32,369	34,134	35,290	36,370	37,089	38,019	37,075	38,927	35,644
Available for final consumption	457,865	465,783	481,721	487,103	486,804	491,170	494,759	505,591	510,064	517,010	513,296
Final non-energy consumption	67,586	68,542	72,482	75,921	71,476	77,805	80,604	78,657	84,436	81,666	81,053
Chemical industry	42,519	44,216	46,950	50,941	48,404	53,229	57,988	56,791	60,292	57,556	57,498
Others	25,067	24,326	25,531	24,981	23,072	24,576	22,616	21,866	24,144	24,110	23,555
Final energy consumption	391,223	397,643	409,297	414,287	418,056	416,629	419,859	432,016	430,955	438,074	438,927
Industry	52,718	49,465	49,023	48,944	47,806	49,363	49,228	47,172	46,064	43,706	42,823
-iron and steel industry	4,398	3,732	3,599	3,480	3,634	3,834	3,793	3,343	3,627	3,605	3,099
-non ferrous metals industry	1,415	1,968	1,399	1,350	1,322	1,337	1,293	1,336	1,470	1,342	1,363
-chemical industry	11,537	10,671	9,963	10,065	9,758	10,193	9,302	7,649	7,222	5,662	4,766
-non-metallic mineral products	9,695	9,575	9,319	8,996	8,539	8,699	8,615	8,590	8,949	8,577	9,896
-ore extraction industry	769	768	753	807	763	771	940	904	895	1,017	1,010
-food, drink and tobacco industry	6,047	5,960	6,156	6,070	5,781	5,870	5,659	5,301	4,858	4,758	4,473
-textile, leather and clothing industry	2,412	2,290	2,093	1,881	1,831	2,005	1,645	1,593	1,514	1,511	1,511
-paper and printing industry	3,112	2,931	2,902	2,685	2,549	2,852	2,827	2,745	2,613	2,208	2,204
-engineering and others metal industry	4,727	4,411	4,577	4,257	3,880	3,767	3,514	3,714	3,438	3,320	3,319
-others industries	8,277	7,688	8,321	9,128	9,380	9,914	11,344	11,731	11,457	11,552	11,170
-adjustment	329	-529	-58	224	367	122	297	265	21	155	11
Transport	241,072	249,599	252,647	260,821	266,486	267,361	270,768	278,314	283,665	294,364	300,677
-railways	3,006	2,851	2,835	2,846	2,848	2,674	2,764	2,758	2,757	2,653	2,503
-road transport	205,176	212,247	215,102	222,049	226,689	226,415	228,771	234,322	238,327	245,712	250,202
-air transport	26,815	27,818	27,877	28,796	30,049	31,303	32,545	34,367	36,060	39,519	41,915
-inland navigation	6,076	6,683	6,833	7,129	6,900	6,969	6,688	6,867	6,521	6,480	6,058
Households, etc.	97,433	98,579	107,626	104,522	103,764	99,904	99,863	106,530	101,225	100,004	95,427
-households	62,845	59,861	65,380	61,959	62,310	58,790	59,189	64,008	60,059	61,019	57,671
-fisheries	496	372	135	0	0	0	0	0	0	0	237
-agriculture	12,138	12,152	13,263	13,339	13,188	13,470	13,716	14,191	13,928	14,425	13,750
-others	21,954	26,194	28,848	29,224	28,266	27,644	26,958	28,331	27,239	24,560	23,769
Statistical divergence	-944	-403	-57	-3,105	-2,728	-3,263	-5,704	-5,082	-5,326	-2,730	-6,684

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.19

Interior flows of gas, 1999 (thousand TOE)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Primary production	185,468	0	6,940	16,708	3	131	1,670	1,103	14,313	0	54,118	1,478	0	0	0	89,005
Total imports	188,675	13,484	0	61,591	1,216	13,903	35,462	1,894	40,528	656	7,751	5,190	1,953	3,338	714	995
Variations of stocks	-4,473	-144	38	-2,012	-1	-744	-1,997	0	770	0	6	162	-14	0	0	-537
Total exports	41,369	0	2,553	4,291	0	0	655	0	42	0	27,294	0	0	0	0	6,534
Net imports	147,306	13,484	-2,553	57,300	1,216	13,903	34,808	1,894	40,486	656	-19,542	5,190	1,953	3,338	714	-5,539
Cover ratio (%)	21.9	0.0	:	7.0	0.0	0.0	1.8	0.0	0.1	0.0	352.1	0.0	0.0	0.0	0.0	656.5
Gross inland consumption	328,302	13,340	4,424	71,996	1,218	13,289	34,481	2,997	55,569	656	34,581	6,831	1,940	3,338	714	82,929
Transformation input	88,599	4,163	2,111	14,144	867	3,335	2,060	1,509	17,602	42	11,254	2,397	1,480	1,979	572	25,084
-conventional thermal power stations	86,496	4,133	2,033	12,639	867	3,335	2,060	1,509	17,602	42	11,254	2,257	1,393	1,818	470	25,084
Transformation output	17,757	1,437	0	5,456	0	860	2,575	0	1,449	0	1,285	692	178	569	642	2,614
Exchanges, transfers, returns	-117	0	-2	-8	0	0	-107	0	0	0	0	0	0	0	0	0
Consumption of the energy branch	13,516	298	553	2,219	1	244	852	0	516	0	1,685	574	26	21	95	6,431
Distribution losses	1,799	0	3	607	1	245	78	43	273	3	0	110	14	0	76	346
Available for final consumption	242,029	10,316	1,756	60,474	349	10,325	33,959	1,445	38,626	611	22,927	4,442	597	1,907	614	53,682
Final non-energy consumption	10,885	839	0	2,150	149	329	2,218	409	947	0	2,534	252	0	27	0	1,032
Chemical industry	10,885	839	0	2,150	149	329	2,218	409	947	0	2,534	252	0	27	0	1,032
Final energy consumption	228,159	9,472	1,740	55,693	201	9,995	31,439	1,036	37,901	611	20,391	4,190	590	1,878	647	52,374
Industry	91,260	4,706	814	21,256	190	7,593	13,073	404	16,099	416	6,110	2,368	469	1,813	483	15,463
-iron and steel industry	16,163	1,249	43	4,852	49	901	1,924	21	1,820	183	713	713	53	595	210	2,837
-non ferrous metals industry	2,352	102	3	787	26	131	369	0	359	0	85	52	1	0	7	429
-chemical industry	19,650	1,492	84	4,873	8	1,461	2,054	130	3,188	0	2,063	216	29	41	48	3,961
-non-metallic mineral products	13,334	420	148	2,900	28	2,284	1,681	27	3,353	0	598	299	319	145	19	1,112
-ore extraction industry	541	0	16	129	0	77	139	18	21	0	70	66	4	0	1	0
-food, drink and tobacco industry	11,442	187	270	1,988	53	749	2,289	125	1,797	0	1,336	232	19	43	108	2,244
-textile, leather and clothing industry	3,456	63	30	400	17	527	412	0	1,222	0	128	99	16	0	3	539
-paper and printing industry	8,766	101	49	1,940	6	829	1,428	0	1,548	0	366	294	7	960	49	1,189
-engineering and others metal industry	9,314	156	108	2,541	1	559	1,594	0	1,986	0	547	184	17	0	17	1,605
-others industries	6,242	935	62	846	0	76	1,182	85	804	233	203	213	5	29	21	1,546
-adjustment	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Transport	299	0	0	0	0	10	0	0	288	0	0	0	0	0	0	0
-road transport	299	0	0	0	0	10	0	0	288	0	0	0	0	0	0	0
Households, etc.	136,600	4,766	926	34,437	11	2,392	18,365	631	21,513	195	14,281	1,822	121	65	164	36,911
-households	98,715	3,274	688	24,850	4	1,773	9,517	386	21,394	0	7,976	1,077	80	22	119	27,555
-agriculture	4,275	0	82	258	0	81	252	0	119	0	3,334	13	6	15	0	115
-others	33,610	1,493	156	9,329	7	537	8,596	245	0	195	2,971	731	35	29	45	9,241
Statistical divergence	2,984	5	15	2,631	-1	0	302	0	-221	0	2	0	7	2	-34	276

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.20

Evolution of interior flows of gas, EU-15 (thousand TOE)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Primary production	129,085	132,871	145,680	146,838	157,894	159,737	166,597	188,632	182,123	181,467	185,468
Total imports	116,100	120,293	126,321	129,721	130,511	132,974	143,163	159,808	163,241	168,328	188,675
Variations of stocks	-2,301	-3,112	-322	-4,946	-609	-3,448	-1,872	-1,953	-3,750	2,541	-4,473
Total exports	27,233	28,000	31,986	34,500	35,566	35,628	34,536	41,350	39,074	36,837	41,369
Net imports	88,867	92,293	94,335	95,221	94,945	97,345	108,626	118,458	124,167	131,491	147,306
Cover ratio (%)	23.5	23.3	25.3	26.6	27.3	26.8	24.1	25.9	23.9	21.9	21.9
Gross inland consumption	215,651	222,052	239,693	237,113	252,230	253,635	273,351	305,137	302,540	315,499	328,302
Transformation input	40,447	41,865	42,076	41,735	47,172	51,746	60,700	68,879	72,643	78,246	88,599
-conventional thermal power stations	34,908	36,530	36,708	36,839	42,462	46,843	54,646	64,156	70,825	76,091	86,496
Transformation output	28,198	26,283	23,698	21,680	20,598	20,036	20,033	19,653	19,573	18,911	17,757
Exchanges, transfers, returns	46	39	17	73	26	31	40	40	31	31	-117
Consumption of the energy branch	12,074	11,628	11,536	10,930	11,252	11,574	12,478	13,294	12,982	13,493	13,516
Distribution losses	2,517	2,877	3,126	2,665	1,497	1,583	1,635	3,090	2,524	1,895	1,799
Available for final consumption	188,856	192,005	206,670	203,536	212,933	208,797	218,611	239,568	233,995	240,806	242,029
Final non-energy consumption	13,354	12,487	11,925	9,821	10,307	11,254	11,417	10,419	11,081	11,161	10,885
Chemical industry	13,354	12,487	11,925	9,821	10,307	11,254	11,417	10,419	11,081	11,161	10,885
Final energy consumption	175,559	178,233	193,559	193,108	198,393	195,423	206,268	227,713	216,667	221,978	228,159
Industry	76,580	77,160	76,435	77,248	77,302	78,106	82,532	88,238	87,053	88,442	91,260
-iron and steel industry	19,704	18,014	17,176	16,344	16,088	16,964	17,133	17,470	17,580	16,671	16,163
-non ferrous metals industry	1,867	1,839	1,836	1,816	1,784	1,791	1,941	2,035	2,120	2,477	2,352
-chemical industry	17,016	16,795	15,749	18,000	17,132	17,016	17,754	18,674	17,798	18,146	19,650
-non-metallic mineral products	10,722	10,771	10,495	10,500	10,711	10,754	11,698	12,329	12,145	12,569	13,334
-ore extraction industry	520	535	653	546	554	530	627	675	488	492	541
-food, drink and tobacco industry	7,575	7,614	8,235	8,538	8,740	8,929	9,643	10,536	10,561	10,815	11,442
-textile, leather and clothing industry	2,305	2,526	2,849	2,807	3,042	2,919	3,352	3,489	3,414	3,527	3,456
-paper and printing industry	4,669	5,267	5,596	5,803	6,316	6,765	7,024	7,547	8,160	8,377	8,766
-engineering and others metal industry	7,923	7,978	9,196	8,847	8,669	8,060	9,113	8,727	8,372	9,306	9,314
-others industries	4,296	5,636	4,661	4,043	4,239	4,320	4,234	6,762	6,413	6,060	6,242
-adjustment	-17	184	-11	4	28	57	13	-7	3	1	1
Transport	212	208	213	236	239	250	267	289	298	292	299
-road transport	212	208	213	236	239	250	267	289	298	292	299
Households, etc.	98,767	100,865	116,911	115,624	120,852	117,067	123,470	139,187	129,316	133,244	136,600
-households	74,148	76,039	84,126	83,305	87,232	84,319	88,664	100,897	92,723	95,595	98,715
-agriculture	3,034	3,508	4,023	4,048	4,295	3,945	4,385	4,205	4,249	4,298	4,275
-others	21,584	21,318	28,762	28,271	29,326	28,803	30,420	34,084	32,345	33,350	33,610
Statistical divergence	-57	1,285	1,185	607	4,233	2,121	926	1,436	6,247	7,668	2,984

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.21

Manufacture of refined petroleum products (NACE Group 23.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	:	:	162,055	198,072	199,857	183,021	204,862	:
Purchases of goods and services (million EUR)	:	:	:	:	:	132,969	154,512	138,650	118,360	143,567	:
Value added (million EUR)	:	:	:	:	:	11,878	13,967	14,392	17,890	17,058	:
Personnel costs (million EUR)	:	:	:	:	:	6,326	6,403	6,300	6,407	6,689	:
Number of persons employed (thousands)	:	:	:	:	:	106	:	110	110	112	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	:	:	3.0	3.3	3.5	5.4	4.4	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	:	:	112.3	:	130.7	162.9	152.9	:
Simple wage adjusted labour productivity (%)	:	:	:	:	:	187.8	218.1	228.4	279.2	255.0	:
Output price index (1995=100)	:	:	:	:	:	100.0	111.5	115.2	98.0	112.7	170.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.22

Refined petroleum products (CPA Group 23.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	6,197	6,365	6,103	9,730	10,225	8,374	10,402	12,432	9,929	10,906	19,491
Extra-EU imports (million EUR)	14,186	14,250	11,016	10,306	10,032	10,640	10,940	11,754	8,290	10,991	20,562
Trade balance (million EUR)	-7,988	-7,886	-4,913	-576	193	-2,267	-538	678	1,639	-85	-1,070
Cover ratio (%)	43.7	44.7	55.4	94.4	101.9	78.7	95.1	105.8	119.8	99.2	94.8

Source: Eurostat, Comext

Table 1.23

Manufacture of gas; distribution of gaseous fuels through mains (NACE Group 40.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	2,640	:	25,776	:	2,916	9,815	:	:	:	:	1,144	392	7	252	15,619
Purchases of goods and services (million EUR)	2,116	:	21,349	:	3,128	6,055	:	:	:	:	692	271	5	195	10,393
Value added (million EUR)	503	:	4,120	:	1,285	3,612	:	:	:	:	341	126	3	57	4,883
Personnel costs (million EUR)	103	:	1,586	:	199	1,441	:	:	:	:	160	40	2	12	1,442
Number of persons employed (thousands)	1.5	:	31.4	:	4.5	25.8	:	:	:	:	3.3	1.1	0.1	0.2	30.1
Gross investment in tangible goods (million EUR)	:	:	1,992	:	54	:	:	:	:	:	:	:	4	:	:
Gross operating rate (%)	15.6	:	9.9	:	25.9	22.8	:	:	:	:	16.0	22.7	16.3	18.3	22.1
App. labour productivity (thous. EUR/pers. emp.)	346.0	:	131.3	:	288.0	140.2	:	:	:	:	102.6	117.7	68.7	231.7	162.3
Simple wage adjusted labour productivity (%)	490.2	:	259.7	:	644.9	250.6	:	:	:	:	213.3	317.1	170.0	495.7	338.6
Output price index (1995=100) (2)	:	:	138.5	:	121.1	121.9	:	145.4	:	:	:	113.1	:	89.0	:

(1) B, 1998; UK, 1997; S, 1998, except for output price index; D, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.24

Interior flows of other energy sources, 1999 (thousand TOE)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
NUCLEAR ENERGY																
Primary production	220,502	12,644	0	43,853	0	15,181	98,194	0	0	0	988	0	0	5,926	18,879	24,836
Transformation input	220,502	12,644	0	43,853	0	15,181	98,194	0	0	0	988	0	0	5,926	18,879	24,836
-nuclear power stations	220,502	12,644	0	43,853	0	15,181	98,194	0	0	0	988	0	0	5,926	18,879	24,836
Available for final consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Statistical divergence	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DERIVED HEAT																
Transformation output	24,176	420	2,922	9,950	26	74	0	0	0	24	2,518	1,151	86	3,002	4,003	0
-conventional thermal power stations	17,470	420	2,355	7,101	26	74	0	0	0	24	2,518	712	86	2,290	1,865	0
Consumption of the energy branch	254	0	22	232	0	0	0	0	0	0	0	0	0	0	0	0
Distribution losses	2,550	33	582	982	0	0	0	0	0	0	378	128	0	220	228	0
Available for final consumption	21,372	387	2,318	8,737	26	74	0	0	0	24	2,140	1,023	86	2,782	3,775	0
Final energy consumption	21,363	387	2,322	8,737	26	74	0	0	0	24	2,140	1,023	75	2,780	3,775	0
Industry	4,311	336	137	1,672	0	74	0	0	0	17	933	120	75	643	303	0
-iron and steel industry	20	14	2	5	0	0	0	0	0	0	0	0	0	0	0	0
-chemical industry	684	108	21	475	0	23	0	0	0	0	0	19	37	0	0	0
-non-metallic mineral products	54	0	1	53	0	0	0	0	0	0	0	0	0	0	0	0
-food, drink and tobacco industry	198	0	28	134	0	7	0	0	0	0	0	14	15	0	0	0
-textile, leather and clothing industry	73	0	3	49	0	6	0	0	0	0	0	0	15	0	0	0
-paper and printing industry	174	0	39	92	0	0	0	0	0	0	0	44	0	0	0	0
-engineering and others metal industry	566	0	32	518	0	0	0	0	0	0	0	16	0	0	0	0
-others industries	1,514	215	11	282	0	38	0	0	0	0	0	23	0	643	303	0
-adjustment	1,027	0	1	64	0	0	0	0	0	17	933	4	7	0	0	0
Households, etc.	17,052	50	2,185	7,065	26	0	0	0	0	6	1,207	903	0	2,137	3,472	0
-households	9,764	13	1,491	4,081	26	0	0	0	0	0	203	375	0	1,323	2,251	0
-agriculture	45	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0
-others	7,243	38	648	2,984	0	0	0	0	0	6	1,004	528	0	813	1,222	0
Statistical divergence	10	0	-4	0	0	0	0	0	0	0	0	0	11	2	0	0
RENEWABLE ENERGIES																
Primary production	84,553	706	1,848	8,731	1,470	6,130	17,553	257	13,651	46	1,547	6,643	2,656	7,261	13,474	2,580
Transformation input	16,376	349	1,118	1,825	2	501	1,745	32	3,129	20	1,160	589	312	1,607	2,817	1,170
-conventional thermal power stations	13,423	349	658	1,169	2	501	1,391	32	3,118	20	1,160	371	312	1,415	1,753	1,170
Exchanges, transfers, returns	-27,433	-30	-263	-2,168	-430	-2,203	-6,266	-89	-3,935	-10	-64	-3,500	-636	-1,103	-6,198	-537
Consumption of the energy branch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distribution losses	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Available for final consumption	40,770	326	493	4,739	1,037	3,426	9,542	136	6,587	15	323	2,554	1,708	4,551	4,460	873
Final energy consumption	40,768	326	493	4,739	1,037	3,426	9,542	136	6,585	15	323	2,554	1,708	4,551	4,460	873
Industry	13,764	145	96	381	208	1,401	1,849	87	946	0	73	550	540	3,431	3,513	541
Households, etc.	27,005	181	397	4,357	829	2,025	7,693	48	5,639	15	249	2,004	1,168	1,119	947	332
-households	25,669	179	311	3,776	826	2,020	7,577	44	5,467	15	212	1,813	1,162	1,112	947	208
-agriculture	194	0	0	7	2	5	0	4	0	0	0	103	0	0	0	72
-others	1,142	1	86	573	0	0	117	0	173	0	37	87	6	7	0	52
Statistical divergence	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.25

Evolution of interior flows of other energy sources, EU-15 (thousand TOE)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
NUCLEAR ENERGY											
Primary production	182,429	181,439	187,021	188,267	197,558	197,271	201,239	208,864	212,615	209,664	220,502
Transformation input	182,328	181,351	187,021	188,267	197,558	197,271	201,239	208,864	212,615	209,664	220,502
-nuclear power stations	182,328	181,351	187,021	188,267	197,558	197,271	201,239	208,864	212,615	209,664	220,502
Available for final consumption	101	88	0	0	0	0	0	0	0	0	0
Statistical divergence	101	88	0	0	0	0	0	0	0	0	0
DERIVED HEAT											
Transformation output	17,839	18,840	18,914	17,985	19,968	20,421	21,885	23,791	23,336	23,622	24,176
-conventional thermal power stations	4,005	4,884	5,736	5,524	6,071	6,949	15,184	17,082	16,947	17,251	17,470
Consumption of the energy branch	438	376	225	237	256	313	317	345	473	377	254
Distribution losses	1,527	2,074	1,993	1,914	2,177	2,102	2,441	2,542	2,533	2,605	2,550
Available for final consumption	15,873	16,391	16,696	15,834	17,535	18,006	19,127	20,904	20,330	20,640	21,372
Final energy consumption	15,877	16,394	16,657	15,798	17,524	18,004	19,089	20,692	20,511	20,861	21,363
Industry	3,691	3,824	3,179	2,371	2,521	2,583	3,091	4,078	4,163	3,877	4,311
-iron and steel industry	135	101	70	70	60	60	14	15	18	18	20
-chemical industry	860	837	663	640	654	636	631	722	661	677	684
-non-metallic mineral products	195	89	64	44	43	51	53	54	54	54	54
-food, drink and tobacco industry	247	332	267	147	155	166	163	162	187	198	198
-textile, leather and clothing industry	132	75	55	36	41	46	55	59	69	67	73
-paper and printing industry	56	95	87	78	119	149	162	163	168	172	174
-engineering and others metal industry	711	934	911	717	691	686	572	577	574	564	566
-others industries	454	432	423	427	532	557	760	841	893	1,211	1,514
-adjustment	900	927	639	213	226	232	681	1,485	1,540	915	1,027
Households, etc.	12,186	12,570	13,477	13,426	15,003	15,422	15,998	16,614	16,348	16,984	17,052
-households	6,470	6,926	7,816	7,745	9,821	10,095	9,787	10,028	9,520	9,734	9,764
-agriculture	0	0	45	45	45	45	45	40	45	45	45
-others	5,716	5,644	5,617	5,637	5,138	5,282	6,167	6,546	6,783	7,205	7,243
Statistical divergence	-4	-3	39	37	10	1	38	212	-182	-221	10
RENEWABLE ENERGIES											
Primary production	64,926	65,690	68,769	70,690	72,279	72,499	73,203	75,736	81,422	84,269	84,553
Transformation input	8,821	8,873	9,281	10,644	11,553	11,851	12,622	14,163	15,133	15,707	16,376
-conventional thermal power stations	7,695	7,729	8,094	9,338	10,106	10,231	10,942	11,350	12,399	12,900	13,423
Exchanges, transfers, returns	-21,664	-22,341	-23,178	-24,721	-25,087	-25,837	-25,299	-25,234	-26,088	-27,309	-27,433
Consumption of the energy branch	0	0	0	0	0	0	0	0	0	0	0
Distribution losses	1	0	0	0	0	0	1	0	0	0	1
Available for final consumption	34,440	34,474	36,310	35,324	35,639	34,811	35,282	36,339	40,201	41,253	40,770
Final energy consumption	34,441	34,474	36,309	35,323	35,636	34,809	35,280	36,336	40,198	41,253	40,768
Industry	12,684	12,366	12,426	11,967	12,816	13,573	13,831	13,730	14,199	14,154	13,764
Households, etc.	21,756	22,108	23,883	23,355	22,821	21,237	21,449	22,606	25,999	27,098	27,005
-households	20,554	20,888	22,620	22,050	21,699	20,186	20,280	21,372	24,743	26,018	25,669
-agriculture	1,021	1,037	1,085	1,107	929	858	963	997	1,022	56	194
-others	181	182	179	198	192	193	207	237	234	1,025	1,142
Statistical divergence	0	0	1	2	2	2	1	3	3	0	1

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.26

Processing of nuclear fuel (NACE Group 23.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	:	:	7,618	:	8,313	8,430	8,676	:
Purchases of goods and services (million EUR)	:	:	:	:	:	3,342	:	4,425	4,723	4,814	:
Value added (million EUR)	:	:	:	:	:	3,754	:	3,746	3,928	4,064	:
Personnel costs (million EUR)	:	:	:	:	:	1,259	:	1,414	1,567	1,747	:
Number of persons employed (thousands)	:	:	:	:	:	28	:	:	27	27	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	:	:	30.9	:	28.7	28.3	26.6	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	:	:	133.6	:	:	144.4	150.9	:
Simple wage adjusted labour productivity (%)	:	:	:	:	:	298.2	:	264.9	250.7	232.6	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.27

Nuclear fuel (CPA Group 23.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	855	754	773	921	832	869	777	834	684	1,013	1,161
Extra-EU imports (million EUR)	920	952	898	837	1,059	1,017	1,004	1,209	1,100	1,026	1,019
Trade balance (million EUR)	-65	-198	-126	84	-227	-148	-227	-375	-416	-13	142
Cover ratio (%)	92.9	79.3	86.0	110.1	78.6	85.4	77.4	69.0	62.2	98.7	114.0

Source: Eurostat, Comext

Table 1.28

Interior flows of electricity, 1999 (thousand TOE)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Total imports	16,738	779	449	3,491	156	1,028	427	25	3,658	534	1,927	998	312	976	731	1,247
Total exports	14,711	706	648	3,401	142	537	5,856	4	45	56	341	1,161	386	20	1,384	23
Net imports	2,027	73	-199	89	14	492	-5,429	21	3,612	478	1,586	-163	-74	956	-653	1,225
Cover ratio (%)	87.9	90.6	144.3	97.4	90.9	52.2	1,371.8	16.9	1.2	10.5	17.7	116.4	123.7	2.0	189.4	1.8
Gross inland consumption	2,027	73	-199	89	14	492	-5,429	21	3,612	478	1,586	-163	-74	956	-653	1,225
Transformation output	188,174	7,138	3,079	45,258	3,838	15,552	38,325	1,786	18,356	22	7,390	1,601	3,055	4,867	7,154	30,752
-conventional thermal power stations	113,506	2,924	3,079	30,640	3,838	10,491	4,426	1,786	18,356	22	7,060	1,601	3,055	2,892	861	22,473
-nuclear power stations	74,668	4,215	0	14,618	0	5,060	33,899	0	0	0	329	0	0	1,975	6,293	8,279
Exchanges, transfers, returns	27,427	30	263	2,165	430	2,202	6,266	89	3,935	9	63	3,500	636	1,103	6,198	537
Consumption of the energy branch	18,835	480	211	5,220	481	1,317	4,391	120	1,863	25	554	266	198	315	993	2,400
Distribution losses	13,704	355	174	2,096	287	1,687	2,565	161	1,596	11	340	391	314	231	928	2,569
Available for final consumption	185,089	6,406	2,758	40,196	3,515	15,241	32,206	1,615	22,445	473	8,145	4,281	3,106	6,380	10,778	27,545
Final energy consumption	185,105	6,406	2,758	40,196	3,515	15,241	32,220	1,617	22,445	474	8,145	4,281	3,106	6,380	10,778	27,545
Industry	77,002	3,236	851	17,720	1,109	6,574	11,402	625	11,509	318	3,439	1,442	1,298	3,570	4,580	9,331
-iron and steel industry	8,726	533	52	1,900	71	1,141	1,322	27	1,578	159	195	186	67	218	427	851
-non ferrous metals industry	5,541	164	7	1,562	303	774	810	29	450	0	490	32	10	175	229	507
-chemical industry	14,665	1,100	99	4,398	105	918	2,157	83	1,794	23	1,020	184	184	377	516	1,707
-non-metallic mineral products	5,742	212	72	1,276	170	756	831	51	1,120	27	133	112	190	73	97	621
-ore extraction industry	884	31	8	179	24	132	66	25	85	1	23	34	36	47	193	0
-food, drink and tobacco industry	7,236	324	198	1,214	95	658	1,478	151	961	7	545	98	127	132	216	1,032
-textile, leather and clothing industry	2,942	165	17	353	82	344	315	33	937	27	48	45	201	23	29	323
-paper and printing industry	10,167	213	62	1,718	41	471	1,016	14	830	0	316	367	169	2,119	1,894	938
-engineering and others metal industry	11,082	260	173	2,401	65	742	2,162	82	2,039	50	423	221	121	221	362	1,760
-others industries	10,018	234	162	2,720	154	638	1,245	129	1,715	24	247	163	193	184	616	1,593
-adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transport	4,851	120	29	1,362	17	307	968	2	678	8	141	175	31	45	240	727
-railways	4,851	120	29	1,362	17	307	968	2	678	8	141	175	31	45	240	727
Households, etc.	103,252	3,050	1,878	21,115	2,389	8,361	19,849	989	10,258	148	4,565	2,664	1,777	2,765	5,957	17,487
-households	54,457	2,019	877	11,288	1,159	3,907	10,914	563	5,221	64	1,836	1,109	819	1,586	3,601	9,493
-agriculture	3,073	22	169	643	220	394	224	0	403	7	289	127	60	71	115	330
-others	45,722	1,009	832	9,184	1,010	4,059	8,711	427	4,634	77	2,440	1,428	898	1,108	2,241	7,664
Statistical divergence	-16	0	0	0	0	0	-14	-2	0	0	0	0	0	0	0	0

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.29

Evolution of interior flows of electricity, EU-15 (thousand TOE)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total imports	12,342	13,265	11,979	12,784	13,315	13,083	13,988	14,666	14,790	14,482	16,738
Total exports	10,046	10,932	10,760	11,169	11,434	11,532	12,492	14,802	14,121	13,355	14,711
Net imports	2,297	2,333	1,218	1,616	1,881	1,552	1,496	-136	669	1,127	2,027
Cover ratio (%)	81.4	82.4	89.8	87.4	85.9	88.1	89.3	100.9	95.5	92.2	87.9
Gross inland consumption	2,297	2,333	1,218	1,616	1,881	1,552	1,496	-136	669	1,127	2,027
Transformation output	159,580	161,617	165,963	165,109	165,114	167,283	173,214	180,213	180,830	185,267	188,174
-conventional thermal power stations	97,380	99,692	101,702	99,767	96,817	99,187	103,544	107,023	106,893	111,820	113,506
-nuclear power stations	62,200	61,925	64,261	65,342	68,296	68,096	69,670	73,190	73,937	73,446	74,668
Exchanges, transfers, returns	21,664	22,342	23,176	24,708	25,066	25,835	25,297	25,227	26,085	27,304	27,427
Consumption of the energy branch	17,595	17,982	18,341	18,226	17,714	17,373	18,016	18,305	18,338	18,851	18,835
Distribution losses	11,365	11,583	12,012	11,624	11,866	12,380	12,623	13,147	12,217	13,414	13,704
Available for final consumption	154,582	156,727	160,004	161,583	162,481	164,917	169,369	173,852	177,030	181,433	185,089
Final energy consumption	153,761	155,972	158,810	160,135	161,053	163,632	169,369	173,851	177,046	181,433	185,105
Industry	69,584	69,287	68,142	67,815	66,935	67,983	71,356	71,734	74,264	75,970	77,002
-iron and steel industry	8,596	8,209	8,160	7,914	7,802	8,352	8,586	8,458	8,881	8,791	8,726
-non ferrous metals industry	5,839	5,819	5,634	5,450	5,108	4,796	4,983	5,100	5,175	5,432	5,541
-chemical industry	15,908	16,059	15,283	14,799	14,436	14,080	14,165	14,178	14,596	14,838	14,665
-non-metallic mineral products	5,208	5,002	4,947	4,998	4,862	5,100	5,316	5,421	5,471	5,526	5,742
-ore extraction industry	907	1,136	1,110	1,053	965	789	943	933	921	891	884
-food, drink and tobacco industry	5,507	5,793	5,965	6,120	6,231	6,217	6,570	6,737	6,926	7,043	7,236
-textile, leather and clothing industry	3,078	3,003	2,964	2,929	2,808	2,936	2,871	2,857	2,961	2,989	2,942
-paper and printing industry	7,678	7,867	7,869	7,948	8,191	8,495	9,253	9,173	9,698	9,946	10,167
-engineering and others metal industry	11,229	11,434	11,148	11,123	10,652	10,949	9,902	10,137	10,358	10,835	11,082
-others industries	5,633	4,921	5,060	5,473	5,880	6,269	8,767	8,742	9,288	9,678	10,018
-adjustment	0	45	3	7	0	0	0	0	-12	0	0
Transport	3,697	4,004	4,237	4,283	4,469	4,609	4,691	4,831	4,886	4,871	4,851
-railways	3,697	4,004	4,237	4,283	4,469	4,609	4,691	4,831	4,886	4,871	4,851
Households, etc.	80,480	82,680	86,431	88,037	89,649	91,040	93,321	97,285	97,896	100,592	103,252
-households	43,274	44,618	47,291	47,952	49,032	49,554	50,046	52,662	52,146	53,332	54,457
-agriculture	2,593	2,696	2,822	2,804	2,822	2,860	2,960	3,006	3,009	3,091	3,073
-others	34,614	35,366	36,318	37,281	37,795	38,626	40,315	41,618	42,742	44,169	45,722
Statistical divergence	821	755	1,194	1,448	1,428	1,285	0	1	-16	0	-16

Source: Eurostat, Energy statistics (theme8/sirene)

Table 1.30

Production and distribution of electricity (NACE Group 40.1)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	18,237	:	82,082	:	18,100	31,575	:	24,528	189	:	8,246	6,950	3,641	9,466	41,181
Purchases of goods and services (million EUR)	13,584	:	51,050	:	11,611	13,595	:	9,637	297	:	4,256	4,504	4,013	8,550	27,746
Value added (million EUR)	4,583	:	26,953	:	9,133	15,145	:	13,812	144	:	3,875	2,350	1,835	3,348	13,230
Personnel costs (million EUR)	1,710	:	13,098	:	1,876	6,946	:	4,825	54	:	1,756	514	576	977	3,069
Number of persons employed (thousands)	19.2	:	249.4	:	36.9	119.6	:	103.0	0.9	:	27.9	14.8	15.3	21.7	72.5
Gross investment in tangible goods (million EUR)	860	:	8,745	:	95	:	:	:	:	:	:	:	287	:	:
Gross operating rate (%)	15.9	:	17.0	:	35.8	27.1	:	38.9	19.9	:	26.1	27.4	21.8	20.8	24.6
App. labour productivity (thous. EUR/pers. emp.)	238.4	:	108.1	:	247.3	126.7	:	134.1	156.5	:	139.0	158.5	119.7	154.0	182.6
Simple wage adjusted labour productivity (%)	268.0	:	205.8	:	486.9	218.0	:	286.2	266.2	:	220.6	457.4	318.5	342.7	431.1
Output price index (1995=100) (2)	98.6	:	74.0	107.1	90.7	:	:	111.5	:	:	:	88.3	96.2	74.6	:

(1) L and UK, 1997; I, 1998, except for output price index; D, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.31

Production and distribution services of electricity (CPA Group 40.1)

External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	552	659	699	824	903	1,115	1,427	1,185	1,242	1,193	1,308
Extra-EU imports (million EUR)	544	605	510	515	561	526	546	567	677	731	680
Trade balance (million EUR)	9	54	189	308	342	588	882	618	565	463	628
Cover ratio (%)	101.6	108.9	136.9	159.8	160.9	211.9	261.6	209.1	183.4	163.3	192.3

Source: Eurostat, Comext

Table 1.32

Steam and hot water supply (NACE Group 40.3)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	3	:	2,341	:	28	3,038	0	:	:	:	467	3	131	919	0
Purchases of goods and services (million EUR)	2	:	1,536	:	25	2,197	0	:	:	:	229	2	134	601	0
Value added (million EUR)	1	:	755	:	15	839	0	:	:	:	235	1	58	318	0
Personnel costs (million EUR)	1	:	331	:	10	675	0	:	:	:	79	0	22	120	0
Number of persons employed (thousands)	0.0	:	8.7	:	0.6	16.7	0.0	:	:	:	1.6	0.0	0.6	2.9	0.0
Gross investment in tangible goods (million EUR)	:	:	370	:	4	:	0	:	:	:	:	:	20	:	:
Gross operating rate (%)	7.8	:	18.2	:	13.6	5.7	:	:	:	:	33.1	9.7	19.1	22.8	:
App. labour productivity (thous. EUR/pers. emp.)	31.4	:	86.3	:	23.3	50.4	:	:	:	:	145.2	14.1	92.3	110.9	:
Simple wage adjusted labour productivity (%)	116.7	:	228.2	:	155.7	124.3	:	:	:	:	298.0	175.0	267.7	265.1	:
Output price index (1995=100) (2)	:	:	101.0	:	:	:	:	:	:	113.0	:	:	111.0	109.1	:

(1) B, 1998; UK, 1997; S, 1998, except for output price index; D, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 1.33

Collection, purification and distribution of water (NACE Division 41)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,051	:	4,968	:	2,257	9,515	0	1,743	38	:	237	548	330	165	6,032
Purchases of goods and services (million EUR)	521	:	1,963	:	1,216	7,477	0	906	34	:	80	256	94	58	1,825
Value added (million EUR)	526	:	2,869	:	1,076	1,750	0	799	30	:	161	347	239	108	3,901
Personnel costs (million EUR)	334	:	1,171	:	575	1,515	0	546	16	:	63	185	61	43	1,049
Number of persons employed (thousands)	7.2	:	31.4	:	18.8	32.6	0.0	13.3	0.4	:	1.2	12.7	1.9	0.9	33.2
Gross investment in tangible goods (million EUR)	200	:	1,897	:	88	:	0	:	:	:	:	:	27	:	:
Gross operating rate (%)	18.8	:	34.8	:	23.7	2.5	:	15.5	23.2	:	41.7	29.1	54.8	41.9	49.2
App. labour productivity (thous. EUR/pers. emp.)	73.3	:	91.4	:	57.2	53.7	:	60.3	80.1	:	128.8	27.4	124.4	126.6	117.7
Simple wage adjusted labour productivity (%)	157.7	:	245.0	:	187.3	115.5	:	146.4	182.3	:	256.9	187.1	389.3	249.3	371.9
Output price index (1995=100) (2)	116.8	:	115.2	108.0	:	114.4	:	116.9	:	:	102.1	119.7	102.8	99.2	115.3

(1) L, 1997; I, 1998, except for output price index; D and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Non-energy mining and quarrying

Demand for many metal ores is determined by the business cycle of a small range of downstream sectors. Steel making is the main customer for iron ore, whilst copper is principally used in the manufacture of electrical and electronic goods and lead in the manufacture of batteries. Minerals, such as stone, sand and bitumen, are often directly or indirectly (for example through the fabrication of road aggregates) linked to the construction sector, whilst other industrial minerals are used in the chemicals, ceramics, glass and paper sectors.

According to National Accounts this branch generated 11.1 billion EUR of value added in the EU in 1999, excluding Spain, Ireland and Sweden. Data for 1996 shows that Spain added another 977 million EUR to this total and Sweden 529 million EUR (all in current prices). This sector accounted for between 0.4% (Denmark) and 1.5% (Greece) of total industry (NACE Sections C to F).

EU non-energy mining and quarrying activities were dominated by small enterprises, which were particularly important in the quarrying of stone, sand and clay (NACE Groups 14.1 and 14.2). The abundance of deposits throughout the EU and widespread demand from the construction sector make it possible for small enterprises to compete successfully in local markets. This promising situation for small, local enterprises is reinforced by high transport costs, as well as relatively low barriers to entry (because of relatively low capital costs) when compared with several other mining and quarrying activities.

This chapter covers both underground and open-cast mining of ferrous and non-ferrous metal ores (NACE Division 13) as well as other mining and quarrying (NACE Division 14), which includes the extraction of a variety of basic materials such as stone, sand, salt and other minerals. The mining of uranium and thorium ores (see chapter 1) and mineral prospecting are not covered by these NACE activities. Non-energy mining and quarrying provides nearly all of the non-organic primary materials used in the manufacturing sector.

NACE

13: mining of metal ores;
13.1: mining of iron ores;
13.2: mining of non-ferrous metal ores, except uranium and thorium ores;
14: other mining and quarrying;
14.1: quarrying of stone;
14.2: quarrying of sand and clay;
14.3: mining of chemical and fertilizer minerals;
14.4: production of salt;
14.5: other mining and quarrying n.e.c.

Box 2.1: sustainability in the non-energy mining sector

The European Commission addressed the issue of sustainability in the EU's mining and quarrying industry in a Communication in 2000[1]. The key issues of this report were the need for dialogue from a local to a European level, including a review of the business environment taking account of safety and environmental concerns (for example, avoiding mining accidents, establishing waste management systems).

In a survey conducted by PricewaterhouseCoopers & MMSD[2], the majority of mining organisations defined sustainable development as critical to their long-term survival, with their main challenge being to align sustainable development with other business objectives. Most respondents (81%) had built sustainability goals into their operations, mainly into corporate strategies (of which 85%), with around 50% of organisations having introduced a set of sustainability definitions for operational purposes. Stakeholder relationships are also seen as increasingly important. At the time of the survey, formal consultation with local communities (carried out by 47% of organisations) and employees (45%) was more common than with customers (20%) and partners / suppliers (13%).

(1) Brussels, 3 May 2000, COM(2000) 265 final.
(2) Mining & Minerals Sustainability Survey 2001.

STRUCTURAL PROFILE

The other (non-metallic) mining and quarrying sector (NACE Division 14) generally accounted for between 71.2% (Greece) and 100% (Germany) of the value added generated within the non-energy mining industry in 1999[3]. However, Sweden was the exception to this rule and the only country to report that the mining of metal ores (NACE Division 13) contributed more to value added (74.5% of the total). Indeed, Sweden was the most important producer of metal ores[4] in the EU, with 334.6 million EUR of value added in 1999, followed by Greece (73.4 million EUR, 1998) and Portugal (58.7 million EUR)[5]. Whilst the mining of metal ores is concentrated within a few Member States, the extraction of industrial and construction minerals is widely spread across the EU. The quarrying of stone, sand and clay (NACE Groups 14.1 and 14.2) dominated other mining and quarrying activities, accounting for 75% or more of value added in 1999[6].

Value added in constant prices for the non-energy mining sector (NACE Divisions 13 and 14) declined at an annual average rate of 9.3% in Finland, 6.3% in Germany and 1.9% in France between 1995 and 1999. In contrast, there was growth reported in Spain (1.4% per annum), whilst output expanded at a faster pace in Sweden (3.0% per annum) and Italy (4.0% per annum) between 1994 and 1998.

When looking at the development of these series in value terms it should be borne in mind that some metals and minerals are traded on global markets often with highly volatile prices. The EU output price index for other mining and quarrying (NACE Division 14) increased by 8.4% between 1995 and 2000, whilst that for metal ores (NACE Division 13) was 13.2% lower in 1999 than it had been in 1995 (hiding a highly fluctuating pattern to price developments - see figure 2.1 for a more detailed breakdown of price developments).

(3) DK and EL, 1998; L and NL, 1997; B, IRL, I, A, and UK, not available.
(4) For example iron ore, lead, gold and silver.
(5) DK, D, L and NL reported that there was no mining of metal ores; B, IRL, I, A and UK, not available.
(6) DK, EL, I and A, 1998; NL and UK, 1997; IRL and L, not available.

Box 2.2 output of minerals

Table 2.1

Mining of selected minerals in the EU, 1999 (thousand tonnes)

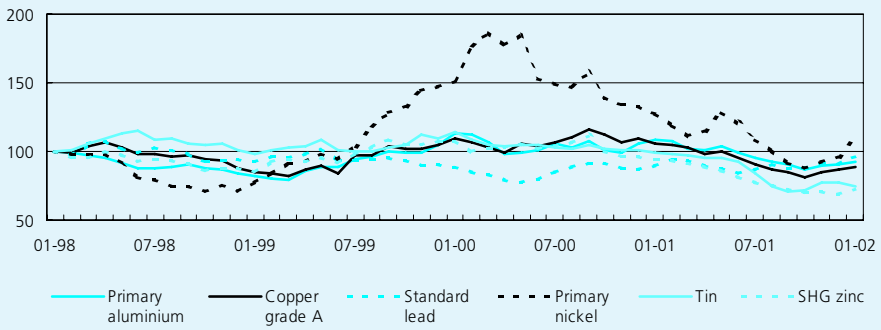
	EU-15	Share in world total (%)
Metallic minerals:		
Iron ore	12,500	2.3
Chromium ore	647	4.6
Manganese ore	8	0.04
Nickel	17	1.5
Aluminium (Bauxite)	2,010	1.6
Copper	190	1.5
Gold	0.015	0.6
Lead	211	7.0
Mercury	0.040	2.2
Silver	0.523	3.0
Tin	2.530	1.3
Tungsten	2.060	6.6
Zinc	549	6.8
Chemical industrial minerals:		
Phosphate rock	600	0.4
Potash	5,044	19.7
Salt	41,800	20.0
Sulphur (all forms)	5,867	10.3

Source: Minerals Yearbook 1999, USGS

Box 2.3: price of non-ferrous metals

Figure 2.1

Monthly average settlement prices for six primary non-ferrous metals (January 1998=100)



Source: LME

LABOUR AND PRODUCTIVITY

According to the LFS, EU non-energy mining employed 236.1 thousand persons in 2000, a net reduction of 44.6 thousand persons compared to 1995. These reductions were in part attributable to efforts to reduce production costs by increasing capital intensity, whilst further losses were incurred due to the closure of some mines as a result of depleted reserves or unprofitability regarding further extraction. The workforce was very much dominated by men (89.4% in 2000) who were mainly in full-time employment (97.3% of all working contracts).

SBS data shows that wage adjusted labour productivity in the non-energy mining sector was higher than national manufacturing averages in 1999[7], with the exception of Finland and Sweden.

EXTERNAL TRADE

The EU ran a trade deficit in non-energy minerals (CPA Divisions 13 and 14) which was equal to 10.5 billion EUR in 2000; more than twice the deficit recorded in 1990. In the metal ores sector, EU producers often face high production costs relative to their competitors, with non-Community production often characterised by large, open-cast operations and high-grade ore deposits. As a result the EU imports a considerable amount of metal ores (7.7 billion EUR in 2000). On the other hand, the EU is an important processor of minerals, although its demand for certain industrial minerals is satisfied largely by imports (for example, phosphates). Construction minerals are mainly traded within the EU, despite increasing imports from Eastern Europe, as well as more distant countries such as India, Brazil and China.

(7) DK, EL and I, 1998; L, A and UK, 1997; IRL and NL, not available.

Table 2.2

Mining and quarrying except energy producing materials (NACE Subsection CB)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
B	82.0	39.1	209.8
DK (1)	70.3	35.6	197.3
D	69.4	41.0	169.2
EL (1)	40.9	22.0	185.7
E	37.7	22.2	169.9
F	56.7	37.5	151.1
IRL	:	:	:
I (1)	56.4	31.3	180.0
L (2)	66.5	36.1	184.5
NL	:	:	:
A (2)	75.1	39.5	190.3
P	24.5	13.1	187.1
FIN	55.9	33.1	168.9
S	59.1	42.9	137.9
UK (2)	69.1	28.9	239.5

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 2.3

Metal ores and other mining and quarrying products (CPA Subsection CB)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	11,885	22,407	-10,522	53.0
B	8,259	9,491	-1,232	87.0
DK	77	156	-79	49.3
D	926	3,827	-2,901	24.2
EL	139	83	56	167.2
E	610	1,660	-1,050	36.8
F	555	1,627	-1,072	34.1
IRL	158	186	-28	84.7
I	464	2,201	-1,737	21.1
L	6	51	-44	12.6
NL	1,013	1,923	-910	52.7
A	160	227	-67	70.6
P	173	144	29	120.4
FIN	113	1,180	-1,068	9.5
S	688	407	281	169.1
UK	6,783	8,184	-1,401	82.9

Source: Eurostat, Comext

Table 2.4

Metal ores and other mining and quarrying products (CPA Subsection CB)
Extra-EU exports

	1990 (million EUR)	1990 (%)	2000 (million EUR)	2000 (%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Metal ores and other mining and quarrying products	4,823	100.0	11,885	100.0	146.4	-
Iron ores	91	1.9	163	1.4	80.3	-0.5
Non-ferrous metal ores, except uranium & thorium ores	289	6.0	297	2.5	3.0	-3.5
Stone	185	3.8	498	4.2	169.4	0.4
Sand and clay	209	4.3	381	3.2	82.0	-1.1
Chemical and fertilizer minerals	122	2.5	184	1.5	50.3	-1.0
Salt	33	0.7	73	0.6	118.8	-0.1
Other mining and quarrying products n.e.c.	3,891	80.7	10,270	86.4	164.0	5.7

Source: Eurostat, Comext

Table 2.5

Metal ores and other mining and quarrying products (CPA Subsection CB)
Extra-EU imports

	1990 (million EUR)	1990 (%)	2000 (million EUR)	2000 (%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Metal ores and other mining and quarrying products	9,590	100.0	22,407	100.0	133.6	-
Iron ores	2,666	27.8	3,271	14.6	22.7	-13.2
Non-ferrous metal ores, except uranium & thorium ores	2,956	30.8	4,501	20.1	52.3	-10.7
Stone	358	3.7	782	3.5	118.8	-0.2
Sand and clay	341	3.6	920	4.1	169.4	0.5
Chemical and fertilizer minerals	887	9.2	657	2.9	-25.9	-6.3
Salt	19	0.2	26	0.1	39.8	-0.1
Other mining and quarrying products n.e.c.	2,358	24.6	12,238	54.6	419.0	30.0

Source: Eurostat, Comext

Table 2.6

Quarrying of stone (NACE Group 14.1)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	318	:	210	52	679	501	:	455	:	0	178	454	50	46	440
Purchases of goods and services (million EUR)	198	:	159	20	383	360	:	267	:	0	131	269	31	24	314
Value added (million EUR)	144	:	96	33	317	185	:	208	:	0	73	196	22	23	171
Personnel costs (million EUR)	73	:	48	17	163	121	:	113	:	0	22	102	13	13	79
Number of persons employed (thousands)	2.1	:	1.3	1.2	8.8	3.4	:	4.0	:	:	0.6	9.3	0.4	0.4	3.3
Gross investment in tangible goods (million EUR)	33	:	21	:	58	:	:	:	:	:	:	:	4	:	:
Gross operating rate (%)	20.3	:	18.8	29.7	22.3	11.3	:	20.8	:	:	25.5	20.4	16.9	21.5	18.8
App. labour productivity (thous. EUR/pers. emp.)	68.0	:	76.2	27.3	35.9	55.0	:	52.6	:	:	120.6	21.0	49.2	57.6	51.8
Simple wage adjusted labour productivity (%)	196.3	:	201.3	192.3	194.3	152.1	:	183.8	:	:	324.6	191.9	166.7	176.3	217.3
Output price index (1995=100) (2)	:	:	102.8	126.5	112.6	103.1	:	107.3	:	114.3	:	110.2	:	:	119.7

(1) A, 1998; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 2.7

Stone (CPA Group 14.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	185	212	208	238	263	252	312	417	383	393	498
Extra-EU imports (million EUR)	358	386	374	416	448	496	513	592	622	643	782
Trade balance (million EUR)	-173	-174	-166	-178	-185	-244	-202	-175	-239	-251	-284
Cover ratio (%)	51.7	54.9	55.6	57.1	58.7	50.8	60.7	70.4	61.6	61.1	63.7

Source: Eurostat, Comext

Table 2.8

Quarrying of sand and clay (NACE Group 14.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	284	50	3,113	170	920	2,405	:	636	:	177	305	358	133	279	3,291
Purchases of goods and services (million EUR)	156	32	1,800	87	559	1,555	:	377	:	121	173	245	95	204	1,847
Value added (million EUR)	131	19	1,435	90	370	868	:	263	:	68	152	120	57	88	1,515
Personnel costs (million EUR)	47	10	838	42	165	489	:	120	:	29	91	56	26	45	596
Number of persons employed (thousands)	1.2	0.3	21.2	2.0	8.8	13.9	:	4.1	:	:	2.2	4.5	1.1	1.1	20.8
Gross investment in tangible goods (million EUR)	18	:	356	:	74	:	:	:	:	:	:	:	32	:	:
Gross operating rate (%)	28.2	17.0	18.3	28.3	22.5	15.1	:	22.7	:	20.3	18.9	17.5	20.6	14.9	27.0
App. labour productivity (thous. EUR/pers. emp.)	108.4	58.9	67.8	44.7	42.2	62.2	:	63.5	:	:	69.0	26.4	52.8	78.2	73.0
Simple wage adjusted labour productivity (%)	278.3	187.0	171.4	214.5	224.1	177.5	:	218.4	:	236.4	168.2	212.3	220.1	193.6	254.4
Output price index (1995=100) (2)	:	:	99.3	110.5	109.7	110.7	:	114.3	:	:	:	106.9	:	119.1	118.5

(1) DK, 1998; NL, 1997; EL and I, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 2.9

Sand and clay (CPA Group 14.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	209	212	213	232	262	283	289	326	348	355	381
Extra-EU imports (million EUR)	341	390	482	520	581	608	589	678	727	761	920
Trade balance (million EUR)	-132	-178	-269	-288	-320	-325	-300	-352	-380	-406	-539
Cover ratio (%)	61.3	54.3	44.2	44.7	45.0	46.6	49.1	48.1	47.8	46.6	41.4

Source: Eurostat, Comext

Table 2.10

Mining of chemical and fertilizer minerals (NACE Group 14.3)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	:	0	52	0	131	120	0	48	0	0	:	0	0	:	215
Purchases of goods and services (million EUR)	:	0	38	0	120	89	0	38	0	0	:	0	0	:	149
Value added (million EUR)	:	0	22	0	9	25	0	10	0	0	:	0	0	:	89
Personnel costs (million EUR)	:	0	17	0	41	96	0	5	0	0	:	0	0	:	55
Number of persons employed (thousands)	:	0.0	0.4	0.0	1.3	1.8	0.0	0.2	0.0	:	:	0.0	0.0	:	1.3
Gross investment in tangible goods (million EUR)	:	:	2	:	6	:	0	:	:	:	:	:	0	:	:
Gross operating rate (%)	:	:	7.9	:	-29.6	-70.7	:	11.2	:	:	:	36.0	:	:	13.6
App. labour productivity (thous. EUR/pers. emp.)	:	:	55.1	:	7.4	14.1	:	51.8	:	:	:	14.7	:	:	66.6
Simple wage adjusted labour productivity (%)	:	:	128.4	:	23.0	25.9	:	212.8	:	:	:	:	:	:	160.8
Output price index (1995=100) (2)	:	:	:	:	141.1	108.1	:	108.5	:	100.0	:	:	:	:	90.5

(1) DK, EL and P, 1998; L, 1997; I, NL and UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 2.11

Chemical and fertilizer minerals (CPA Group 14.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	122	106	103	102	115	138	136	172	158	165	184
Extra-EU imports (million EUR)	887	790	580	461	500	535	536	662	688	684	657
Trade balance (million EUR)	-764	-684	-477	-359	-385	-397	-400	-490	-529	-518	-473
Cover ratio (%)	13.8	13.4	17.7	22.2	23.1	25.8	25.4	26.0	23.0	24.2	28.0

Source: Eurostat, Comext

Table 2.12

Production of salt (NACE Group 14.4)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	0	:	293	28	113	239	0	:	0	:	:	15	0	0	:
Purchases of goods and services (million EUR)	0	:	262	21	77	158	0	:	0	:	:	47	0	0	:
Value added (million EUR)	0	:	147	14	40	96	0	:	0	:	:	6	0	0	:
Personnel costs (million EUR)	0	:	93	8	22	67	0	:	0	:	:	4	0	0	:
Number of persons employed (thousands)	0.0	:	1.7	0.5	0.8	1.6	0.0	:	0.0	:	:	0.4	0.0	0.0	:
Gross investment in tangible goods (million EUR)	0	:	27	:	4	:	0	:	:	:	:	:	0	:	:
Gross operating rate (%)	:	:	13.3	17.8	15.6	11.0	:	:	:	:	:	4.2	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	86.6	30.0	51.2	60.9	:	:	:	:	:	16.6	:	:	:
Simple wage adjusted labour productivity (%)	:	:	158.9	172.3	179.4	142.7	:	:	:	:	:	159.5	:	:	:
Output price index (1995=100) (2)	:	:	86.1	100.0	92.6	:	:	115.9	:	:	:	:	:	:	107.6

(1) L, 1997; EL, 1998, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 2.13

Salt (CPA Group 14.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	33	44	75	71	72	60	62	66	73	79	73
Extra-EU imports (million EUR)	19	14	14	19	21	23	20	25	24	26	26
Trade balance (million EUR)	15	30	61	52	50	37	42	41	48	53	47
Cover ratio (%)	178.8	309.4	533.8	376.9	334.4	257.6	305.9	264.8	296.8	299.0	279.7

Source: Eurostat, Comext

Table 2.14

Other mining and quarrying n.e.c. (NACE Group 14.5)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	33	:	80	77	179	142	:	297	0	:	47	13	86	:	25
Purchases of goods and services (million EUR)	27	:	53	36	114	86	:	175	0	:	24	9	61	:	23
Value added (million EUR)	6	:	39	44	68	56	:	124	0	:	25	4	25	:	6
Personnel costs (million EUR)	3	:	22	22	32	36	:	67	0	:	15	2	9	:	7
Number of persons employed (thousands)	0.1	:	0.5	1.0	1.0	0.9	:	2.1	0.0	:	0.3	0.2	0.2	:	0.7
Gross investment in tangible goods (million EUR)	3	:	5	:	7	:	:	:	:	:	:	:	7	:	:
Gross operating rate (%)	8.2	:	18.5	32.5	19.4	13.9	:	19.2	:	:	22.3	17.4	19.0	:	-1.2
App. labour productivity (thous. EUR/pers. emp.)	70.4	:	74.6	42.3	65.9	63.0	:	58.0	:	:	73.0	21.8	104.2	:	8.8
Simple wage adjusted labour productivity (%)	182.4	:	178.1	201.8	208.3	154.6	:	185.6	:	:	174.5	204.8	279.1	:	94.1
Output price index (1995=100) (2)	:	:	:	116.0	114.4	105.7	:	112.0	:	:	:	:	:	:	85.2

(1) A and P, 1998; L, 1997; EL and I, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 2.15

Other mining and quarrying products n.e.c. (CPA Group 14.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,891	3,872	3,861	5,004	5,443	5,621	6,222	7,014	5,760	8,023	10,270
Extra-EU imports (million EUR)	2,358	2,176	2,149	5,605	5,931	6,264	6,801	7,836	7,043	9,542	12,238
Trade balance (million EUR)	1,533	1,696	1,712	-602	-488	-643	-579	-822	-1,283	-1,519	-1,968
Cover ratio (%)	165.0	178.0	179.7	89.3	91.8	89.7	91.5	89.5	81.8	84.1	83.9

Source: Eurostat, Comext

Food, beverages and tobacco

The food and beverage sector (NACE Division 15) is among the largest industrial activities in the EU, accounting for 10.3% of manufacturing value added in 2000. Including the value added generated by the tobacco sector, the EU's food, beverage and tobacco sector generated 131.3 billion EUR of value added in 1998 (11.3% of the manufacturing total)[1]. The food, beverage and tobacco sector is less subject to economic cycles than other manufacturing activities and its output tends to grow in a moderate, regular fashion.

On the supply side, the EU's food, beverage and tobacco industry is highly fragmented in several Member States when compared to manufacturing as a whole. Small and medium-sized enterprises accounted for a relatively high share (above 50%) of the value added generated in this sector in Belgium, Spain, France, Italy, Austria and Portugal in 1998[2]. On the other hand, in Denmark, the Netherlands, Finland, Sweden and the United Kingdom, large enterprises (with 250 or more persons employed) accounted for at least 65% of total value added.

According to Fortune 500, the largest consumer food products companies in the world in 2000 (in terms of turnover) were Nestlé (CH), Unilever (NL/UK), ConAgra (US), SaraLee (US) and Groupe Danone (F). Unilever owns a large number of food and non-food brands, whilst Groupe Danone is a world leader in the manufacture of dairy products, biscuits and bottled water.

(1) DK, L and UK, 1997.
(2) D, EL and L, not available; P, FIN and S, 1999; DK, IRL and UK, 1997.

Food has seen its share in total household consumption fall since World War II due to higher disposable incomes and the generally inelastic nature of demand. According to National Accounts this trend continued in the 1990s, sometimes at a rapid pace. For a more detailed breakdown of household expenditure on food, beverage and tobacco items from the Household Budget Survey see table 15.11.

Consumer demand for food and beverages may be split into necessity purchases (where price competition is generally high) and optional (or luxury) purchases, where branded labels are often able to charge a premium price.

The market for food and beverages has split into several segments in recent years due to changes in the lifestyles led by many Europeans. The role of mealtimes as a means of family bonding has diminished, resulting in the growth of easy-to-prepare food, convenience food, microwave food and frozen food. The increasing number of households with working mothers has furthered these trends. Consumers tastes have also changed and as a result there are a diverse range of factors which now influence purchases of food and beverages: from nutritional content to convenience, food safety to animal welfare and the desire to eat foreign foods to special dietary requirements.

Consumer fears with respect to food safety mounted during the 1990s (following the BSE and foot and mouth crises and the debate over genetically modified foods). This resulted in higher demand for products that were (at least marketed as) healthier alternatives, as manufacturers replaced artificial additives and placed greater emphasis on the origin and production methods associated with their products.

This chapter refers to the processing of food, beverage and tobacco products, excluding the agricultural activities of growing, farming, rearing and hunting (which are covered by NACE Division 01). NACE Division 15 covers food and beverages, whilst Division 16 covers tobacco. Data for the EU's tobacco industry is often confidential and for this reason it has largely been omitted from this overview. However, sub-chapter 3.6 deals exclusively with the tobacco industry.

Two NACE Groups are not specifically covered in their own sub-chapter, NACE Groups 15.3 (the processing and preserving of fruit and vegetables) and 15.4 (the manufacture of vegetable and animal oils and fats); a small amount of information on both of these activities is provided in this overview.

NACE

15: manufacture of food products and beverages;
15.1: production, processing and preserving of meat and meat products;
15.2: processing and preserving of fish and fish products;
15.3: processing and preserving of fruit and vegetables;
15.4: manufacture of vegetable and animal oils and fats;
15.5: manufacture of dairy products;
15.6: manufacture of grain mill products, starches and starch products;
15.7: manufacture of prepared animal feeds;
15.8: manufacture of other food products;
15.9: manufacture of beverages;
16: manufacture of tobacco products.

Box 3.1: food safety

The European Commission identified food safety as one of its top priorities, releasing a White Paper on Food Safety on 12 January 2000. This paper set out plans for a common EU food policy: modernising legislation, reinforcing controls from the farm to the table and increasing the capability of the scientific advice system, with the most important priority the creation of a European Food Safety Authority.

Directive 79/112/EC from 17 December 1978 on food labelling confirms that "the prime consideration for any rules on labelling of foodstuffs should be to inform and protect the consumer". The main aim of the Directive is to ensure that consumers have easy access to information on the identity, content, storage method, preparation and use of the foodstuffs that they purchase. This legislation was consolidated on 20 March 2000 by a European Parliament and Council Directive 2000/13/EC on laws relating to the labelling, presentation and advertising of foodstuffs.

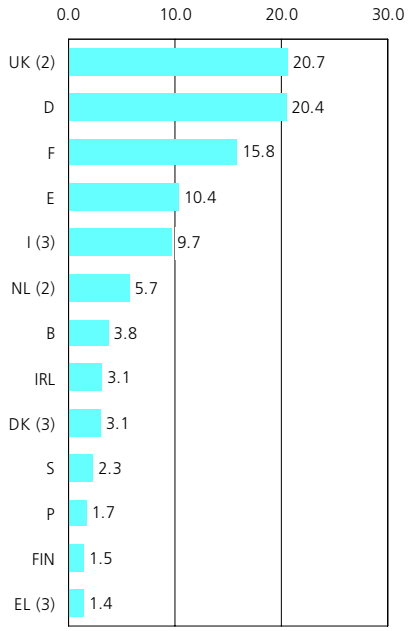
STRUCTURAL PROFILE

The food and beverage sector (NACE Division 15) displayed positive annual growth rates for value added in constant price terms between 1998 and 2000, equal to 1.5%, 6.6% and 2.7%, according to SBS data. Production of food and beverages in the EU generally exceeds consumption. Most items are manufactured for final consumption (some of it by animals), although some products, for example oils and fats or grain mill products are used by downstream industries.

Among the Member States, Germany (28.4 billion EUR in 1999) and the United Kingdom (26.9 billion EUR in 1997) were the countries with the highest output of processed food, beverages and tobacco (NACE Subsection DA) in the EU. However, in relative terms the manufacture of food, beverages and tobacco was more important in Denmark (1997) and the Netherlands (1998), where it accounted for around one-fifth of total manufacturing value added and Greece (1998), almost a quarter of manufacturing value added.

Figure 3.1

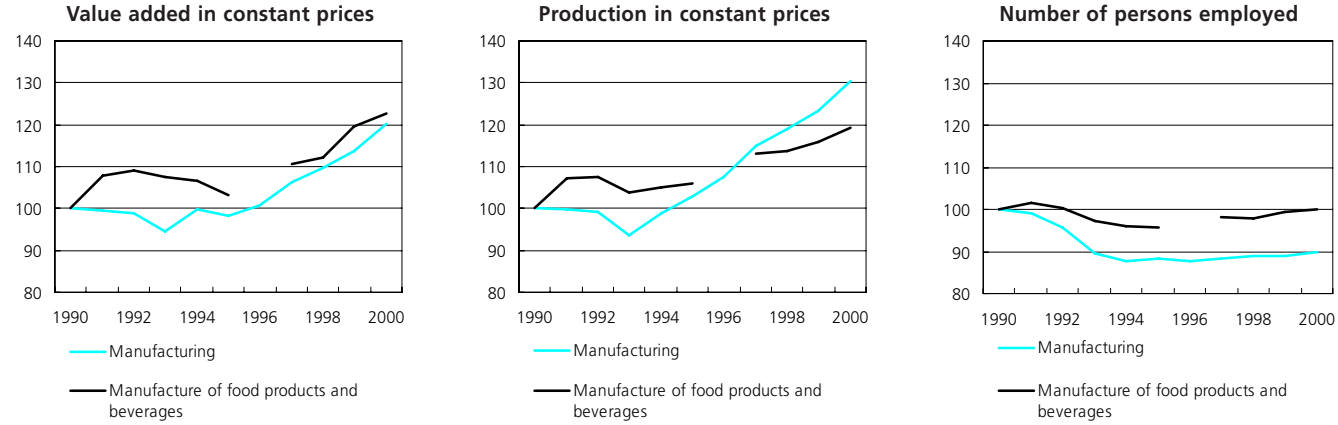
Manufacture of food products and beverages (NACE Division 15)
Share of value added in the EU, 1999 (%) (1)



(1) L and A, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 3.2

Manufacture of food products and beverages (NACE Division 15)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

The four largest food and beverage sectors in terms of value added generated are meat processing, dairy products, beverages and other food products (a residual group that may owe some of its size to the fact that it includes many pre-prepared meals of mixed ingredients that can not be classified in another Group).

Amongst the activities that are not treated in a specific sub-chapter, the value added generated by the manufacture of fruit and vegetables (NACE Group 15.3) in the EU was equal to 8.1 billion EUR in 1999. Generally high quality fruit and vegetables are sold as fresh produce, or alternatively they are frozen, whilst tinned goods often contain medium and lower grade produce. This sector has a higher concentration of large (sometimes multi-national) concerns than the food industry in general. Table 3.1 provides additional information on the harvested production and yield of fruit and vegetables in the EU.

The value added generated by the vegetable and animal oils and fats sector (NACE Group 15.4) declined during the 1990s from 3.8 billion EUR in 1990 to 2.8 billion EUR by 1999[3]. Care should be taken when analysing data for this activity and its output as some seemingly similar products may be treated as manufacturing or agricultural subject to the structure and traditions in each Member State. For example, in countries where it is common practice for olive growers to bottle their own oil rather than to sell the olives to a manufacturer for further processing, manufacturing statistics will underreport the importance of output (see box 3.2 for more details).

EU manufacturers faced increasing price pressure from retail outlets during the 1990s, in particular from large supermarket chains with a high degree of bargaining power. Output price indices for the food, beverage and tobacco sector rose by 3.6% in absolute terms between 1995 and 2000 (compared to a manufacturing average of 6.5%). There were however wide disparities between sectors, as output prices for tobacco items rose by over 30% and fish prices by more than 16%, whilst the price of animal feed, grain milling products and vegetable and animal oils and fats all fell.

(3) DK, EL and I, 1998; L, NL and UK, 1997; IRL, not available

Table 3.1

Harvested production and yield of fruit and vegetables in the EU, 2000

	Harvested production (thousand tonnes)	Yield (100 kg/ha)
Cauliflower, broccoli (1)	2,246	162
Brussels sprouts (1)	213	:
Cabbage (white) (1)	1,557	:
Leeks (1)	727	:
Lettuce (1)	2,516	255
Endive (2)	528	220
Spinach (2)	469	164
Asparagus (1)	216	:
Tomatoes (1)	14,656	581
Cucumbers (1)	1,473	1,150
Egg plant, gourds, marrows, pumpkins (2)	1,583	320
Red pepper, capsicum (1)	1,692	:
Turnips (1)	357	:
Carrots (1)	3,264	372
Garlic	277	78
Onions (1)	3,362	332
Peas (1)	603	47
Beans, runner and French (1)	1,079	:
Cultivated mushrooms (1)	777	:
Dessert apples (2)	8,826	:
Dessert pears (2)	2,454	:
Oranges	5,733	184
Lemons	1,666	181

(1) 1998.
(2) 1999.
Source: Eurostat, Agriculture and Fisheries, Agricultural products (theme5/zpa1)

Box 3.2: vegetable and animal oils and fats

Production of olive oil and margarine is almost entirely for human consumption, however oils and fats are frequently used in the manufacture of animal feed, soaps, perfumes, detergents, lubricants, paints and plastics. Olive oil is only produced in the five southern countries of Italy, Spain, France, Portugal and Greece. The EU is by far the largest olive oil producer and consumer in the world.

According to IMACE, some 2.3 million tonnes of margarine and fat spreads were manufactured in the EU in 1999. By way of comparison, IMACE estimate that total production of butter and dairy based spreads amounted to 1.7 million tonnes in 1999.

Table 3.2

Production of crude vegetable oils, fats and oilseeds in the EU, 2000 (thousand tonnes)

Total oilseeds	14,512
Soyabeans	1,068
Rapeseeds	9,047
Sunflower seeds	3,345
Cottonseeds	840
Linseeds	212
Total crude vegetable oils and fats	8,905
Groundnut	6
Soya	2,718
Rape	3,717
Sunflower	2,073
Cotton	111
Other liquid oils	18
Copra	48
Palmkernel	0
Other lauric oils	5
Linseed oil	201
Castor oil	8

Source: FEDIOL

Table 3.3

Margarine production in the EU (tonnes)

	1985	1990	1995	1998	1999
EU-15 (1)	1,948,506	2,282,827	2,624,201	2,592,103	2,300,229
B	170,118	189,138	275,434	252,499	262,260
DK	97,790	110,450	124,000	91,992	83,700
D	469,200	560,570	648,360	785,076	597,181
EL	25,800	32,200	35,962	39,089	38,923
E	59,216	81,698	84,479	86,982	83,632
F	153,000	168,219	164,500	154,924	147,722
IRL	16,500	22,308	17,450	14,345	14,345
I	67,692	79,976	82,366	96,583	72,726
L	:	:	:	:	:
NL	263,193	255,640	340,334	289,745	278,634
A	46,700	48,135	48,536	43,220	45,208
P	47,397	60,019	41,905	44,665	47,451
FIN	48,300	48,600	99,400	78,800	58,700
S	105,400	150,874	176,475	157,531	148,747
UK	378,200	475,000	485,000	456,652	421,000

(1) Excluding L.
Source: IMACE

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

The EU's stock of foreign direct investment in the food, beverage and tobacco sector (NACE Subsection DA) in non-Community countries (63.1 billion EUR) was almost twice the value of inward investment in the EU (33.6 billion EUR) in 1999. Just over half of the EU's stock of direct investment abroad was located in the US.

The food, beverage and tobacco sector is not a very research-intensive activity, with the majority of Member States reporting that less than 4% of their intramural business enterprise R&D was accounted for by this sector in 1998[4]. However, some countries that are relatively specialised in the manufacture of food, beverages and tobacco reported considerably higher shares - for example, Ireland (13.1% in 1997), Greece (9.0% in 1997), the Netherlands (6.9%) and Denmark (5.1%).

(4) I, 1999; D, EL, IRL, P and S, 1997;
L and A, not available.

LABOUR AND PRODUCTIVITY

There were 2.7 million persons employed in the EU manufacturing food and beverages (NACE Division 15) in 2000, equivalent to 11.5% of the manufacturing workforce. Between 1990 and 2000 the number of persons employed in the food and beverages sector grew by 4 thousand.

The largest employer in the EU was Germany, accounting for 22.0% of those working in the food and beverages sector in 1999. The United Kingdom had the next largest share (17.0%, 1997), followed by France and Spain (14.8% and 14.0% respectively in 1999). Italy (1998) accounted for 8.0% of the total number of persons employed in the EU. However, these figures should be viewed with caution, as the data presented only cover enterprises with 20 or more persons employed and the industry has a large number of smaller enterprises, particularly in southern Member States. As an example, smaller Italian enterprises (with less than 20 persons) employed 221.8 thousand persons, compared to 211.4 thousand working in larger enterprises (with 20 or more persons employed).

The proportion of women (38.3%) working in the food, beverage and tobacco industry (NACE Subsection DA) in 2000 was considerably higher than the manufacturing average (28.4%), according to LFS data. In particular, Finland, Germany and Portugal had high female participation rates, ranging between 51.5% and 46.0%. The incidence of part-time work (11.7%) in the EU's food, beverage and tobacco industry was also somewhat higher than the manufacturing average (7.6%).

SBS data indicates that apparent labour productivity for the EU's food and beverage sector (NACE Division 15) in 2000 was, at 49.9 thousand EUR per person employed, below the manufacturing average of 55.9 thousand EUR. At the 3-digit level of NACE, four food and beverage activities reported apparent labour productivity above the manufacturing average, namely the manufacture of vegetable and animal oil and fats (NACE Group 15.4), the manufacture of grain mill products and starches (Group 15.6), the manufacture of prepared animal feeds (Group 15.7) and the manufacture of beverages (Group 15.9).

Table 3.4

Manufacture of food products; beverages and tobacco (NACE Subsection DA)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000 (1)	1995	2000 (2)	1995	2000 (3)
EU-15	36.2	38.3	11.2	11.7	7.9	8.2	11.1	11.1
B	31.4	34.0	8.7	10.4	8.4	4.4	16.1	23.8
DK	39.2	39.4	20.2	12.0	2.5	2.4	11.7	9.0
D	44.8	48.3	14.6	18.8	7.4	6.3	17.9	16.4
EL	32.8	37.0	3.2	3.7	18.2	17.2	7.8	11.2
E	27.5	32.5	3.9	4.0	12.0	11.3	9.8	15.7
F	38.1	39.0	10.6	9.8	10.3	9.2	7.2	10.1
IRL	25.0	33.4	5.6	8.1	:	:	17.0	19.3
I	29.2	32.3	4.3	6.1	9.3	19.1	3.7	4.4
L	32.0	29.2	:	:	:	:	:	:
NL	31.0	30.6	26.8	28.2	4.8	4.7	:	13.7
A	33.8	28.0	8.5	10.2	7.8	5.9	:	13.6
P	37.6	46.0	:	6.2	14.5	10.1	:	:
FIN	51.9	51.5	7.1	8.9	6.8	6.0	13.0	17.2
S	37.4	37.0	19.0	13.2	:	:	:	:
UK	33.0	31.5	12.9	12.6	3.1	2.5	11.8	18.4

(1) EL, 1999; P, 1998.
(2) DK and FIN, 1999; UK, 1997.
(3) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

EXTERNAL TRADE

The EU ran a positive trade balance of 8.6 billion EUR in 2000 for food, beverage and tobacco products (CPA Subsection DA), with exports to non-Community countries valued at 46.2 billion EUR. The EU recorded a trade surplus throughout the 1990s, which peaked in 1997 at 12.4 billion EUR.

At the 3-digit level of CPA, the largest trade surpluses in 2000 were recorded for beverages (9.3 billion EUR) and other food products (6.4 billion EUR). These two CPA Groups also recorded the highest level of exports to non-Community countries in 2000 (12.4 billion EUR and 11.2 billion EUR respectively). There were only three CPA Groups within the manufacture of food, beverages and tobacco for which the EU ran a trade deficit, namely fish (8.3 billion EUR), vegetable and animal oils and fats (3.1 billion EUR) and fruit and vegetables (2.7 billion EUR).

Table 3.5

Food products, beverages and tobacco (CPA Subsection DA)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	46,317	37,706	8,612	122.8
B	14,881	11,490	3,391	129.5
DK	10,093	4,526	5,567	223.0
D	23,751	26,731	-2,980	88.9
EL	1,606	2,820	-1,214	57.0
E	10,395	10,558	-163	98.5
F	27,788	20,631	7,157	134.7
IRL	6,614	2,871	3,744	230.4
I	12,833	16,936	-4,103	75.8
L	498	992	-494	50.2
NL	27,026	13,995	13,031	193.1
A	3,169	3,381	-213	93.7
P	1,611	3,477	-1,865	46.3
FIN	824	1,502	-678	54.9
S	1,868	3,528	-1,660	52.9
UK	14,703	22,115	-7,412	66.5

Source: Eurostat, Comext

Table 3.6

Food products, beverages and tobacco (CPA Subsection DA)
Extra-EU exports

	1990 (million EUR)	1990 (%)	2000 (million EUR)	2000 (%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Food products, beverages and tobacco	26,185.6	100.0	46,317.4	100.0	76.9	-
Meat and meat products	3,403.4	13.0	5,534.1	11.9	62.6	-1.0
Processed and preserved fish and fish products	1,016.4	3.9	1,683.9	3.6	65.7	-0.2
Processed and preserved fruit and vegetables	1,269.3	4.8	2,363.1	5.1	86.2	0.3
Animal and vegetable oils and fats	1,434.1	5.5	2,708.1	5.8	88.8	0.4
Dairy products and ice cream	3,758.6	14.4	5,180.0	11.2	37.8	-3.2
Grain mill products, starches and starch products	1,248.3	4.8	1,905.4	4.1	52.6	-0.7
Prepared animal feeds	504.7	1.9	1,155.6	2.5	129.0	0.6
Other food products	5,925.3	22.6	11,249.6	24.3	89.9	1.7
Beverages	6,690.8	25.6	12,446.2	26.9	86.0	1.3
Tobacco products	886.1	3.4	1,993.8	4.3	125.0	0.9

Source: Eurostat, Comext

Table 3.7

Food products, beverages and tobacco (CPA Subsection DA)
Extra-EU imports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Food products, beverages and tobacco	23,628.5	100.0	37,705.7	100.0	59.6	-
Meat and meat products	4,139.1	17.5	5,488.3	14.6	32.6	-3.0
Processed and preserved fish and fish products	5,796.9	24.5	9,945.7	26.4	71.6	1.8
Processed and preserved fruit and vegetables	3,553.2	15.0	5,132.8	13.6	44.5	-1.4
Animal and vegetable oils and fats	4,112.4	17.4	5,796.2	15.4	40.9	-2.0
Dairy products and ice cream	756.8	3.2	1,111.3	2.9	46.8	-0.3
Grain mill products, starches and starch products	1,107.8	4.7	790.6	2.1	-28.6	-2.6
Prepared animal feeds	185.2	0.8	961.7	2.6	419.3	1.8
Other food products	2,692.2	11.4	4,872.3	12.9	81.0	1.5
Beverages	882.7	3.7	3,197.7	8.5	262.3	4.7
Tobacco products	402.2	1.7	252.5	0.7	-37.2	-1.0

Source: Eurostat, Comext

3.1: MEAT

This sub-chapter covers all meat processing stages that follow animal rearing; from slaughtering through to the preparation of meat for final consumption (NACE Group 15.1), including fresh, chilled, frozen, processed, dried, salted and smoked meats. The data presented also includes the treatment of hides and skins, the rendering of fats and the processing of animal offal.

There is a high degree of integration between livestock farmers, feed industries, slaughtering plant operators and food distributors. Meat specialisation is driven by consumer demand and climatic/geological conditions that influence agricultural distribution, with a high concentration of beef output in Brittany and Bavaria, pork in Denmark, poultry in the United Kingdom and sheep and goat production in Spain.

Demand for meat fell during the 1990s as consumers substituted red meats with other (meat and non-meat) products. This may have been caused by a switch to a healthier diet, or alternatively linked to safety concerns and the outbreaks of BSE and FMD. Demand for organic and free-range produce, as well as poultry products grew over the same period, the former being helped by the introduction of labelling guaranteeing the quality and/or origin of products.

The largest meat processing sector in the EU is pork meat, according to the agricultural products database, ZPA1. This is a reflection of the large number of products that are derived from pork, such as processed meats, sausages and snacks. There were just over 203 million pigs slaughtered in the EU in 2000, almost three times the number of sheep (70 million). Around 60 thousand lambs and 27 thousand bovines were slaughtered in the same year (see table 3.8).

Table 3.8

Meat slaughtering by meat type, 2000 (thousand heads)

	Bovines	Pigs	Sheep	Lambs	Goats	Poultry
EU-15	26,847	203,021	69,663	59,788	7,990	:
B	810	11,123	219	111	2	:
DK	622	20,959	68	58	:	:
D	4,285	43,234	2,162	:	18	:
EL	290	2,222	7,359	6,392	4,458	94,260
E	2,419	35,501	20,502	19,967	1,948	662,061
F	5,419	26,898	7,376	6,602	845	:
IRL	1,886	3,144	4,117	3,622	:	:
I	4,433	12,920	6,997	5,158	453	:
L	25	143	:	:	:	:
NL	2,247	18,564	736	607	23	:
A	671	5,303	340	:	66	:
P	419	5,022	1,170	1,109	168	:
FIN	360	2,046	34	31	:	:
S	529	3,251	202	174	:	:
UK	2,433	12,691	18,381	15,957	7	:

Source: Eurostat, Agriculture and Fisheries, Agricultural products (theme5/zpa1)

STRUCTURAL PROFILE

Meat processing activities generated 20.5 billion EUR of value added in the EU in 1999, according to SBS data, equivalent to 15.7% of the food and beverages total.

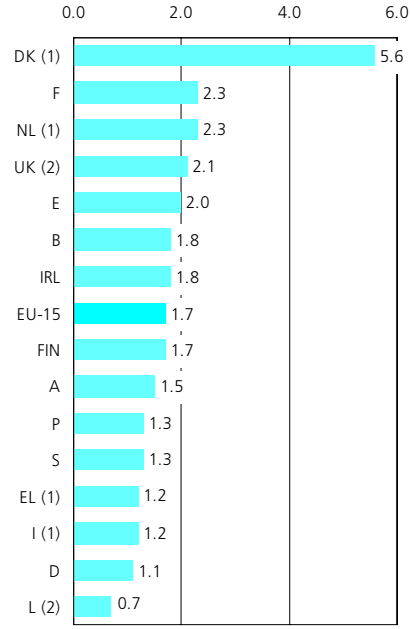
Taking the latest year of data available for each Member State[5], there were three countries generating almost identical value added within their respective meat processing industries. Germany, the United Kingdom and France all accounted for between 19% and 20% of the EU's value added, with no other country generating more than 10%. However, it is important to bear in mind that in the southern Member States there may well be a high number of small enterprises operating and that these are not covered by the statistics presented in this sub-chapter and there may also be a greater proportion of processing carried out within the agricultural sector.

In relative terms the most specialised country in the EU was Denmark, where meat processing was more than three times more important than the EU average (production specialisation ratio of 317.5% in 1998). The Netherlands (1998) and Ireland were also relatively specialised, both with ratios over 150%.

(5) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; L and UK, 1997.

Figure 3.3

Production, processing, preserving of meat, meat products (NACE Group 15.1) Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 3.3: leading meat processing manufacturers

The meat processing industry is fragmented and Meat Processing Global estimate that none of the leading manufacturers control more than 5% of the EU market (see table 3.9). Most of the companies in this ranking are not exclusively meat manufacturers, rather they specialise in convenience foods.

Table 3.9

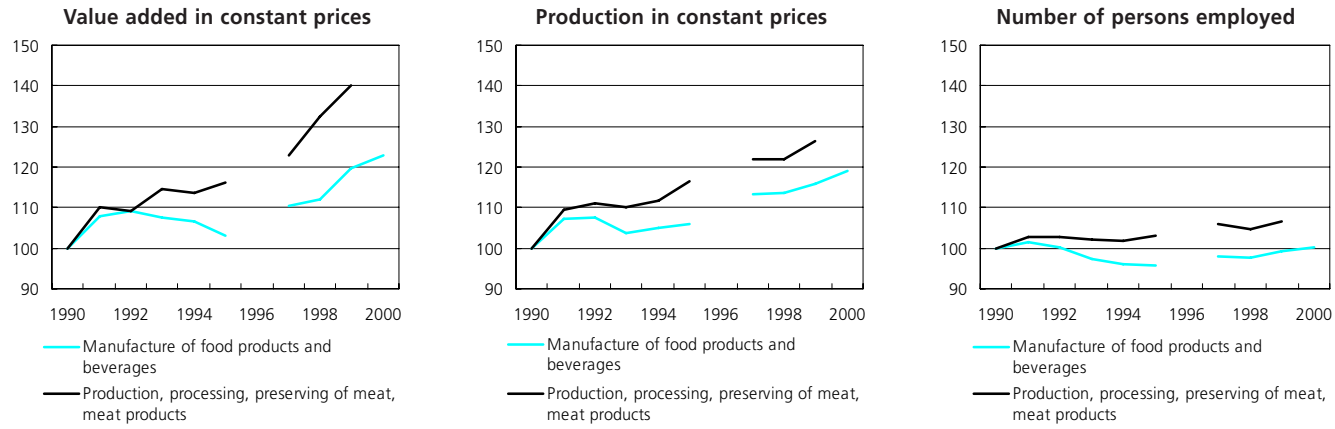
Top ten players in the meat processing industry in the EU, 2000

	EU market share (%)	Headquarters
Sara Lee	4.0	NL, F, E, P and EL
Tulip International	3.0	DK, D and UK
Nestlé	3.0	D, F, B and I
Barfuss	2.0	D
Uniq (Unigate)	1.0	UK
Kerry Foods	1.0	IRL and UK
Fleury Michon	1.0	F and I
Campofrio	1.0	E
Northern Foods	1.0	UK
Unilever	1.0	D, NL and B

Source: MHR Viandes; PVE (Netherlands); Meat Processing Global in Meat Processing Global

Figure 3.4

Production, processing, preserving of meat, meat products (NACE Group 15.1) Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

There were almost 570 thousand persons employed processing meat in the EU in 1999, which was a net increase of 35.2 thousand on the figure for 1990. The apparent labour productivity of those employed was equal to 36.1 thousand EUR in 1999, well below the food and beverages (NACE Division 15) average of 48.3 thousand EUR.

EXTERNAL TRADE

The EU's external trade position for meat products (CPA Group 15.1) was almost balanced in 2000, with exports valued at 5.53 billion EUR and imports just 48 million EUR lower. The most specialised countries in meat processing reported the highest trade surpluses: the Netherlands (3.5 billion EUR), Denmark (3.2 billion EUR) and Ireland (1.6 billion EUR). On the other hand, the largest deficits were recorded in Italy (-3.4 billion EUR), the United Kingdom (-2.8 billion EUR) and Germany (-1.6 billion EUR). Whilst the effects of the BSE crisis may well have played a significant role in diminishing exports from the United Kingdom, historical data shows that even in the mid-1990s the United Kingdom had been running a considerable deficit (1.0 billion EUR in 1995).

Two of the EU's main trading partners for meat products are from South America, with Brazil accounting for 17.1% of the EU's imports in 2000 and Argentina for 8.2%. During the 1990s Brazil gained 9.2 percentage points of total imports, whilst Argentina lost 5.0 percentage points. These two countries were split in 2000 by New Zealand (previously the most important origin of imports in 1990), which accounted for 15.1% of total EU imports.

Table 3.10

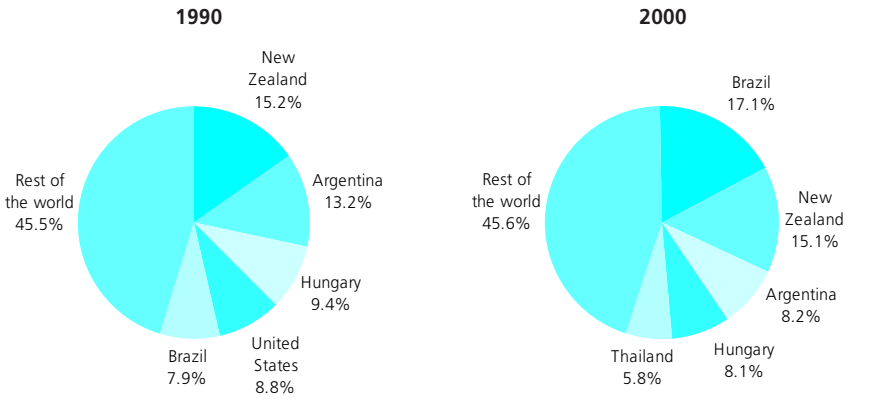
Meat and meat products (CPA Group 15.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	5,534	5,488	46	100.8
B	2,680	1,217	1,463	220.2
DK	3,843	618	3,225	622.3
D	3,377	5,050	-1,673	66.9
EL	45	746	-701	6.0
E	1,619	1,109	510	146.0
F	4,198	3,390	808	123.8
IRL	1,895	317	1,579	598.6
I	1,319	4,734	-3,415	27.9
L	32	118	-85	27.5
NL	5,242	1,786	3,456	293.5
A	594	646	-52	92.0
P	58	616	-558	9.4
FIN	89	122	-32	73.4
S	151	498	-346	30.4
UK	1,356	4,190	-2,835	32.4

Source: Eurostat, Comext

Figure 3.5

Meat and meat products (CPA Group 15.1)
Origin of extra-EU imports



Source: Eurostat, Comext

3.2: FISH

This sub-chapter includes information on the preparation and preservation of fish, crustaceans and molluscs (be they fresh, frozen, smoked, salted or canned) and the manufacture of prepared fish and seafood dishes (NACE Group 15.2). The activity does not include the manufacture of fish soups or oils and fats that are derived from aquatic species.

According to the FAO, world production of fish, crustaceans and molluscs reached 117.1 million tonnes in 1998. Almost three-quarters (74%) of the seafood that is processed in the world is caught at sea or in rivers.

The leading aquaculture (fish farming) producers include China, Thailand, Indonesia and Ecuador. The EU accounts for just over 5% of the fish farmed in the world, specialising in the farming of salmon, trout, mussels, oysters, sea bass and sea bream (see table 3.11).

Demand for fish in the EU has grown as consumers become increasingly aware of the important contribution that it can provide towards a balanced diet. However, as fish stocks have declined prices have risen at a rapid pace in recent years. EU fish processing activities rely increasingly on non-Community imports and aquaculture for their supply. Output prices for the processing and preserving of fish and fish products in the EU rose in absolute terms by 16.3% between 1995 and 2000.

In March 2001, the European Commission adopted a Green Paper on the future of the Common Fisheries Policy (CFP). The document outlined that many fish stocks were outside safe biological limits after having been too heavily exploited (in particular cod, hake and whiting). The Green Paper went on to say that the capacity of the EU's fishing fleet far exceeded that required to harvest the fish available in national waters in a sustainable manner.

Table 3.11

Aquaculture production, 1999 (tonnes) (1)

	Total freshwater and diadromous fish	Total marine fish	Total shellfish
EU-15	416,081	96,863	857,145
B	846	:	:
DK	43,605	:	4
D	35,677	8	24,207
EL	2,842	67,232	9,803
E	34,072	17,265	260,834
F	58,845	5,151	203,582
IRL	20,332	8	23,516
I	50,100	16,250	180,018
L	:	:	:
NL	4,771	:	104,014
A	3,067	:	3
P	1,252	2,457	2,936
FIN	15,400	:	:
S	5,101	:	963
UK	143,895	4	10,901

(1) DK, D, EL, E and FIN, 2000.
Source: Eurostat, Agriculture and Fisheries, Fishery statistics (theme5/fish)

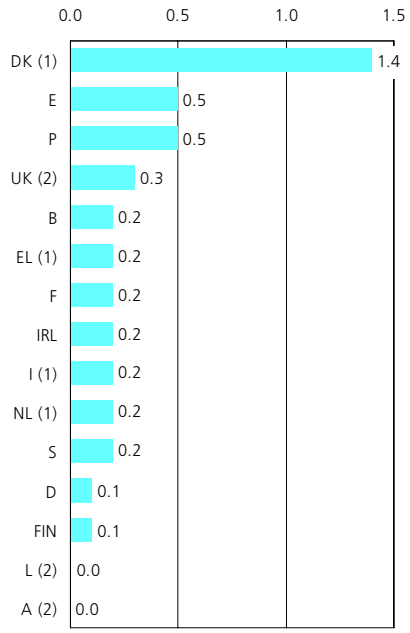
STRUCTURAL PROFILE

Value added for the processing and preserving of fish and fish products in the EU was 2.7 billion EUR in 1999[6]. The United Kingdom had the highest level of value added, some 467 million EUR in 1997, ahead of Spain (447 million EUR in 1999), whilst France and Germany also had values above 400 million EUR). The Member States with the highest relative production specialisation ratios were Denmark, Portugal and Spain.

(6) Based on latest data available: B, D, E, F, IRL, P, FIN and S, 1999; DK, EL, I and NL, 1998; L, A and UK, 1997.

Figure 3.6

Processing and preserving of fish and fish products (NACE Group 15.2)
Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

There was a rapid reduction in the number of persons employed in the EU's fish processing and preserving industry during the 1990s. Employment fell from 111 thousand in 1989 to 85.3 thousand by 1999, a net reduction of 25.7 thousand persons or 23.2%. Spain had the highest number of persons employed within the EU, 19.1 thousand in 1999. Apparent labour productivity and average personnel costs per employee in the EU's fish processing industry were below food and beverage averages, at 32.0 thousand EUR per person employed (compared to 47.4 thousand EUR) and 21.4 thousand EUR per employee (compared to 27.9 thousand EUR)[7].

EXTERNAL TRADE

The EU runs a considerable trade deficit for fish products, with exports valued at 1.7 billion EUR in 2000 and imports at 9.9 billion EUR. There were only three Member States that had a trade surplus in fish products in 2000, Denmark (827 million EUR), the Netherlands (303 million EUR) and Ireland (118 million EUR). In 2000, more than a quarter (26.6%) of the EU's food and beverage imports from non-Community countries were of fish. Norway and Iceland were the main origins of imports coming into the EU.

(7) B, D, E, F, IRL, P, FIN and S, 1999;
DK, EL and I, 1998; UK, 1997;
L, NL and A, not available.

Table 3.12

Processed and preserved fish and fish products (CPA Group 15.2)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	1,684	9,946	-8,262	16.9
B	432	830	-397	52.1
DK	1,934	1,110	825	174.3
D	860	2,015	-1,156	42.7
EL	38	245	-207	15.4
E	1,431	2,803	-1,372	51.1
F	718	2,269	-1,551	31.6
IRL	201	83	118	241.1
I	234	2,094	-1,860	11.2
L	14	49	-35	29.3
NL	1,355	1,053	302	128.7
A	4	146	-142	2.9
P	234	808	-574	29.0
FIN	15	93	-77	16.5
S	234	462	-228	50.7
UK	704	2,084	-1,380	33.8

Source: Eurostat, Comext

3.3: DAIRY PRODUCTS

This sub-chapter includes the production of fresh milk, cream, butter, yoghurt, cheese, whey, ice creams and sorbets and corresponds to NACE Group 15.5. It does not include dairy activities within the confines of the farm itself (for example, milking), which are classified within agriculture (NACE Class 01.21).

Milk production is one of the most important agricultural activities in almost all EU countries. With the introduction of the milk quota system in 1984, milk output declined in all Member States (except Portugal), accompanied by a fall in the EU's dairy herd. Nevertheless, the EU dairy sector is still characterised by a structural surplus (9.5 million tonnes of milk at the end of the 1990s).

Box 3.4: dairy output in the second half of the 1990s

Demand for fresh milk, concentrated milk and butter fell during the 1990s, whilst the relative importance (in terms of production volume) of milk-based drinks, yoghurts, whole milk powder and cheese rose (see table 3.13).

Table 3.13

Milk and dairy production in the EU (million tonnes)

	1996	1997	1998	1999	2000	2001
Drinking milk	29.8	29.7	29.7	29.7	29.4	29.6
Butter	1.9	1.8	1.8	1.8	1.8	1.8
Cheese	6.7	6.8	6.9	6.9	7.2	7.4

Source: EDA/ZMP

There is a high degree of regional concentration in the dairy industry, with production often located close to dairy farms, for example, Brittany, Normandy and the Loire Valley (F); Bavaria and Würtemberg (D); Veneto, Lombardia and Emilio Romagna (I); and the West Country, Shropshire, Cheshire and Lancashire (UK).

STRUCTURAL PROFILE

SBS data shows that the EU dairy industry generated 14.6 billion EUR of value added in 1999[8]. Denmark and Ireland were the two Member States with the highest relative production specialisation ratios, whilst France had the highest level of output (2.6 billion EUR of value added in 1999), some 320 million EUR ahead of Germany.

LABOUR AND PRODUCTIVITY

Rationalisation of the EU's dairy industry resulted in net reduction of 10% in the number of persons employed between 1989 and 1999[9]. Wage adjusted labour productivity in the EU's dairy industry was over 125% in all Member States. The highest productivity ratios were found in Greece, Spain, Ireland, Portugal and the United Kingdom, where the lowest average personnel costs per employee were recorded.

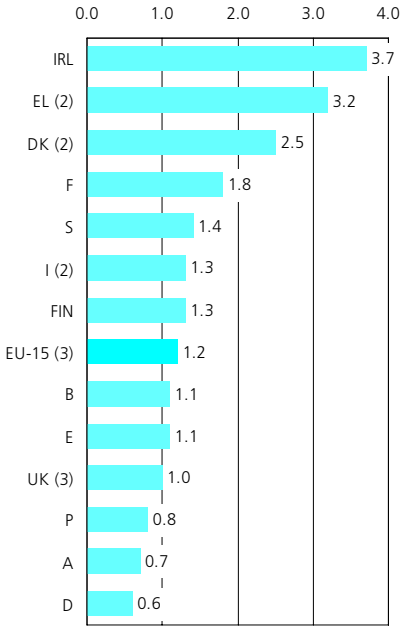
EXTERNAL TRADE

The EU runs a large trade surplus for dairy products (with a cover ratio of 466% in 2000) and has a low reliance on imports from non-Community countries (intra-EU imports accounted for 93.5% of total imports in 2000). Exports of dairy products to non-Community countries accounted for 11.7% of total EU exports of food and beverages (CPA Division 15) in 2000, whilst dairy imports accounted for just 3.0% of total food and beverage imports.

(8) Based on latest data available: B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL and I, 1998; NL and UK, 1997; L, not available.
(9) Based on a comparison of 1989 and latest data available: B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL and I, 1998; UK, 1997; L and NL, not available.

Figure 3.7

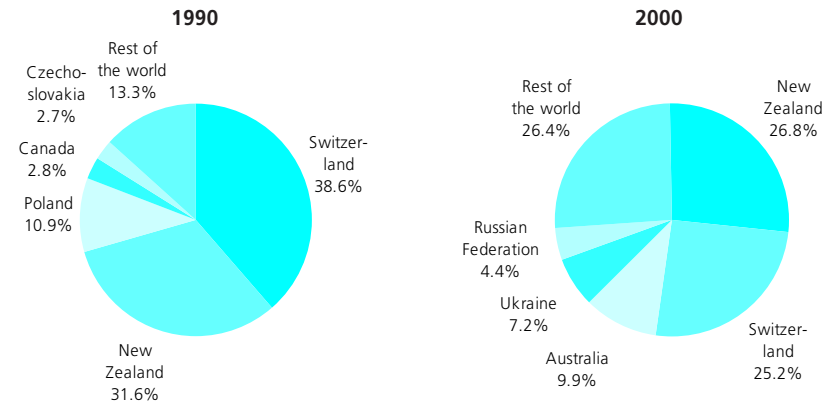
Manufacture of dairy products (NACE Group 15.5)
Share of number of persons employed in manufacturing, 1999 (%) (1)



(1) L and NL, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 3.8

Dairy products and ice cream (CPA Group 15.5)
Origin of extra-EU imports



Source: Eurostat, Comext

3.4: MISCELLANEOUS FOOD PRODUCTS

This sub-chapter deals with three different NACE Groups. The first covers the manufacture of grain mill and starch products (such as flour, maize and rice), NACE Group 15.6. Prepared animal feed for farm animals and pets (NACE Group 15.7) make-up the second Group and the final activity is the manufacture of other food products (NACE Group 15.8), which includes a diverse range of products, including bread, pastry goods, sugar, confectionery, pasta, tea, coffee and special dietetic foods.

There have been significant shifts in the demand for and consumption of miscellaneous food products in the EU, resulting from changes to eating and shopping habits. For example, the reduction in time that most families devote to cooking has seen household consumption of flour diminish, while less frequent shopping trips have increased the number of purchases of packaged bread. These changes have also resulted in higher demand for crisps, savoury snacks, chocolates and confectionery, as well as pasta (outside of Italy).

Not all of the demand for miscellaneous food products is in the form of final consumption from households. Bakeries, biscuit makers and confectionery manufacturers are amongst the largest industrial consumers of flour, whilst the majority of sugar that is processed in the EU goes into further downstream food processing industries.

STRUCTURAL PROFILE

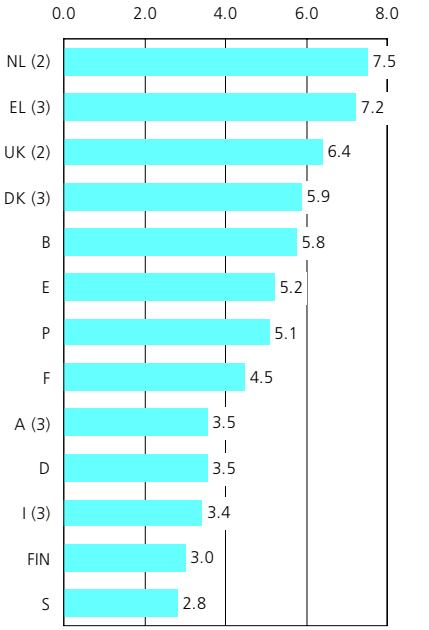
The activities grouped within this sub-chapter (NACE Groups 15.6 to 15.8) generated 55.7 billion EUR of value added in 1999[10]. The manufacture of other food products (NACE Group 15.8) generated 45.8 billion EUR of value added, considerably more than the prepared animal feed industry (5.5 billion EUR[11]) or the grain mill and starch products industry (4.4 billion EUR[12]).

Value added in constant prices for other food products (NACE Group 15.8) increased at an average rate of 3.6% per annum between 1990 and 1999, considerably above the food and beverage average of 2.0%.

(10) This figure is based on the latest available information for each country for the three NACE Groups that constitute this sub-chapter: for specific country and reference year information please refer to the footnotes that follow for each activity.
(11) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; L and UK, 1997.
(12) B, D, E, F, IRL, P, FIN and S, 1999; DK, EL, I, NL and A, 1998; UK, 1997; L, not available.

Figure 3.9

Manufacture of grain mill products, starches and starch products; prepared animal feeds; other food products (NACE Groups 15.6 to 15.8) Share of value added in manufacturing, 1999 (%) (1)



(1) IRL and L, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 3.5: pasta production in the EU

Table 3.14

Industrial dried pasta production, trade and consumption, 1999 (tonnes) (1)

	B, L and NL	D	EL	E	F	I	A	P	S	UK
Production (2)	98,250	263,438	118,000	194,522	253,400	2,783,375	27,000	70,900	21,000	:
Exports										
Extra-EU	7,043	14,125	26,892	4,135	13,100	528,014	63	:	:	:
Intra-EU	34,185	3,672	7,134	19,742	32,200	770,433	442	:	:	:
Imports										
Extra-EU	8,025	8,655	144	87	5,000	1,225	244	:	:	:
Intra-EU	85,111	192,305	14,486	9,269	211,900	1,344	2,261	:	:	73,000
Consumption	150,158	446,601	92,000	18,000	425,000	1,484,928	34,000	68,000	48,662	101,500
Consumption per inhabitant (kg)	5.7	5.5	8.8	4.6	7.3	26.5	4.2	6.8	5.5	2.5

(1) DK, IRL and FIN, not available. (2) D, including industrial fresh pasta.
Source: UNAFPA

Box 3.6: sugar confectionery, biscuits and chocolate

The European chocolate market is highly concentrated. Some of the most important manufacturers include Cadbury-Schweppes (UK), Jacob-Suchard and Nestlé (CH) and Ferrero (I).

Table 3.15

Production and consumption of sugar confectionery, biscuits and chocolate (tonnes)

	Sugar confectionery			All chocolate products			Biscuits and other baked goods		
	Production	Consumption	Consumption per inhabitant (kg)	Production	Consumption (2)	Consumption per inhabitant (kg) (2)	Production	Consumption	Consumption per inhabitant (kg)
EU-15 (1)	1,726,570	1,604,830	4.26	2,675,490	2,515,220	6.68	5,801,790	5,437,365	14.44
B	65,530	42,860	4.19	154,925	83,190	8.12	297,690	124,365	12.15
DK	51,540	42,405	7.93	29,395	48,755	9.11	112,335	69,130	12.92
D	453,690	431,565	5.26	898,985	814,930	9.93	715,500	671,400	8.18
EL	20,000	20,700	1.92	26,500	30,200	2.80	53,300	51,750	4.79
E	205,730	122,410	3.07	116,725	140,055	3.51	459,055	430,165	10.79
F	206,420	219,415	3.74	375,195	414,990	7.06	772,090	882,295	15.02
IRL	18,500	21,655	5.72	35,705	33,995	8.98	29,200	51,045	13.48
I	122,000	129,740	2.24	214,750	203,250	3.50	863,200	705,310	12.16
L	:	:	:	:	:	:	:	:	:
NL	133,540	103,405	6.50	193,430	76,105	4.79	382,285	297,210	18.69
A	27,790	28,090	3.46	73,635	74,180	9.13	71,940	74,590	9.18
P	2,880	10,725	1.08	3,400	15,375	1.55	32,745	62,665	6.30
FIN	32,165	37,900	7.32	29,465	24,555	4.74	75,245	87,170	16.84
S	63,720	84,835	9.55	46,750	51,935	5.85	23,700	9,000	1.01
UK	323,065	309,125	5.19	476,630	503,705	8.45	1,913,505	1,921,270	32.24

(1) Excluding L.
(2) NL and S, chocolate confectionery products only.
Source: CAOBISCO-IOCCC

According to the Federation of Bakers, there are strong links between industrial baking enterprises and the agricultural and milling industries with many large bakeries owned by agricultural or milling concerns. Germany and the United Kingdom were the main industrial producers of bread in the EU accounting for 60% of industrial output in 1997. Nevertheless, craft bakers continued to produce more bread, accounting for 48% of the total volume produced in 1997 (compared with 36% for industrial bakers and 16% for semi-industrial bakers). More than three-quarters of the bread in the United Kingdom is sold through supermarkets, whilst in France, Spain and Italy, local bakeries remain the main production and retail unit.

LABOUR AND PRODUCTIVITY

There were 1.1 million persons employed manufacturing miscellaneous food products (NACE Groups 15.6 to 15.8) in the EU in 1999[13]. The largest number of persons employed was in Germany (320 thousand persons), 28.9% of the EU total. Miscellaneous food products usually accounted for between 33% and 45% of the total number of persons employed in all food and beverage activities (NACE Division 15). However, in Belgium, Germany and Portugal their share rose to between 53% and 55%. Within the manufacture of other food products (NACE Group 15.8) there was a net increase of 163.5 thousand persons employed between 1989 and 1999[14].

EXTERNAL TRADE

Miscellaneous food products (CPA Groups 15.6 to 15.8) accounted for almost one-third (32.2%) of the EU's exports of food and beverages to non-Community countries in 2000, whilst the corresponding share for imports was 17.7%. These shares were similar to those recorded ten years earlier. During the 1990s, the EU's trade surplus for miscellaneous food products increased from 3.7 billion EUR to 7.6 billion EUR.

The main origin of imports from non-Community countries into the EU was the US, accounting for more than two-thirds (68.7%) of the animal feed imported and more than one-third (34.8%) of grain mill and starch products imported in 2000. A fairly high and increasing share of imports of grain mill and starch products come from Asian countries in the form of rice (Thailand, India and Pakistan were all present amongst the top five import partners accounting for 30.8% of EU imports in 2000). For other food products (CPA Group 15.8) the main origin of imports was Switzerland, where chocolate confectionery played an important role.

(13) B, D, E, F, P, FIN and S, 1999; DK, EL, I and A, 1998; UK, 1997; IRL, L and NL, not available.
(14) It is important to remember that this activity is a residual group containing activities not elsewhere classified and some of the increase may be due to the classification of new activities within this Group.

Table 3.16

Manufacture of grain mill products, starches and starch products; prepared animal feeds; other food products (NACE Groups 15.6 to 15.8)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
B	42.3	29.6	143.0
DK (1)	44.1	29.1	151.2
D	39.2	26.8	146.0
EL (1)	28.7	17.1	167.6
E	28.5	19.7	144.6
F	57.7	35.0	165.0
IRL	:	:	:
I (1)	59.8	31.7	188.8
L	:	:	:
NL	:	:	:
A (1)	40.0	30.0	133.3
P	14.8	9.6	155.0
FIN	43.0	28.9	148.7
S	55.5	36.3	153.0
UK (2)	57.2	28.1	203.8

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

3.5: BEVERAGES

This sub-chapter covers both alcoholic and non-alcoholic beverages, including mineral waters, soft drinks, beer, wine and spirits. However, it does not include fruit and vegetable juices (NACE Class 15.32) or the processing of tea and coffee (NACE Class 15.86).

The product life cycles of different beverages in the EU vary considerably. Whilst most alcoholic drinks represent mature markets, characterised by a slow, steady decrease in consumption at an aggregated level; product differentiation has seen the introduction of new products and rapid growth rates, for example carbonated soft drinks, branded beers and alcopops.

Powered by high advertising budgets and large distribution networks, the carbonated soft drinks market is dominated by multi-nationals (with the world leader Coca-Cola Enterprises Inc.). On the other hand, the structure of the mineral waters industry is closely related to the geographic distribution of natural springs and is characterised by fragmented supply. Whilst beer consumers are more prepared to try different brands, the beer industry is still generally a collection of small, local or national players. Nevertheless, the process of consolidation is evident in many EU markets, with Germany an exception to this trend as its beer output remains dominated by production at a city or provincial level.

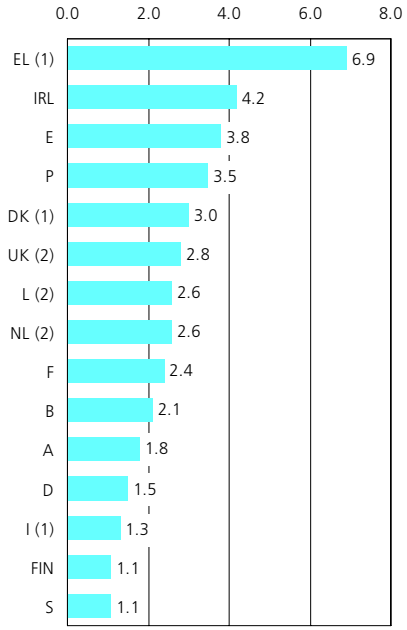
STRUCTURAL PROFILE

The EU's beverage sector generated 26.1 billion EUR of value added in 1999[15]. Germany accounted for the largest share of this total with 5.3 billion EUR of value added, equivalent to just over one-fifth of the total and was closely followed by the United Kingdom (5.1 billion EUR). However, in relative terms, the countries most specialised in the manufacture of beverages were concentrated in southern Europe (Greece, Spain and Portugal), while Ireland and Luxembourg also had relatively high production specialisation ratios.

(15) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL and I, 1998; L, NL and UK, 1997.

Figure 3.10

Manufacture of beverages (NACE Group 15.9) Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 3.7: drinks sectors in the EU

UNESDA estimate that annual sales of soft drinks (including fruit juices) were worth more than 38 billion EUR in the EU in 2000. This sector produced over 27 billion litres of soft drinks (see table 3.17), which was equivalent to an average of 75 litres per person. There is a wide diversity in the demand for soft drinks: France and Italy are major consumers of water (see table 3.18), whilst consumers in Spain, the Netherlands and the United Kingdom prefer carbonated drinks. Although traditional sugar sweetened carbonated soft drinks remain the most popular consumer choice, some consumers are substituting carbonated drinks with fruit juices, energy drinks, bottled waters, milk based drinks and drinks fortified with vitamins and minerals.

According to CBMC, more beer is produced in the EU than in any other part of the world. The EU's brewing industry produced a quarter of the world's beer in 2000, some 320 million hectolitres. Beer demand is generally higher in northern Europe. However, demand in these countries has tended to stagnate or decline in the past two decades, whilst it has risen in southern Europe where beer consumption is correlated with the seasons, as it is seen as a thirst-quencher (see table 3.19).

Table 3.17

Consumption of soft drinks by product type in the EU (million litres)

	1995	1996	1997	1998	1999	2000
Carbonates	24,739	24,502	25,478	25,738	26,723	27,375
Packaged water	29,094	28,863	30,214	31,375	32,907	34,516
Fruit juices and nectars	7,928	8,012	8,256	8,377	8,547	8,992
Other soft drinks (1)	8,785	8,773	9,108	9,302	9,859	10,076

(1) Includes still fruit drinks, fruit squashes / syrups, fruit powder, iced tea and coffee, sports and energy drinks.
Source: UNESDA-CISDA

Table 3.18

Water production and consumption, 2000 (million litres) (1)

	Production of mineral waters			Production of water from springs		
	Still	Sparkling	Total consumption per inhabitant (litres)	Still	Sparkling	Total consumption per inhabitant (litres)
B	843	397	124	:	:	:
DK	8	10	8	12	:	3
D	78	7,654	99	:	:	:
E	3,298	163	87	238	37	7
F	4,766	1,588	92	2,640	60	41
IRL (2)	:	:	20	:	:	:
I	5,460	2,940	140	:	:	:
NL	70	70	17	:	10	:
A	23	600	80	:	:	:
P	382	77	45	230	2	22

(1) EL, L, FIN, S and UK, not available.
(2) 1999.
Source: GISEMES/UNESEM

The Directorate-General of the European Commission for Agriculture estimate that the EU accounts for approximately 60% of global wine production and almost 60% of its consumption. The EU is both the leading exporter and importer of wine in the world. Wine consumption is estimated to be around 34 litres per inhabitant. However, this EU average masks important disparities between Member States, as wine consumption in the southern producing countries is more or less double the EU average. There has been a marked increase in demand for quality wines in the EU during the 1990s and prices have risen at a rapid pace.

The spirits sector has an important weight in the European economy - especially when considering the tax revenues that it generates indirectly for governments through not only VAT but also excise duties (approximately 15 billion EUR per year). Spirits generally face declining demand throughout the EU. However, whilst sales through hotels, restaurants and bars have been reduced, the volume of trade for home consumption has risen.

Box 3.7 drinks sectors in the EU (continued)

Table 3.19

Beer production and consumption, 2000 (thousand hl)

	Number of active breweries (units)	Total beer production	Consumption per inhabitant (litres)	Beer consumption by type of container (1)			
				Draught beer	Returnable	Non-returnable	Can
B	113	14,734	98.3	3,984	4,722	216	1,142
DK	13	7,460	102.3	600	4,852	0	0
D	1,270	110,000	125.4	19,500	58,800	4,600	17,100
EL	6	4,500	40.8	180	3,285	135	900
E	22	26,414	73.1	8,543	7,445	5,947	3,810
F	20	18,926	36.6	4,417	2,169	10,592	1,748
IRL	7	8,324	148.1	4,381	241	184	787
I	16	12,575	28.2	2,113	1,496	7,847	1,119
L	4	438	103.5	227	119	53	19
NL	15	25,072	82.8	3,967	7,702	93	1,367
A	59	8,750	108.1	2,778	4,514	164	1,294
P	7	6,451	64.5	1,787	3,491	907	268
FIN	6	4,612	77.8	870	2,933	:	221
S	32	4,495	56.5	571	1,062	19	2,843
UK (2)	70	55,279	95.9	35,250	800	6,150	14,800

(1) EL, E, F, I, L, A and S, production.
(2) Excluding small and micro breweries.
Source: Beer Facts, 2001, CBMC

LABOUR AND PRODUCTIVITY

There were 302 thousand persons employed producing beverages in the EU in 1999[16], with Germany by far the largest employer (74.3 thousand persons), according to SBS data. CBMC (the Brewer's trade association in Europe) estimate that the number of employees working in EU breweries was equal to 114.5 thousand in 2000.

The apparent labour productivity of the EU's beverage industry was higher in every Member State than the food and beverages average[17]. The largest difference was recorded in Ireland where each person employed in the beverage industry generated 18.2 thousand EUR more of value added than the food and beverage average[18]. Differentials of more than 10 thousand EUR were also recorded in Germany, Belgium, France and Spain.

(16) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL and I, 1998; L and UK, 1997; NL, not available.
(17) Based on latest available data: B, D, E, F, IRL, P, FIN and S, 1999; DK, EL and I, 1998; UK, 1997; L, NL and A, not available.
(18) Value added is net of VAT but not of other taxes on products; as a result the importance of this sector in IRL is likely to have been inflated (due to excise duties).

Table 3.20

Manufacture of beverages (NACE Group 15.9)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
B	80.4	46.6	172.5
DK (1)	95.1	37.8	251.8
D	71.3	43.7	163.5
EL (1)	63.1	25.5	247.7
E	76.2	32.4	235.3
F	103.7	45.1	229.9
IRL	196.6	46.3	424.4
I (1)	69.8	36.0	193.8
L (2)	70.3	31.6	222.4
NL	:	:	:
A	64.8	44.4	146.0
P	44.2	16.5	267.7
FIN	78.2	36.3	215.1
S	72.1	40.2	179.3
UK (2)	99.5	34.5	288.0

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

A relatively high share of beverages are exported to non-Community countries, in other words, external trade of beverages with non-Community countries is more intensive in this sector than the average for most food sectors. The EU runs a substantial trade surplus for beverages, which was equal to 9.3 billion EUR in 2000. Exports of beverages accounted for over a quarter (28.1%) of all the EU's exports of food and beverages (CPA Division 15). The EU's main trading partner for beverages was the US, which accounted for 40.0% of exports to non-Community countries in 2000, whilst supplying 22.4% of the EU's imports in the same year.

Table 3.21

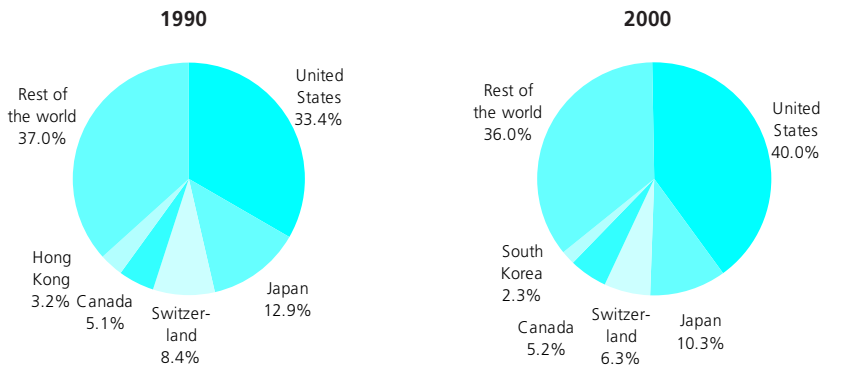
Beverages (CPA Group 15.9)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	12,446	3,198	9,249	389.2
B	1,258	1,563	-304	80.5
DK	451	537	-86	83.9
D	1,928	3,681	-1,753	52.4
EL	128	290	-162	44.1
E	1,745	1,184	561	147.4
F	9,026	1,662	7,364	543.1
IRL	868	465	403	186.8
I	3,257	956	2,301	340.6
L	59	190	-131	30.9
NL	1,913	1,325	588	144.3
A	697	285	412	244.4
P	595	387	208	153.8
FIN	109	187	-78	58.3
S	408	486	-78	84.0
UK	5,119	4,547	573	112.6

Source: Eurostat, Comext

Figure 3.11

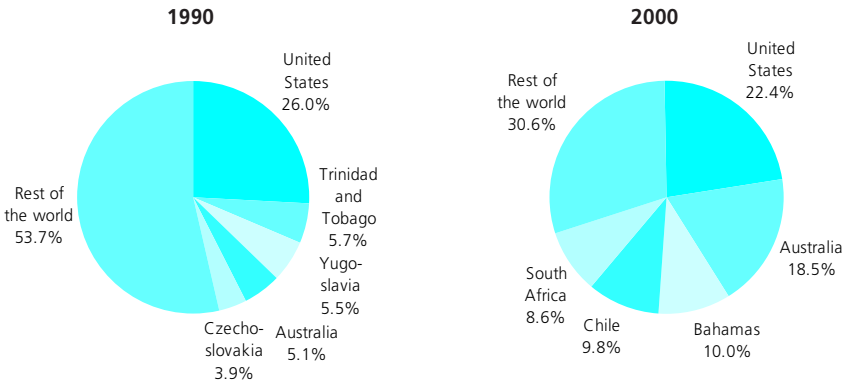
Beverages (CPA Group 15.9)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 3.12

Beverages (CPA Group 15.9)
Origin of extra-EU imports



Source: Eurostat, Comext

3.6: TOBACCO

This sub-chapter covers the manufacture of all tobacco products which are classified within NACE Division 16: namely, cigarettes, cigarette tobacco, cigars, pipe tobacco, chewing tobacco and snuff. The growing and preliminary processing of tobacco are not covered by this Division, as they form part of agriculture.

Consumption of tobacco products declined in the EU in the 1990s. This reduction may be associated with smoking bans in certain public and work places, health education campaigns, a ban on tobacco advertising, as well as higher indirect taxation on tobacco products (resulting in price increases for consumers). The decrease in smoking has been most prevalent in northern Europe, whilst consumption levels have remained stable or continued to progress in southern Europe.

Around 90% of all tobacco consumption is in the form of cigarettes. The cigarette market is supplied on the one hand by state monopolies (for example, the retail distribution network in Italy, Spain and France) and on the other by large multinational concerns that manufacture cigarettes, such as Philip Morris (US) and British American Tobacco (UK). Together with Japan Tobacco these two companies form the three largest global players in the industry.

STRUCTURAL PROFILE

The tobacco industry in the EU generated 7.2 billion EUR of value added in 1999[19]. The United Kingdom generated the highest level of value added in the EU (1.9 billion EUR, 1997), followed by Germany (1.7 billion EUR). The Netherlands (1.3 billion EUR, 1997) was the only other Member State to generate more than one billion euro of value added.

Output prices of tobacco products rose at a rapid pace in the second half of the 1990s, with an absolute increase of 30.7% between 1995 and 2000, whilst food and beverage prices rose on average by just 2.8% during the same period. Part of this increase may well be attributed to rising duties and taxes on tobacco goods (excluding VAT).

(19) B, D, E, IRL, P, FIN and S, 1999;
EL, F and I, 1998; NL and UK, 1997; DK, L and A, not available.

Box 3.8: tobacco output in volume terms

According to industry sources, there were 765 billion cigarettes produced in the EU in 1999. The three largest producers were Germany (producing 26.7% of the total number of cigarettes), the United Kingdom (21.4%) and the Netherlands (15.7%). There were 6.9 billion cigars produced in the same year and 18.1 thousand tonnes of pipe tobacco.

Table 3.22

Production of tobacco products, 1999

	Production of cigarettes (million pieces)	Production of cigars (million pieces)	Production of pipe tobacco (tonnes) (1)	Production of hand rolling tobacco (tonnes)
EU-15	765,263	6,906	18,055	71,398
B/L	19,012	55	11,949	:
DK	11,370	337	2,797	1,501
D	203,994	1,823	667	26,747
EL	31,663	:	17	:
E	71,969	950	19	144
F	42,406	660	950	2,950
IRL	6,350	85	:	3,018
I	45,025	86	56	:
NL	119,983	2,000	350	28,700
A	24,370	22	:	:
P	16,884	:	:	:
FIN	3,600	1	:	1,000
S	5,090	64	91	665
UK	163,547	823	1,159	6,673

(1) B/L and EL, includes hand rolling tobacco.
Source: CECCM

LABOUR AND PRODUCTIVITY

According to the LFS there were 67.5 thousand persons employed in the EU's tobacco industry in 2000. The vast majority were paid employees, some 98.6% of the total.

SBS data reports that the apparent labour productivity of the EU's tobacco industry was considerably higher than in the food and beverages sector. For many countries productivity was more than double the food and beverages average and in Germany (136.1 thousand EUR per person employed in 1999) it was three times higher and in the United Kingdom four times higher (221.9 thousand EUR in 1997).

EXTERNAL TRADE

Exports of tobacco products accounted for 4.3% of the EU's exports of food, beverages and tobacco (CPA Subsection DA) to non-Community countries in 2000. The corresponding share of tobacco imports from non-Community countries was 0.7% of the food, beverages and tobacco total. As a result, it is not surprising to find that the EU recorded a trade surplus in 2000 that was equal to 1.7 billion EUR. The largest share of the EU's exports to non-Community countries were destined for south-east Asia and the Middle East.

Table 3.23

Tobacco products (CPA Division 16)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	1,994	253	1,741	789.6
B	429	403	26	106.5
DK	150	22	127	675.9
D	1,766	731	1,035	241.7
EL	145	152	-7	95.2
E	79	615	-536	12.8
F	343	1,449	-1,106	23.7
IRL	104	50	53	206.7
I	15	1,257	-1,242	1.2
L	197	207	-10	95.0
NL	2,833	400	2,433	707.7
A	90	51	39	177.2
P	48	45	4	108.4
FIN	7	57	-49	12.7
S	32	84	-52	37.7
UK	1,656	202	1,454	818.4

Source: Eurostat, Comext

Table 3.24

Production, processing, preserving of meat, meat products (NACE Group 15.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	84,617	91,657	96,029	93,830	94,607	98,567	:	109,052	104,153	104,108	:
Purchases of goods and services (million EUR)	:	:	:	:	:	85,080	:	95,825	89,734	90,086	:
Value added (million EUR)	15,029	16,354	16,761	17,348	17,079	17,492	:	19,522	20,095	20,529	:
Personnel costs (million EUR)	10,184	11,246	11,689	11,844	12,064	12,498	:	13,558	13,651	14,666	:
Number of persons employed (thousands)	534	549	549	545	544	551	:	566	558	569	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	5.4	5.3	5.0	5.5	5.0	4.8	:	5.2	5.8	5.3	:
App. labour productivity (thous. EUR/pers. emp.)	28.1	29.8	30.5	31.8	31.4	31.7	:	34.5	36.0	36.1	:
Simple wage adjusted labour productivity (%)	147.6	145.4	143.4	146.5	141.6	140.0	:	144.0	147.2	140.0	:
Output price index (1995=100)	98.6	97.8	101.3	100.6	99.7	100.0	102.9	105.6	100.8	97.3	102.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.25

Meat and meat products (CPA Group 15.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,403	3,792	3,765	4,317	4,870	4,834	5,104	5,623	4,912	4,931	5,534
Extra-EU imports (million EUR)	4,139	3,883	4,207	4,034	4,578	4,493	4,631	5,022	4,653	4,576	5,488
Trade balance (million EUR)	-736	-90	-442	282	292	342	473	601	259	355	46
Cover ratio (%)	82.2	97.7	89.5	107.0	106.4	107.6	110.2	112.0	105.6	107.7	100.8

Source: Eurostat, Comext

Table 3.26

Processing and preserving of fish and fish products (NACE Group 15.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	361	1,224	1,621	47	2,214	2,262	332	1,512	0	497	11	583	94	282	2,081
Purchases of goods and services (million EUR)	346	1,149	1,321	37	2,002	2,079	275	1,380	0	426	9	598	96	228	1,771
Value added (million EUR)	66	268	417	16	447	425	65	261	0	102	3	83	20	71	467
Personnel costs (million EUR)	42	172	290	8	282	336	48	120	0	69	3	53	14	49	311
Number of persons employed (thousands)	1.4	6.8	9.6	0.8	19.1	12.3	2.6	4.6	0.0	:	0.2	5.8	0.7	1.8	16.0
Gross investment in tangible goods (million EUR)	9	:	47	:	53	:	29	:	:	:	:	:	5	:	:
Gross operating rate (%)	5.5	6.9	7.1	16.2	6.8	3.5	5.1	8.8	:	6.2	-0.6	4.8	5.0	7.4	7.0
App. labour productivity (thous. EUR/pers. emp.)	46.3	39.4	43.7	19.4	23.4	34.5	24.4	56.9	:	:	14.4	14.3	29.7	40.3	29.2
Simple wage adjusted labour productivity (%)	155.0	156.4	143.7	194.0	158.6	126.7	135.9	217.3	:	147.9	100.0	157.5	141.7	144.4	149.9
Output price index (1995=100) (2)	116.1	:	128.2	131.0	110.3	118.2	:	118.2	:	129.9	:	128.2	:	:	106.0

(1) DK, 1998; L and A, 1997; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.27

Processed and preserved fish and fish products (CPA Group 15.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,016	1,111	1,075	1,147	1,305	1,409	1,473	1,610	1,581	1,534	1,684
Extra-EU imports (million EUR)	5,797	6,599	6,505	5,945	6,748	6,754	7,064	7,928	9,383	8,835	9,946
Trade balance (million EUR)	-4,781	-5,489	-5,430	-4,798	-5,443	-5,346	-5,592	-6,318	-7,802	-7,301	-8,262
Cover ratio (%)	17.5	16.8	16.5	19.3	19.3	20.9	20.8	20.3	16.8	17.4	16.9

Source: Eurostat, Comext

Table 3.28

Processing and preserving of fruit and vegetables (NACE Group 15.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	24,003	26,992	27,721	26,351	27,199	27,476	:	29,709	32,130	35,330	:
Purchases of goods and services (million EUR)	:	:	:	:	:	21,887	:	24,550	27,043	30,154	:
Value added (million EUR)	5,657	6,464	6,779	6,625	7,040	6,795	:	7,106	7,557	8,059	:
Personnel costs (million EUR)	3,597	4,041	4,126	4,090	4,136	3,936	:	4,274	4,456	4,609	:
Number of persons employed (thousands)	195	197	193	189	185	177	:	171	176	192	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	8.2	8.6	9.2	8.9	9.9	9.9	:	9.0	9.1	9.2	:
App. labour productivity (thous. EUR/pers. emp.)	29.1	32.8	35.1	35.1	38.0	38.3	:	41.7	43.0	42.0	:
Simple wage adjusted labour productivity (%)	157.3	160.0	164.3	162.0	170.2	172.6	:	166.3	169.6	174.9	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.8	101.1	103.0	105.6	105.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.29

Processed and preserved fruit and vegetables (CPA Group 15.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,269	1,338	1,356	1,507	1,780	1,828	1,905	2,022	2,153	2,071	2,363
Extra-EU imports (million EUR)	3,553	3,998	3,894	3,593	3,991	4,023	4,339	4,333	4,556	4,916	5,133
Trade balance (million EUR)	-2,284	-2,660	-2,538	-2,086	-2,211	-2,194	-2,434	-2,312	-2,403	-2,845	-2,770
Cover ratio (%)	35.7	33.5	34.8	41.9	44.6	45.5	43.9	46.7	47.3	42.1	46.0

Source: Eurostat, Comext

Table 3.30

Manufacture of vegetable and animal oils and fats (NACE Group 15.4)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	2,054	289	4,641	335	5,848	2,269	:	1,672	0	2,714	309	520	253	551	1,766
Purchases of goods and services (million EUR)	2,039	262	4,658	308	6,316	1,989	:	1,513	0	4,055	364	498	216	467	1,695
Value added (million EUR)	121	51	569	63	559	311	:	238	0	306	77	66	54	134	265
Personnel costs (million EUR)	64	35	369	43	289	183	:	108	0	126	49	34	30	74	97
Number of persons employed (thousands)	1.3	0.8	7.7	1.8	13.7	4.3	:	3.3	0.0	:	0.8	3.7	0.8	1.8	2.2
Gross investment in tangible goods (million EUR)	59	:	101	:	165	:	:	:	:	:	:	:	24	:	:
Gross operating rate (%)	2.6	5.5	3.8	5.5	4.3	5.2	:	7.6	:	4.1	6.3	5.9	9.6	10.2	8.6
App. labour productivity (thous. EUR/pers. emp.)	90.0	61.8	73.7	34.9	41.0	72.4	:	71.9	:	:	100.8	17.7	70.9	73.3	123.1
Simple wage adjusted labour productivity (%)	188.0	147.5	154.2	146.0	193.3	170.2	:	220.9	:	243.1	157.8	195.8	180.7	181.8	274.2
Output price index (1995=100) (2)	108.3	:	100.1	106.7	96.0	101.5	118.6	88.4	:	106.2	:	101.5	88.4	90.7	84.4

(1) DK, 1998; L, 1997; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.31

Animal and vegetable oils and fats (CPA Group 15.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,434	1,367	1,564	1,524	1,923	2,486	2,261	3,048	3,240	2,641	2,708
Extra-EU imports (million EUR)	4,112	4,165	4,133	4,397	5,212	4,810	5,172	5,364	5,341	5,230	5,796
Trade balance (million EUR)	-2,678	-2,798	-2,569	-2,873	-3,289	-2,324	-2,912	-2,316	-2,101	-2,589	-3,088
Cover ratio (%)	34.9	32.8	37.8	34.7	36.9	51.7	43.7	56.8	60.7	50.5	46.7

Source: Eurostat, Comext

Table 3.32

Manufacture of dairy products (NACE Group 15.5)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	2,624	2,830	18,243	1,141	6,393	19,585	3,214	10,351	:	5,809	1,431	1,407	1,593	2,386	9,565
Purchases of goods and services (million EUR)	2,549	3,249	17,427	964	5,590	18,117	3,529	9,411	:	5,884	1,396	1,222	1,550	2,150	8,349
Value added (million EUR)	373	529	2,531	321	1,328	2,852	571	2,174	:	842	206	226	246	464	1,984
Personnel costs (million EUR)	273	320	1,607	140	683	1,938	315	1,277	:	518	147	107	180	357	1,056
Number of persons employed (thousands)	7.5	10.2	41.5	7.5	27.2	59.2	9.2	38.1	:	:	3.7	8.3	5.7	9.4	37.5
Gross investment in tangible goods (million EUR)	88	:	404	:	220	:	125	:	:	:	:	:	50	:	:
Gross operating rate (%)	3.6	6.0	4.6	14.5	9.5	4.4	6.5	7.7	:	5.1	3.7	8.4	3.7	4.1	8.9
App. labour productivity (thous. EUR/pers. emp.)	49.7	51.8	61.0	42.6	48.9	48.2	61.8	57.0	:	:	55.1	27.2	43.2	49.1	52.9
Simple wage adjusted labour productivity (%)	136.7	165.5	157.5	229.7	194.5	147.2	181.6	170.2	:	162.8	140.5	210.9	136.5	130.2	187.8
Output price index (1995=100) (2)	105.5	104.7	99.7	124.3	103.9	103.3	98.4	104.7	:	105.4	:	112.5	97.8	107.6	93.5

(1) DK, EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.33

Dairy products and ice cream (CPA Group 15.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,759	3,796	4,044	4,202	3,992	4,665	4,631	4,962	4,580	4,368	5,180
Extra-EU imports (million EUR)	757	714	707	790	817	872	836	920	961	984	1,111
Trade balance (million EUR)	3,002	3,082	3,337	3,412	3,175	3,794	3,795	4,041	3,619	3,383	4,069
Cover ratio (%)	496.6	531.7	572.2	532.2	488.5	535.3	553.9	539.1	476.6	443.8	466.1

Source: Eurostat, Comext

Table 3.34

Manufacture of grain mill products, starches and starch products (NACE Group 15.6)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	979	222	2,861	416	2,087	3,537	114	1,942	:	1,468	227	476	293	374	4,364
Purchases of goods and services (million EUR)	961	171	2,494	332	2,115	3,056	115	1,725	:	1,277	193	440	251	313	3,283
Value added (million EUR)	178	47	617	103	367	784	28	331	:	328	52	79	58	88	1,294
Personnel costs (million EUR)	110	23	400	39	174	461	15	155	:	163	38	35	34	45	469
Number of persons employed (thousands)	2.6	0.6	10.7	2.1	7.5	11.5	0.5	4.9	:	:	1.0	2.9	1.0	1.2	12.9
Gross investment in tangible goods (million EUR)	38	:	136	:	56	:	3	:	:	:	:	:	18	:	:
Gross operating rate (%)	5.9	10.6	7.0	15.4	7.9	8.3	9.1	8.6	:	10.7	5.8	8.6	7.8	10.8	18.0
App. labour productivity (thous. EUR/pers. emp.)	69.2	72.8	57.5	49.6	49.0	68.3	61.1	67.8	:	:	51.3	27.1	60.7	74.1	100.5
Simple wage adjusted labour productivity (%)	161.8	201.7	154.2	263.1	210.9	170.1	188.4	213.7	:	201.2	137.9	228.5	172.1	194.5	276.1
Output price index (1995=100) (2)	:	:	92.2	111.1	89.1	93.5	:	92.3	:	96.7	:	101.0	90.9	101.3	95.2

(1) DK and A, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.35

Grain mill products, starches and starch products (CPA Group 15.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,248	1,352	1,612	1,659	1,671	1,706	1,999	2,093	1,880	1,711	1,905
Extra-EU imports (million EUR)	1,108	1,108	1,185	1,129	1,260	1,152	898	778	813	734	791
Trade balance (million EUR)	140	243	427	530	411	555	1,100	1,315	1,067	977	1,115
Cover ratio (%)	112.7	122.0	136.0	146.9	132.6	148.2	222.5	268.9	231.2	233.2	241.0

Source: Eurostat, Comext

Table 3.36

Manufacture of prepared animal feeds (NACE Group 15.7)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,982	455	3,797	223	4,512	6,362	597	4,203	0	3,851	235	926	415	246	5,766
Purchases of goods and services (million EUR)	2,086	391	3,810	212	4,499	6,521	523	4,081	0	4,183	204	840	353	232	6,506
Value added (million EUR)	194	79	857	45	595	1,076	107	498	0	556	62	120	58	29	1,234
Personnel costs (million EUR)	142	59	503	23	286	708	51	238	0	313	44	60	44	19	597
Number of persons employed (thousands)	3.8	1.8	11.5	1.3	12.3	17.8	1.9	6.5	0.0	:	1.3	4.3	1.1	0.5	17.3
Gross investment in tangible goods (million EUR)	47	:	122	:	80	:	24	:	:	:	:	:	11	:	:
Gross operating rate (%)	2.3	4.3	7.6	10.1	6.2	4.8	9.1	5.7	:	5.1	6.8	6.4	3.2	3.6	8.2
App. labour productivity (thous. EUR/pers. emp.)	51.6	43.4	74.3	35.5	48.3	60.3	58.1	76.4	:	:	48.4	27.7	51.9	61.4	71.4
Simple wage adjusted labour productivity (%)	136.8	134.5	170.4	200.0	207.9	151.8	212.7	209.0	:	177.6	141.3	201.7	130.0	149.2	206.6
Output price index (1995=100) (2)	91.4	:	96.4	114.5	102.0	100.1	99.3	97.4	:	98.9	:	99.6	:	94.6	93.8

(1) DK, 1998; L, 1997; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.37

Prepared animal feeds (CPA Group 15.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	505	569	702	813	850	953	976	1,109	1,176	1,088	1,156
Extra-EU imports (million EUR)	185	226	268	284	328	339	787	961	925	867	962
Trade balance (million EUR)	320	343	434	529	523	614	188	147	251	220	194
Cover ratio (%)	272.5	251.6	261.6	286.3	259.4	281.4	123.9	115.3	127.1	125.4	120.2

Source: Eurostat, Comext

Table 3.38

Manufacture of other food products (NACE Group 15.8)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	91,863	98,497	104,568	106,035	110,734	113,462	:	:	137,061	140,890	:
Purchases of goods and services (million EUR)	:	:	:	:	:	83,207	:	:	104,305	106,339	:
Value added (million EUR)	28,740	31,438	33,357	34,471	35,652	35,166	:	:	41,929	45,796	:
Personnel costs (million EUR)	17,803	19,402	20,462	20,512	21,164	21,560	:	:	25,143	26,660	:
Number of persons employed (thousands)	929	940	943	921	918	896	:	:	1,049	1,071	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	11.1	11.4	11.5	12.2	12.1	11.1	:	:	11.3	12.6	:
App. labour productivity (thous. EUR/pers. emp.)	30.9	33.4	35.4	37.4	38.8	39.2	:	:	40.0	42.7	:
Simple wage adjusted labour productivity (%)	161.4	162.0	163.0	168.1	168.5	163.1	:	:	166.8	171.8	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.5	102.2	103.8	103.6	104.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.39

Other food products (CPA Group 15.8)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	5,925	5,815	6,353	7,430	8,755	9,568	9,832	11,021	10,954	9,822	11,250
Extra-EU imports (million EUR)	2,692	2,850	2,993	3,126	3,449	3,584	3,851	4,181	4,401	4,514	4,872
Trade balance (million EUR)	3,233	2,966	3,360	4,303	5,307	5,983	5,981	6,840	6,552	5,308	6,377
Cover ratio (%)	220.1	204.1	212.3	237.6	253.9	266.9	255.3	263.6	248.9	217.6	230.9

Source: Eurostat, Comext

Table 3.40

Manufacture of beverages (NACE Group 15.9)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	2,873	1,363	18,894	1,294	11,735	14,793	2,575	8,995	130	3,366	1,593	1,979	820	1,468	21,510
Purchases of goods and services (million EUR)	2,085	570	13,797	878	9,228	10,884	1,182	7,127	103	2,060	1,035	1,726	562	1,116	10,219
Value added (million EUR)	870	587	5,304	533	3,505	4,169	1,157	1,790	52	1,094	553	613	274	454	5,146
Personnel costs (million EUR)	493	233	3,227	214	1,436	1,813	272	908	23	486	378	226	127	253	1,781
Number of persons employed (thousands)	10.8	6.2	74.3	8.4	46.0	40.2	5.9	25.7	0.7	:	8.5	13.9	3.5	6.3	51.7
Gross investment in tangible goods (million EUR)	190	:	1,154	:	523	:	133	:	:	:	:	:	100	:	:
Gross operating rate (%)	12.3	25.2	9.8	23.9	17.5	15.3	30.7	9.8	18.2	17.1	9.8	17.7	18.6	12.9	14.4
App. labour productivity (thous. EUR/pers. emp.)	80.4	95.1	71.3	63.1	76.2	103.7	196.6	69.8	70.3	:	64.8	44.2	78.2	72.1	99.5
Simple wage adjusted labour productivity (%)	176.4	251.8	164.3	248.7	244.0	229.9	424.8	197.1	227.9	225.3	146.4	271.9	215.7	179.2	288.9
Output price index (1995=100) (2)	103.5	108.4	102.8	132.1	116.7	104.1	106.9	111.4	:	109.9	:	114.7	110.4	113.0	105.0

(1) L, 1997; DK, EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 3.41

Beverages (CPA Group 15.9)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	6,691	6,885	7,264	7,972	8,875	8,838	9,491	10,697	10,091	10,958	12,446
Extra-EU imports (million EUR)	883	1,022	1,157	1,230	1,323	1,307	1,601	2,015	2,286	2,673	3,198
Trade balance (million EUR)	5,808	5,863	6,107	6,742	7,552	7,531	7,890	8,682	7,805	8,285	9,249
Cover ratio (%)	758.0	673.8	627.7	648.1	670.7	676.3	592.7	531.0	441.4	410.0	389.2

Source: Eurostat, Comext

Table 3.42

Manufacture of tobacco products (NACE Division 16)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,203	:	14,251	353	1,277	8,010	993	7,656	:	3,929	:	261	97	316	22,258
Purchases of goods and services (million EUR)	1,420	:	5,276	338	1,203	2,196	204	1,722	:	1,674	:	144	79	173	2,687
Value added (million EUR)	209	:	1,721	116	429	484	180	544	:	1,329	:	103	23	203	1,858
Personnel costs (million EUR)	113	:	743	60	277	243	36	353	:	246	:	44	15	44	517
Number of persons employed (thousands)	2.6	:	12.6	2.6	7.7	5.3	0.9	10.8	:	:	:	1.3	0.4	1.5	8.4
Gross investment in tangible goods (million EUR)	23	:	178	:	41	:	8	:	:	:	:	:	2	:	:
Gross operating rate (%)	5.8	:	6.0	12.5	8.5	2.5	13.5	2.2	:	26.8	:	22.2	8.6	44.5	5.9
App. labour productivity (thous. EUR/pers. emp.)	80.2	:	136.1	44.0	56.0	91.9	189.8	50.3	:	:	:	77.6	58.5	133.8	221.9
Simple wage adjusted labour productivity (%)	184.0	:	231.7	194.1	155.1	199.3	503.4	154.1	:	540.3	:	234.4	154.1	460.5	359.6
Output price index (1995=100) (2)	118.5	127.3	107.6	470.5	150.6	:	139.9	113.6	:	124.9	111.6	148.5	:	121.3	153.3

(1) F, 1998; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

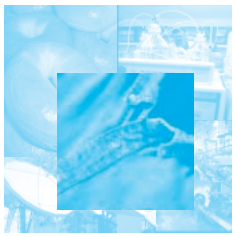
Table 3.43

Tobacco products (CPA Division 16)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	886	1,218	1,446	1,422	958	857	1,299	1,999	1,902	1,955	1,994
Extra-EU imports (million EUR)	402	571	592	949	923	404	386	204	219	207	253
Trade balance (million EUR)	484	647	854	473	35	453	912	1,794	1,683	1,747	1,741
Cover ratio (%)	220.3	213.3	244.3	149.8	103.8	212.2	336.2	978.2	869.0	942.5	789.6

Source: Eurostat, Comext

Textiles, clothing, leather and footwear



Production processes in this sector are often very labour-intensive and this has led to a large-scale redeployment of productive capacity away from the EU, to regions where average personnel costs are considerably lower. It is now commonplace for EU enterprises to out-source labour-intensive operations in the form of outward processing trade (OPT), which involves exporting fabrics, cuttings or semi-finished garments to low-wage countries, which make them up into finished garments for re-import into the EU[1]. The most important partners for OPT transactions are found amongst the candidate countries (particularly Poland and Romania) and Mediterranean Rim countries (particularly Morocco and Tunisia), where close geographical proximity, amongst other factors, allow EU manufacturers to respond quickly to market demands.

ILO data shows that wage costs in the German textile sector were approximately six times higher than in Poland and 24 times higher than in Romania in 1999. However, it is in Asia that the lowest labour costs and highest number of persons employed are found. OETH estimate that Asia accounted for 72.6% of world employment in the textile sector in 1998.

(1) In addition, OPT may also lead to classification problems, as the principal activity of some enterprises may be re-classified in distributive trades.

The textile, clothing and leather sector is characterised by a considerable number of small and medium-sized enterprises (many privately owned or family-run businesses). This low degree of concentration is often compensated for by co-operation along the textile and clothing production chain. According to the Enterprise Directorate-General of the European Commission, sub-contracting accounts for a considerable share of textile and clothing activity, reaching 50% of output in some Member States.

Small businesses may pool their resources and reduce costs through the adoption of information and communication technologies, for example through standardising the processing of orders, product and shipping information, supply chain management, automatic replenishment systems and point-of-sales information. Two European Commission initiatives of note in this field are the "FashionMe" and "e-Tailor" projects. The former will supply technical data on the human body to be transmitted between enterprises (B2B), developing techniques to scan the body and integrate this information into production equipment. The latter aims to create a virtual fitting room, so consumers may visualise garments on a representation of their own body and purchase clothes without going to a store (B2C).

This chapter covers the manufacture of textiles, clothing, fur and leather goods, as defined by NACE Subsections DB and DC. The processing stages of textile manufacture (for example, spinning, weaving and finishing of products other than clothes) are not specifically dealt with in any sub-chapter, some information on these activities is provided in this overview and data are provided in the statistical annex at the end of this chapter.

NACE

17: manufacture of textiles;
17.1: preparation and spinning of textile fibres;
17.2: textile weaving;
17.3: finishing of textiles;
17.4: manufacture of made-up textile articles, except apparel;
17.5: manufacture of other textiles;
17.6: manufacture of knitted and crocheted fabrics;
17.7: manufacture of knitted and crocheted articles;
18: manufacture of wearing apparel; dressing and dyeing of fur;
18.1: manufacture of leather clothes;
18.2: manufacture of other wearing apparel and accessories;
18.3: dressing and dyeing of fur; manufacture of articles of fur;
19: tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear;
19.1: tanning and dressing of leather;
19.2: manufacture of luggage, handbags and the like, saddlery and harness;
19.3: manufacture of footwear.

Box 4.1: largest textile companies

Table 4.1

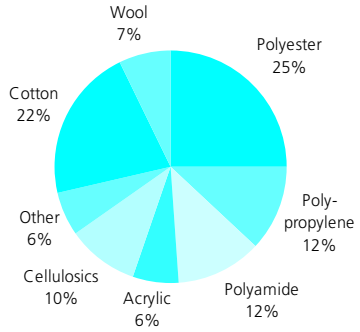
Top ten textile companies in the EU, 1999

		Turnover (million EUR)
Coats Viyella Textiles (1) (2)	UK	1,612
Gruppo Marzotto (1)	I	1,407
Chargeurs Textile Intern.	F	1,063
Courtaulds Textile (1)	UK	984
Daun & Cie	D	972
Gamma Holding	NL	867
Hartmann Gruppe	D	830
Damart Groupe (1)	F	814
Scapa Group	UK	778
William Baird (1)	UK	755

(1) Company also active in the clothing / making-up sector.
(2) Only textile activities covered.
Source: EURATEX

Figure 4.1

Breakdown of industrial consumption of textile fibres in volume terms in the EU, 1998



Source: The textile and clothing industry in the EU - A survey, Enterprise Papers, No.2, 2001; Enterprise Directorate-General of the European Commission

According to a report by the Enterprise Directorate-General[2], man-made fibres accounted for about 72% of total industrial consumption of textiles in 1998, whilst cotton was the most important natural fibre (see figure 4.1). Besides the clothing sector, the largest industrial demand for textiles comes from the furniture, home furnishing and transport sectors. Consumer demand is dependent upon levels of disposable income and changes in fashion, with demand often reduced or deferred in times of economic slowdown. National Accounts data estimate that the share of textiles and clothing in total household expenditure fell from 9.3% in 1970 to 6.4% by 1997[3].

Environmental concerns are important in the textile, clothing and leather sector, especially upstream, as the cleaning and degreasing of wool or tanning of hides causes a relatively high degree of pollution with respect to water discharge and air emissions. Used clothes (made of both natural and artificial fibres) provide an important source of material for fibres, filling, wadding or alternatively, if of good quality, they may be re-sold as second-hand clothes.

(2) The textile and clothing industry in the EU - A survey, Enterprise Papers, No.2, 2001.
(3) Data coverage reflects the changes in the EU membership over the period given (EU-6, 1970; EU-15, 1997).

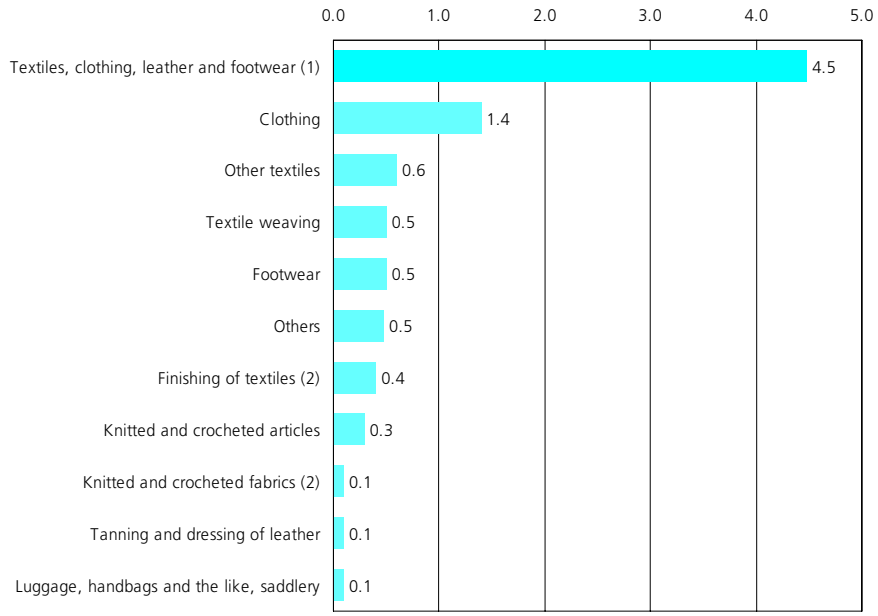
STRUCTURAL PROFILE

The textile, clothing and leather sector (NACE Subsections DB and DC) generated 59.3 billion EUR of value added in the EU in 2000. This figure was equivalent to 4.5% of the manufacturing total, some 1.8 percentage points less than in 1990.

The relative importance of the textile, clothing and leather sector was most pronounced in Portugal, where these activities accounted for almost one-fifth (19.5%) of manufacturing value added in 1999. The other Member States to report that this sector had a relatively high share of total manufacturing were Greece (12.2%, 1998), Italy (11.5%, 1998), Spain (7.1%, 1999) and Belgium (6.1%, 1999). Within these countries there are usually regional centres of production; for example, textiles manufacture is most concentrated in concentrated in the northern regions of Portugal, Lombardia (I) and Cataluna (E).

Figure 4.2

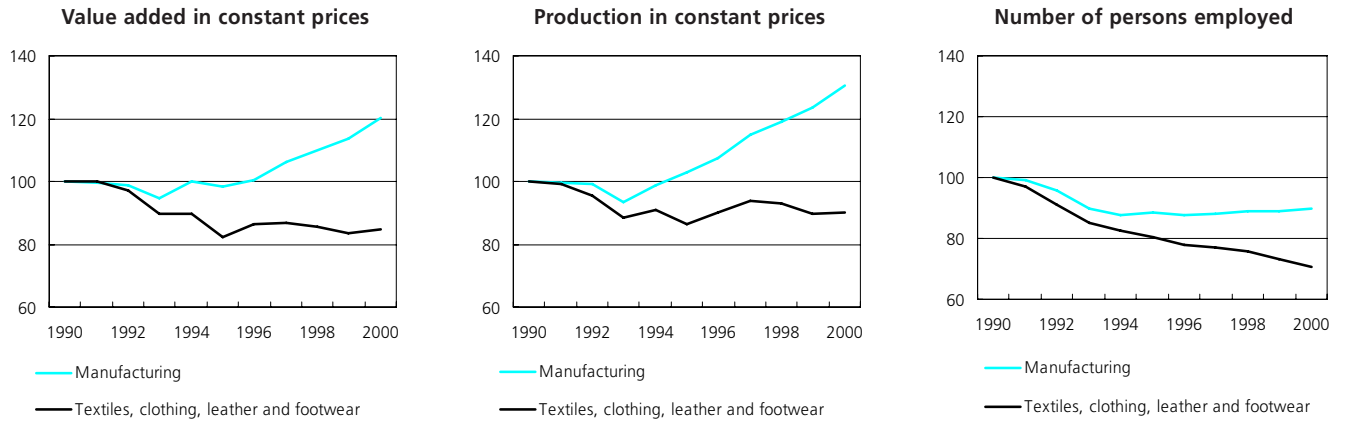
Textiles, clothing, leather and footwear (NACE Subsections DB and DC)
Share of manufacturing value added in the EU, 1999 (%)



(1) 2000. (2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 4.3

Textiles, clothing, leather and footwear (NACE Subsections DB and DC)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

It is important to note that for the majority of countries, the SBS data presented in this chapter refers to enterprises with 20 or more persons employed. It is therefore likely that the activity and employment levels are under-reported. For example, the value added of textile, clothing and leather enterprises with 20 or more persons employed in Italy was 16.3 billion EUR in 1998, however smaller enterprises (with less than 20 persons employed) generated a further 8.5 billion EUR of value added in the same year.

The manufacture of textiles (NACE Division 17) was the largest of the three activities covered by this chapter, generating 31.6 billion EUR of value added in 2000. This equated to 53.3% of total value added in the textile, clothing and leather sector, whilst 30.0% was accounted for by clothing (NACE Division 18) and the remaining 16.4% by the manufacture of leather (NACE Division 19)[4].

(4) Please note that the sub-chapter on clothing also includes clothes made from wool (NACE Group 17.7), which is aggregated within textiles for the purpose of this comparison.

Table 4.2

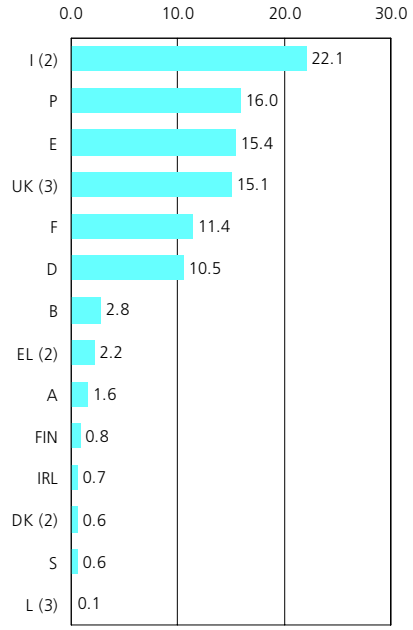
Textiles, clothing, leather and footwear (NACE Subsections DB and DC)
Breakdown of value added and number of persons employed for enterprises of all size classes, 1999 (1)

	Value added (million EUR)			Number of persons employed (units)		
	Textiles	Clothing	Leather and footwear	Textiles	Clothing	Leather and footwear
EU-15	:	:	:	1,108,800	1,051,600	498,900
B	1,942	432	107	43,432	12,720	2,771
DK	393	218	78	9,269	5,655	1,601
D	:	:	:	135,190	88,570	27,121
EL	:	:	:	:	:	:
E (2)	2,531	2,306	1,336	108,850	134,018	68,906
F	4,439	3,160	1,492	127,562	111,463	47,526
IRL	179	166	25	7,188	5,619	957
I (3)	11,091	7,821	5,861	325,877	338,670	219,802
L (3)	174	1	0	1,202	51	0
NL (3)	887	244	127	:	10,881	2,970
A	888	328	241	21,661	12,512	6,608
P	1,422	1,326	706	107,266	153,011	70,211
FIN	299	184	91	6,996	6,744	2,952
S	394	97	52	11,445	5,884	1,639
UK (4)	5,358	3,409	1,068	194,910	169,446	36,018

(1) Enterprises of all size classes (including enterprises with less than 20 persons employed).
(2) Value added, 1998; number of persons employed, 2000.
(3) 1998.
(4) Number of persons employed, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Figure 4.4

Textiles, clothing, leather and footwear (NACE Subsections DB and DC)
Share of number of persons employed in the EU, 1999 (%) (1)



(1) NL, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 4.3

Textiles, clothing, leather and footwear (NACE Subsections DB and DC)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000 (1)	1995	2000 (2)	1995	2000 (3)	1995	2000 (4)
EU-15	62.2	61.5	9.7	9.9	10.7	11.8	5.8	6.0
B	52.7	50.7	6.1	5.2	5.8	9.4	12.3	16.2
DK	65.3	70.6	16.2	13.2	:	19.9	:	17.9
D	62.6	61.3	19.6	20.2	8.1	8.6	12.2	14.5
EL	61.1	59.9	4.3	4.6	24.4	26.1	4.3	5.9
E	55.8	61.1	5.9	6.4	16.6	14.5	6.6	10.8
F	63.8	59.5	7.7	5.8	5.5	5.1	6.5	8.0
IRL	58.0	58.1	:	13.7	:	:	:	:
I	62.3	61.3	6.2	7.7	11.6	14.7	1.7	2.4
L	:	:	:	:	:	:	:	:
NL	44.0	40.5	27.8	30.0	14.7	13.3	:	:
A	68.6	64.0	12.6	16.5	5.1	4.0	:	9.9
P	72.9	73.8	5.8	5.7	11.5	10.8	:	:
FIN	73.9	79.4	:	12.5	19.1	21.1	:	17.9
S	67.6	60.9	:	:	:	:	:	:
UK	58.8	54.0	14.4	15.5	6.8	7.0	7.9	12.0

(1) S, 1999.
(2) DK and IRL, 1999; FIN, 1998.
(3) DK, 1999.
(4) DK, 1998; EU-15, 1997.
Source: Eurostat, Labour Force Survey

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

The textile sector (NACE Division 17) reported a relatively low level of stocks of FDI abroad (possibly due to its reliance on OPT)[5]. The textile sector was also characterised by relatively low levels of intramural spending on R&D, with such expenditure never accounting for more than 4.0% of total business R&D in 1997 (and this in Greece and Portugal, the two countries with the highest relative specialisation).

(5) Only a limited set of country information is available, but figures for DK, D, F, NL, A, P, FIN and UK for 1999 suggest that textiles accounted for just 2.0% of total manufacturing FDI stocks.

EMPLOYMENT

There were just under two million persons employed in the EU's textile, clothing and leather sector in 2000. The number of persons employed declined at an average rate of 3.4% per annum between 1990 and 2000.

According to LFS data, women accounted for a large proportion of those working in 2000. This was particularly true in the clothing sector, where women made-up 76.5% of the workforce, whilst the corresponding rates for textiles (52.0%) and leather (51.5%) also showed that women were in the majority.

EXTERNAL TRADE

The EU ran a trade deficit of 32.0 billion EUR for textile, clothing and leather products (CPA Subsections DB and DC) in 2000, which was largely due to a 28.6 billion EUR deficit for clothing (CPA Division 18).

China was the most important trade partner for textiles, clothing and leather in 2000, with an 18.4% share of total imports. China also reported the highest increase in its share of EU imports (up from 11.1% in 1990), although there were also significant gains in the relative shares of Romania, Vietnam, Bangladesh, Poland and Indonesia.

Since 1995, trade relations within the textile and clothing sector have experienced fundamental change. The 10-year transitional programme of the WTO's Agreement on Textiles and Clothing (ATC) is due to end in 2005, when trade liberalisation should be complete. This will bring about significant changes, as Asian countries will no longer be confronted with restrictions when exporting to the EU.

Table 4.4

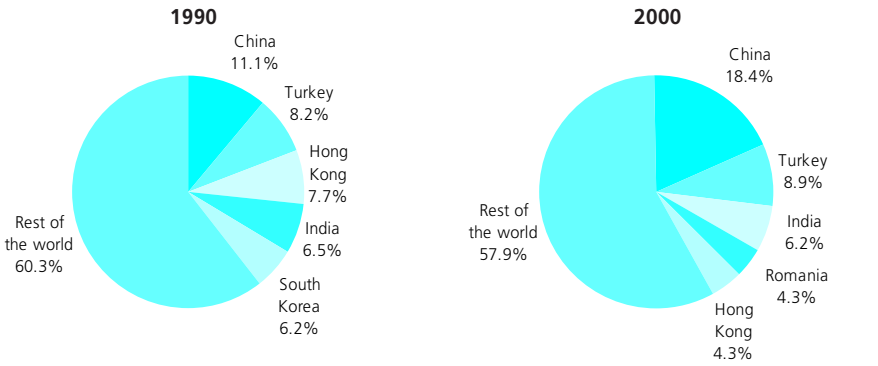
Textiles, clothing, leather and footwear (CPA Subsections DB and DC)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	52,595	84,561	-31,966	62.2
B	12,682	9,900	2,781	128.1
DK	3,212	4,048	-835	79.4
D	21,448	38,235	-16,787	56.1
EL	2,010	2,357	-347	85.3
E	8,077	8,927	-850	90.5
F	15,658	22,686	-7,028	69.0
IRL	817	2,247	-1,430	36.4
I	39,579	18,059	21,520	219.2
L	491	518	-27	94.8
NL	8,125	11,196	-3,071	72.6
A	4,054	5,665	-1,611	71.6
P	6,545	3,720	2,825	175.9
FIN	707	1,691	-985	41.8
S	1,607	3,863	-2,257	41.6
UK	10,071	25,021	-14,950	40.2

Source: Eurostat, Comext

Figure 4.5

Textiles, clothing, leather and footwear (CPA Subsections DB and DC)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 4.5

Textiles, clothing, leather and footwear (CPA Subsections DB and DC)
External trade for the EU, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
Textiles and textile products; leather and leather products	52,595	84,561	-31,966	62.2
Textile yarn and thread	2,415	3,454	-1,039	69.9
Textile fabrics	10,892	5,328	5,564	204.4
Made-up textile articles, except apparel	1,705	4,825	-3,119	35.3
Other textiles	5,923	3,735	2,188	158.6
Knitted or crocheted fabrics	1,899	883	1,016	215.0
Knitted and crocheted articles	2,173	7,310	-5,137	29.7
Leather clothes	297	1,416	-1,119	21.0
Clothing	13,319	40,967	-27,648	32.5
Furs; articles of fur	543	370	174	146.9
Leather	3,921	2,596	1,325	151.1
Luggage, handbags and the like; saddlery and harness	3,014	4,342	-1,328	69.4
Footwear	6,485	9,335	-2,850	69.5

Source: Eurostat, Comext

4.1: CLOTHING (INCLUDING KNITTED ARTICLES)

The clothing sector, for the purposes of this sub-chapter, is defined as the transformation of fabrics (be they knitted, woven or leather) into garments of any type. These activities are classified under the manufacture of knitted and crocheted articles (NACE Group 17.7) and the manufacture of leather clothes, workwear, outerwear, underwear and articles of fur (which are all contained within NACE Division 18).

As a result of the increasing degree of concentration in the distribution sector, a limited number of players put considerable pressure in terms of payment and delivery on upstream manufacturers. The clothing (and textile) sector has been required to deliver goods on a Just-In-Time (JIT) basis to distributors and retailers.

The relative decline in consumer spending on clothes (as a share of total household consumption) may be explained, in part, by the downward trend in the relative price of garments. Consumer prices of garments[6] rose by just 0.2% in total between 1996 and 2000 in the EU, whilst the all-items consumer price index rose by 6.2% over the same period. In recent years, demand for clothing has been driven by a growing tendency for more relaxed, casual wear in the workplace and at home, whilst at the same time sports and leisure wear, branded goods and designer fashion have also become increasingly important.

STRUCTURAL PROFILE

OETH estimates that the European clothing sector accounted for 22.0% of the world's production in 1998 (in value terms), with Asia by far the most important producer (50.4%).

SBS data reveals that the value added of the EU's clothing sector (NACE Group 17.7 and Division 18) was equal to 21.4 billion EUR in 1999. A breakdown of this figure shows that the manufacture of other wearing apparel and accessories (NACE Group 18.2, that includes workwear, outerwear, underwear, babies clothing and swimwear) was by far the most important activity, accounting for 81.6% of the total; followed by the manufacture of knitted and crocheted articles (NACE Group 17.7) with 17.0%; whilst the remaining 1.4% was split between the manufacture of leather clothes and the manufacture of articles of fur.

The manufacture of clothing is highly concentrated in the EU within the southern Member States. Only four countries were able to report relative production specialisation ratios above 100% in 1999: namely Portugal (431.7%), Greece (296.9%), Italy (216.9%) and Spain (151.5%)[7]. Italy accounted for just over a quarter (25.4%) of the value added generated in the EU's clothing sector in 1998 and was by far the leading producer.

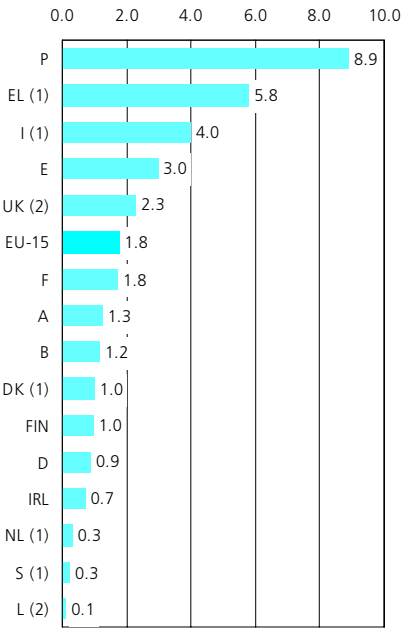
The declining importance of the clothing sector within the EU's manufacturing base can be witnessed by studying the evolution of value added in constant prices. Output declined at an average rate of 2.4% per annum over the period 1994 to 1999, whilst EU manufacturing grew, on average, by 2.6% per annum. The level of output (in constant price terms) was reduced in the majority of countries, although growth was reported in Greece, Portugal and Spain during the second half of the 1990s.

(6) Harmonised indices of consumer prices: COICOP (classification of individual consumption by purpose) code 03.12.

(7) DK, EL, I, NL and S, 1998; L and UK, 1997.

Figure 4.6

Clothing including knitted articles; dressing and dyeing of fur (NACE Group 17.7 and Division 18) Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 4.2: largest clothing companies

Table 4.6

Top ten clothing companies in EU, 1999

		Turnover (million EUR)
Holding Partecipaz Ind.	I	3,111
LVMH-Group Clothing	F	2,301
Adidas Konzern Clothing (1)	D	2,199
Zara-Ind.Dis.Text. (1)	E	2,026
Benetton Clothing (1) (2)	I	1,982
Marzotto - Abbigliamento (1) (2)	I	1,032
Max Mara Fashion (1)	I	879
Armani Giorgio SpA (1)	I	868
Gianfranco Ferré	I	826
Coats Viyella Clothing (2)	UK	770

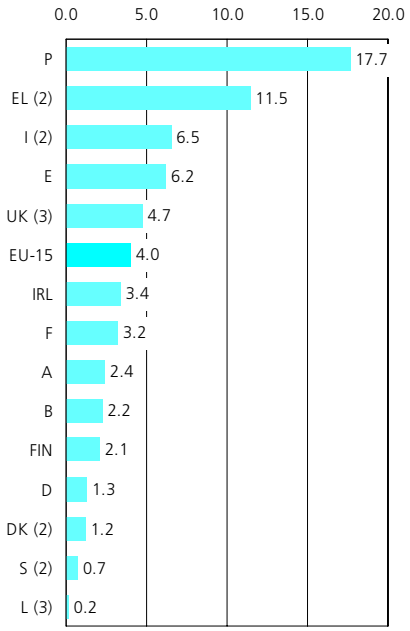
(1) Company also active in the distribution sector.
(2) Company also active in the textile sector.
Source: EURATEX

LABOUR AND PRODUCTIVITY

There were 938 thousand persons employed in the EU's clothing sector in 1999. Despite large wage cost differentials, EU enterprises remain competitive due to their relatively high labour productivity and competitive advantages in innovation, design and quality. Apparent labour productivity in the EU was equal to 22.8 thousand EUR per person employed in the clothing sector in 1999.

Figure 4.7

Clothing including knitted articles; dressing and dyeing of fur (NACE Group 17.7 and Division 18) Share of number of persons employed in manufacturing, 1999 (%) (1)



(1) NL, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 4.7

Clothing including knitted articles; dressing and dyeing of fur (NACE Group 17.7 and Division 18) Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
B	32.1	26.5	121.4
DK (1)	39.4	27.4	144.1
D	36.6	28.5	128.4
EL (1)	16.6	11.8	141.4
E	17.7	13.9	126.8
F	29.3	24.9	117.7
IRL	24.3	15.2	160.0
I (1)	29.6	19.2	154.1
L (2)	35.6	14.3	249.2
NL	:	:	:
A	30.6	25.8	118.7
P	9.0	7.2	124.0
FIN	28.2	22.8	123.4
S (1)	21.2	24.8	85.3
UK (2)	24.4	16.2	151.2

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

The EU exported 16.3 billion EUR of clothing to non-Community countries in 2000. This figure was well below the level of imports, which reached 50.1 billion EUR in the same year. China accounted for the largest share of total imports (16.8%), followed by Turkey (11.1%). More than three-quarters of all clothing imports originated from just 15 countries located in Asia, the Mediterranean Rim or central and Eastern Europe. OETH estimates that OPT imports of clothing accounted for a quarter of all clothing imports in 1999.

Table 4.8

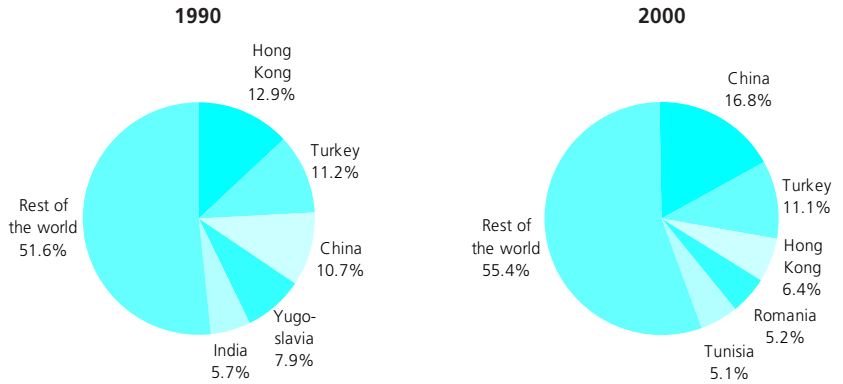
Wearing apparel; furs; knitted and crocheted articles (CPA Group 17.7 and Division 18)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	16,333	50,063	-33,730	32.6
B	4,106	4,805	-699	85.5
DK	1,865	2,358	-493	79.1
D	8,081	21,617	-13,535	37.4
EL	1,532	1,113	419	137.7
E	2,385	4,076	-1,691	58.5
F	5,715	11,885	-6,170	48.1
IRL	349	1,313	-964	26.6
I	14,226	6,538	7,688	217.6
L	132	332	-200	39.8
NL	3,456	6,316	-2,860	54.7
A	1,283	2,923	-1,640	43.9
P	3,065	1,040	2,025	294.8
FIN	264	904	-640	29.2
S	607	2,247	-1,640	27.0
UK	4,273	13,570	-9,297	31.5

Source: Eurostat, Comext

Figure 4.8

Wearing apparel; furs; knitted and crocheted articles (CPA Group 17.7 and Division 18)
Origin of extra-EU imports



Source: Eurostat, Comext

4.2: LEATHER AND FOOTWEAR

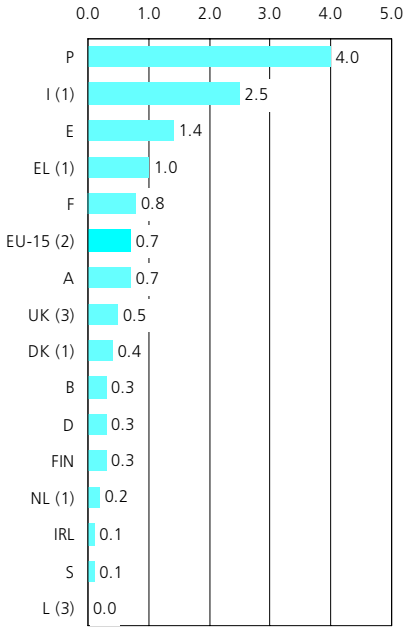
This sub-chapter contains information on the leather sector, covering the activities of tanning and dressing, as well as the manufacture of luggage, handbags and footwear - all of which are grouped together within NACE Division 19.

Leather tanneries in the EU are typically family-owned, small and medium sized enterprises. They display a high degree of regional concentration and play a key role in local economies, where industrial diversity is often lacking. Examples of regional concentrations include Marche, Tuscany and Veneto in Italy, Averio, Porto and Braga in Portugal and Valencia in Spain.

As well as being used to manufacture what are often considered quite luxurious, consumer goods, leather is also used as an intermediate product for downstream activities (for example, furniture). However, footwear is by far the most important end-use, accounting for about 50% of all goods made from leather, according to COTANCE. Otherwise, clothing and furniture[8] each account for around 20% of the goods that are made from leather, whilst other leather goods (for example, luggage, handbags and wallets) make-up the remaining 10%.

Figure 4.9

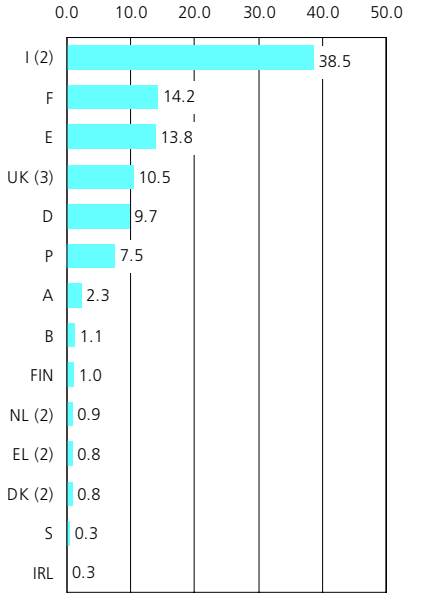
Tanning, dressing of leather; manufacture of luggage (NACE Division 19) Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 2000.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 4.10

Tanning, dressing of leather; manufacture of luggage (NACE Division 19) Share of value added in the EU, 1999 (%) (1)



(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

STRUCTURAL PROFILE

The leather sector generated 9.8 billion EUR of value added in 2000. Footwear was the largest activity, accounting for over two-thirds (68.0%) of the value added generated in 1999, whilst tanning and dressing of leather (15.5%) and the manufacture of luggage, handbags and the like (16.5%) accounted for similar shares of output. The output of the EU's leather sector (as measured by value added in 1995 constant prices) declined during the 1990s, falling from 11.1 billion EUR to 9.2 billion EUR between 1990 and 2000, equivalent to an average loss of 1.9% per annum.

(8) These are both downstream activities not covered within this sub-chapter.

Italy was by far the most important manufacturer of leather goods, with a 38.5% share of EU value added, whilst Portugal (517.1%), Italy (318.1%) and Spain (203.8%) were the three countries with the highest relative production specialisation ratios[9].

The Enterprise Directorate-General of the European Commission estimates that just under a billion pairs of shoes were made in the EU in 1999 (see table 4.9). These figures include shoes made of other materials (such as plastics). However, more detailed product statistics are available in the PRODCOM database, which provides information on the number of pairs of leather shoes made in the EU in 1998; some 205 million pairs of men's and 291 million pairs of women's town footwear.

(9) All data in this paragraph based on latest available information: B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; L and UK, 1997.

Table 4.9

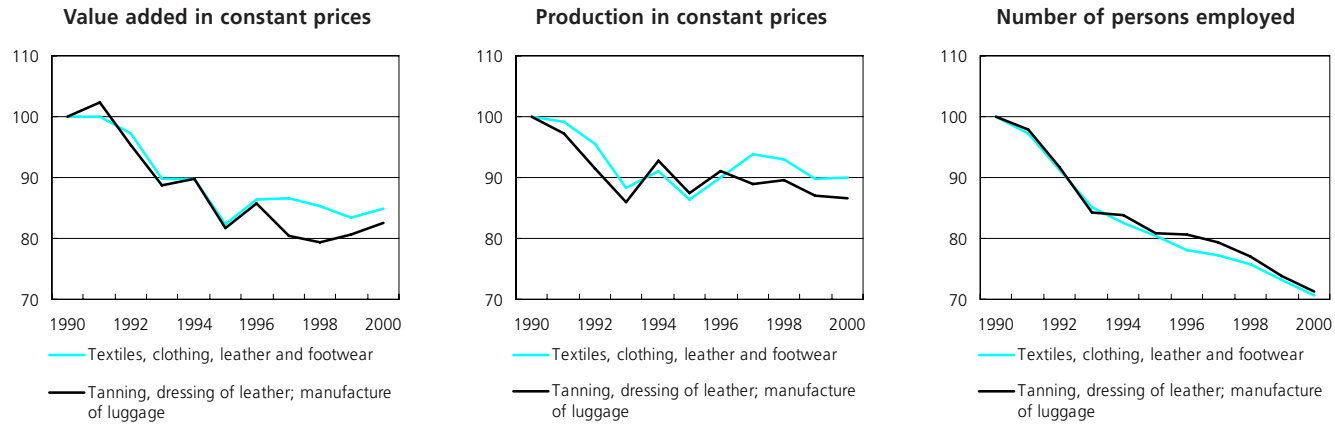
Production of footwear (thousands of pairs)

	1996	1999
EU-15	1,104,590	959,315
B/L	1,150	738
DK	8,483	10,153
D	44,175	39,840
EL	11,500	9,500
E	196,032	212,903
F	139,442	114,540
IRL	1,000	1,000
I	482,698	380,910
NL	5,040	3,800
A	11,532	10,747
P	106,388	107,600
FIN	4,500	3,734
S	950	950
UK	91,700	62,900

Source: Report on the promotion of competitiveness and employment in the European footwear industry; Enterprise Directorate-General of the European Commission

Figure 4.11

Tanning, dressing of leather; manufacture of luggage (NACE Division 19)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EMPLOYMENT

There were 350 thousand persons employed within the EU's leather goods sector in 2000. The decline in the number of persons employed in the EU's leather goods sector between 1990 and 2000 was equal to 140 thousand persons, an average reduction of 3.3% per annum (a faster pace than the decline in value added). Almost 70% of the workforce was located in just three countries: Italy, Portugal and Spain[10].

EXTERNAL TRADE

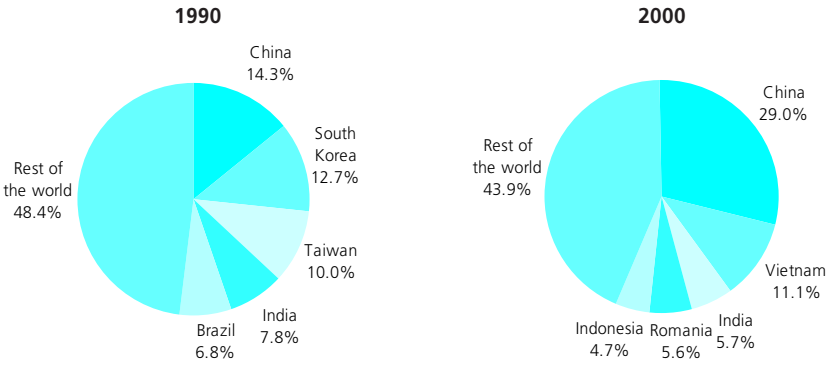
The EU recorded a 2.9 billion EUR trade deficit for leather goods in 2000. The EU's export market was valued at 13.4 billion EUR, its main trading partners all having high average income per inhabitant.

China (29.0%) accounted for the largest share of leather imports into the EU in 2000. Chinese imports were particularly concentrated in luggage, handbags and the like (CPA Group 19.2), accounting for almost two-thirds (65.3%) of total EU imports. Vietnam (11.1%) was the second most important origin of leather imports in 2000, with a particular specialisation in footwear (CPA Group 19.3). The EU's main trading partner for products resulting from the tanning and dressing of leather (CPA Group 19.1) was Brazil (18.5% of EU imports).

(10) Based on latest available information: B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL and I, 1998; L and UK, 1997; NL, not available.

Figure 4.12

Leather and leather products (CPA Division 19)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 4.10

Textile weaving (NACE Group 17.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	18,935	20,171	19,773	21,498	22,633	22,386	20,746	:
Purchases of goods and services (million EUR)	:	:	:	:	:	14,086	15,267	16,388	16,200	15,181	:
Value added (million EUR)	:	:	:	6,013	6,272	6,137	6,491	6,607	6,697	6,323	:
Personnel costs (million EUR)	:	:	:	4,464	4,299	4,142	4,470	4,466	4,520	4,422	:
Number of persons employed (thousands)	:	:	:	205	195	164	191	181	179	176	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	7.9	9.5	9.9	9.2	9.3	9.5	8.8	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	29.3	32.1	37.4	34.0	36.6	37.3	35.9	:
Simple wage adjusted labour productivity (%)	:	:	:	134.7	145.9	148.2	145.2	147.9	148.2	143.0	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.7	100.7	102.0	100.3	101.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.11

Textile fabrics (CPA Group 17.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	5,776	5,983	6,410	7,028	7,837	8,486	8,904	9,922	10,164	9,659	10,892
Extra-EU imports (million EUR)	4,124	3,995	3,762	3,731	4,238	4,324	4,354	4,994	5,116	4,741	5,328
Trade balance (million EUR)	1,652	1,988	2,648	3,298	3,599	4,162	4,550	4,928	5,048	4,919	5,564
Cover ratio (%)	140.1	149.8	170.4	188.4	184.9	196.2	204.5	198.7	198.7	203.8	204.4

Source: Eurostat, Comext

Table 4.12

Finishing of textiles (NACE Group 17.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	10,654	10,742	9,865	9,171	9,760	9,438	:	10,556	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	5,912	:	6,600	:	:	:
Value added (million EUR)	4,112	3,590	4,160	3,763	3,937	3,746	:	4,056	:	:	:
Personnel costs (million EUR)	3,050	3,232	3,146	2,873	2,960	2,826	:	2,997	:	:	:
Number of persons employed (thousands)	151	147	136	126	125	111	:	118	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.7	3.2	10.0	9.4	9.7	9.4	:	9.9	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	27.3	24.4	30.6	29.8	31.5	33.6	:	34.5	:	:	:
Simple wage adjusted labour productivity (%)	134.8	111.1	132.2	131.0	133.0	132.6	:	135.3	:	:	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.13

Manufacture of other textiles (NACE Group 17.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	16,104	16,699	16,919	16,385	17,371	19,561	:	21,962	23,034	21,752	:
Purchases of goods and services (million EUR)	:	:	:	:	:	13,839	:	15,713	16,758	15,735	:
Value added (million EUR)	5,642	5,842	5,831	5,701	5,842	6,220	:	7,250	7,443	7,312	:
Personnel costs (million EUR)	3,796	4,078	4,195	3,991	4,056	4,316	:	4,784	4,936	4,910	:
Number of persons employed (thousands)	197	197	187	176	172	191	:	191	189	186	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	11.0	10.2	9.3	10.0	9.9	9.3	:	10.7	10.4	10.4	:
App. labour productivity (thous. EUR/pers. emp.)	28.6	29.7	31.1	32.4	34.0	32.5	:	38.0	39.4	39.4	:
Simple wage adjusted labour productivity (%)	148.6	143.3	139.0	142.8	144.0	144.1	:	151.5	150.8	148.9	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.7	101.4	101.4	101.6	102.2

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.14

Other textiles (CPA Group 17.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,826	2,951	3,069	3,416	3,821	4,135	4,466	4,917	4,910	4,980	5,923
Extra-EU imports (million EUR)	2,330	2,584	2,585	2,721	2,875	2,779	2,831	3,139	3,206	3,274	3,735
Trade balance (million EUR)	496	367	484	696	947	1,355	1,635	1,778	1,704	1,706	2,188
Cover ratio (%)	121.3	114.2	118.7	125.6	132.9	148.8	157.7	156.7	153.2	152.1	158.6

Source: Eurostat, Comext

Table 4.15

Manufacture of knitted and crocheted fabrics (NACE Group 17.6)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	4,331	4,198	3,505	:	4,971	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	2,477	:	3,684	:	:	:
Value added (million EUR)	:	:	:	1,332	1,306	1,030	:	1,357	:	:	:
Personnel costs (million EUR)	:	:	:	884	845	655	:	836	:	:	:
Number of persons employed (thousands)	:	:	:	48	46	30	:	40	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	10.0	10.6	10.6	:	10.4	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	27.7	28.7	34.9	:	34.2	:	:	:
Simple wage adjusted labour productivity (%)	:	:	:	150.7	154.6	157.3	:	162.3	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.3	100.3	100.6	99.3	99.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.16

Knitted or crocheted fabrics (CPA Group 17.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	543	592	642	728	888	997	1,134	1,329	1,553	1,617	1,899
Extra-EU imports (million EUR)	255	342	331	365	471	434	457	702	814	774	883
Trade balance (million EUR)	288	251	311	363	417	563	677	627	740	844	1,016
Cover ratio (%)	212.6	173.4	194.0	199.5	188.5	229.5	248.2	189.4	190.9	209.0	215.0

Source: Eurostat, Comext

Table 4.17

Manufacture of knitted and crocheted articles (NACE Group 17.7)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	13,964	12,357	11,827	:	11,823	11,035	11,586	:
Purchases of goods and services (million EUR)	:	:	:	:	:	7,843	:	8,192	7,714	7,632	:
Value added (million EUR)	:	:	:	4,742	4,269	4,220	:	4,049	3,754	3,642	:
Personnel costs (million EUR)	:	:	:	3,348	3,149	3,108	:	2,940	2,748	2,736	:
Number of persons employed (thousands)	:	:	:	199	189	170	:	163	155	152	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	9.5	8.7	9.0	:	9.1	8.7	8.0	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	23.8	22.6	24.8	:	24.9	24.2	24.0	:
Simple wage adjusted labour productivity (%)	:	:	:	141.6	135.6	135.8	:	137.7	136.6	133.1	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.8	104.9	106.7	107.4	108.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.18

Knitted and crocheted articles (CPA Group 17.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,299	1,137	1,202	1,254	1,419	1,503	1,718	1,886	1,848	1,826	2,173
Extra-EU imports (million EUR)	2,274	3,114	3,626	3,873	3,905	3,656	4,193	5,285	5,429	6,366	7,310
Trade balance (million EUR)	-975	-1,977	-2,424	-2,620	-2,486	-2,153	-2,475	-3,399	-3,581	-4,540	-5,137
Cover ratio (%)	57.1	36.5	33.2	32.4	36.3	41.1	41.0	35.7	34.0	28.7	29.7

Source: Eurostat, Comext

Table 4.19

Manufacture of other wearing apparel and accessories (NACE Group 18.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	50,677	52,822	52,175	55,002	58,070	59,610	57,931	:
Purchases of goods and services (million EUR)	:	:	:	:	:	37,345	40,082	42,609	44,754	44,673	:
Value added (million EUR)	:	:	:	17,600	17,694	16,594	17,941	17,862	18,062	17,485	:
Personnel costs (million EUR)	:	:	:	13,468	13,278	12,210	13,713	13,272	12,761	12,793	:
Number of persons employed (thousands)	:	:	:	910	866	707	:	824	806	774	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	7.7	7.9	8.0	7.3	7.6	8.5	7.6	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	19.3	20.4	23.5	:	21.7	22.4	22.6	:
Simple wage adjusted labour productivity (%)	:	:	:	130.7	133.3	135.9	130.8	134.6	141.5	136.7	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.1	103.2	104.6	105.7	106.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.20

Other wearing apparel and accessories (CPA Group 18.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	6,851	6,882	7,249	7,747	9,027	9,732	10,945	11,688	12,096	11,676	13,319
Extra-EU imports (million EUR)	17,316	21,501	22,162	24,137	25,406	25,569	27,352	31,207	33,386	35,193	40,967
Trade balance (million EUR)	-10,465	-14,619	-14,913	-16,390	-16,379	-15,836	-16,407	-19,519	-21,291	-23,517	-27,648
Cover ratio (%)	39.6	32.0	32.7	32.1	35.5	38.1	40.0	37.5	36.2	33.2	32.5

Source: Eurostat, Comext

Table 4.21

Dressing and dyeing of fur; manufacture of articles of fur (NACE Group 18.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	802	848	707	585	609	698	709	779	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	561	561	639	:	:	:
Value added (million EUR)	271	273	240	201	197	166	173	171	:	:	:
Personnel costs (million EUR)	182	176	158	148	147	131	134	136	:	:	:
Number of persons employed (thousands)	12	11	10	9	9	8	:	8	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.5	10.9	11.1	8.7	7.9	4.7	5.2	4.4	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	23.2	25.9	25.1	22.4	22.9	22.2	:	22.3	:	:	:
Simple wage adjusted labour productivity (%)	148.9	155.1	151.9	135.8	134.0	126.7	129.1	125.7	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.8	104.6	103.8	102.1	102.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.22

Furs; articles of fur (CPA Group 18.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	373	344	328	389	418	472	683	787	525	420	543
Extra-EU imports (million EUR)	199	241	266	251	257	247	322	358	347	281	370
Trade balance (million EUR)	174	104	61	138	160	225	361	429	178	140	174
Cover ratio (%)	187.2	143.0	122.9	155.2	162.3	190.9	212.1	220.1	151.2	149.8	146.9

Source: Eurostat, Comext

Table 4.23

Tanning and dressing of leather (NACE Group 19.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	7,349	6,642	6,341	6,042	7,002	6,628	6,994	7,568	7,292	6,818	:
Purchases of goods and services (million EUR)	:	:	:	:	:	5,468	5,610	6,228	6,053	5,944	:
Value added (million EUR)	1,550	1,655	1,527	1,444	1,419	1,331	1,443	1,357	1,349	1,462	:
Personnel costs (million EUR)	1,033	1,050	1,042	916	929	875	936	952	935	910	:
Number of persons employed (thousands)	53	50	47	43	42	41	40	41	41	39	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	6.9	8.8	7.5	8.4	6.8	6.7	7.2	5.4	5.6	7.5	:
App. labour productivity (thous. EUR/pers. emp.)	29.3	33.1	32.3	33.5	33.6	32.5	35.8	33.2	33.3	37.8	:
Simple wage adjusted labour productivity (%)	150.0	157.6	146.5	157.6	152.7	152.1	154.2	142.5	144.3	160.7	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.0	102.1	102.0	101.0	104.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.24

Leather (CPA Group 19.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,553	1,471	1,473	1,816	2,229	2,388	2,785	2,935	2,771	2,888	3,921
Extra-EU imports (million EUR)	1,788	1,415	1,307	1,334	2,046	2,018	2,027	2,278	2,105	1,728	2,596
Trade balance (million EUR)	-235	56	166	483	183	370	758	657	666	1,161	1,325
Cover ratio (%)	86.9	104.0	112.7	136.2	108.9	118.3	137.4	128.8	131.6	167.2	151.1

Source: Eurostat, Comext

Table 4.25

Manufacture of luggage, handbags and the like, saddler (NACE Group 19.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	5,256	5,559	5,550	5,015	5,454	:	5,036	:	5,002	5,050	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	3,768	:	3,958	4,046	:
Value added (million EUR)	1,986	2,059	1,996	1,770	1,907	:	1,742	:	1,559	1,559	:
Personnel costs (million EUR)	1,363	1,463	1,406	1,234	1,218	:	1,189	:	1,084	1,009	:
Number of persons employed (thousands)	83	82	75	66	66	:	59	:	52	50	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.9	9.9	9.7	9.8	11.8	:	9.9	:	8.5	9.9	:
App. labour productivity (thous. EUR/pers. emp.)	23.9	25.1	26.6	26.7	29.0	:	29.8	:	30.3	31.5	:
Simple wage adjusted labour productivity (%)	145.7	140.7	142.0	143.4	156.6	:	146.5	:	143.8	154.5	:
Output price index (1995=100)	:	:	:	:	:	100.0	104.2	106.8	109.2	110.5	111.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.26

Luggage, handbags and the like; saddlery and harness (CPA Group 19.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,372	1,280	1,334	1,452	1,857	2,092	2,316	2,270	2,039	2,263	3,014
Extra-EU imports (million EUR)	1,716	2,085	2,100	2,214	2,313	2,461	2,704	3,071	3,280	3,607	4,342
Trade balance (million EUR)	-344	-806	-766	-762	-456	-369	-388	-801	-1,240	-1,344	-1,328
Cover ratio (%)	79.9	61.4	63.5	65.6	80.3	85.0	85.7	73.9	62.2	62.7	69.4

Source: Eurostat, Comext

Table 4.27

Manufacture of footwear (NACE Group 19.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	20,570	21,152	20,166	19,688	21,278	21,233	22,914	:	23,078	22,590	:
Purchases of goods and services (million EUR)	:	:	:	:	:	16,109	18,047	:	18,144	17,843	:
Value added (million EUR)	6,248	6,631	6,334	6,143	6,305	6,030	6,528	:	6,368	6,425	:
Personnel costs (million EUR)	4,805	5,002	4,848	4,505	4,493	4,400	4,675	:	4,455	4,346	:
Number of persons employed (thousands)	354	347	327	303	303	293	297	:	286	273	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	6.7	7.2	6.8	7.8	7.9	7.3	7.5	:	7.8	8.6	:
App. labour productivity (thous. EUR/pers. emp.)	17.6	19.1	19.4	20.2	20.8	20.6	22.0	:	22.3	23.5	:
Simple wage adjusted labour productivity (%)	130.0	132.6	130.7	136.4	140.3	137.0	139.6	:	142.9	147.8	:
Output price index (1995=100)	86.9	90.0	92.7	95.0	96.9	100.0	102.1	103.7	105.1	105.6	107.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 4.28

Footwear (CPA Group 19.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,652	3,503	3,769	3,992	4,797	5,027	5,636	6,033	5,821	5,459	6,485
Extra-EU imports (million EUR)	3,453	4,582	4,647	5,030	5,454	5,250	5,910	7,035	6,989	7,836	9,335
Trade balance (million EUR)	199	-1,078	-878	-1,038	-657	-222	-275	-1,002	-1,168	-2,377	-2,850
Cover ratio (%)	105.8	76.5	81.1	79.4	87.9	95.8	95.3	85.8	83.3	69.7	69.5

Source: Eurostat, Comext

Wood, paper, publishing and printing

The activities covered by this chapter follow on from forestry, logging and related service activities that are classified within NACE Division 02 (not covered by this publication). They are mainly, although not exclusively (for example, the reproduction of recorded media), traditional manufacturing sectors.

Two important changes have had an impact on the structure of this sector in recent years: high levels of capital investment have created scale economies in upstream sectors such as pulp and paper; whilst the introduction of IT has changed production techniques and skills requirements in downstream sectors such as publishing and printing.

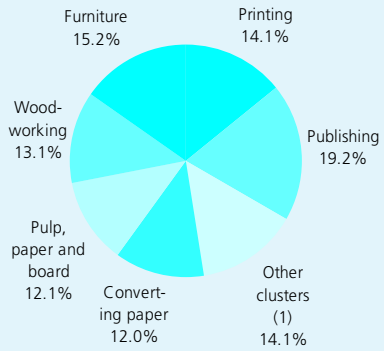
The links between wood, pulp and paper producers are often strong and it is common for enterprises to be located near to their suppliers of raw materials. Although concentration levels have increased in the EU, the majority of producers are still relatively small by world standards, especially when compared to Canadian and US competitors.

According to CEPI, packaging accounts for more than 60% of the total demand for paper. The manufacture of many industrial goods stimulates the demand for packaging materials, not only those made of paper (protective cardboard, moulded cartons and printed wrapping papers), but also wooden pallets and boxes.

Box 5.1: the forest-based industry cluster

Figure 5.1

Shares of different sectors in the production value of the EU's forest-based industry cluster, 1999 (1)



(1) Machinery, equipment and chemicals.
Source: CEI-Bois

The introduction of digital technologies, coupled with increased leisure time and higher advertising revenues has led to a rapid expansion in the number of newspaper and magazine titles in the EU. Lower production costs have resulted in an explosion of specialist magazine titles, travel and trade catalogues. Furthermore, the electronic age has brought with it the need for more, not less paper, as office photocopiers and computer printers have become commonplace.

These integrated sectors are covered by three separate NACE Divisions: namely, the manufacture of wood and wood products (NACE Division 20); the manufacture of pulp, paper and paper products (NACE Division 21); and publishing, printing and the reproduction of recorded media (NACE Division 22). The wood (sub-chapter 5.1) and publishing and printing (sub-chapter 5.2) sectors are treated specifically within their own sub-chapters, whilst information on the pulp and paper sector is only included in this overview.

NACE

20: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials;
20.1: sawmilling and planing of wood; impregnation of wood;
20.2: manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards;
20.3: manufacture of builders' carpentry and joinery;
20.4: manufacture of wooden containers;
20.5: manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials;
21: manufacture of pulp, paper and paper products;
21.1: manufacture of pulp, paper and paperboard;
21.2: manufacture of articles of paper and paperboard;
22: publishing, printing and reproduction of recorded media;
22.1: publishing;
22.2: printing and service activities related to printing;
22.3: reproduction of recorded media.

Box 5.2: recovered paper rates

Almost any paper can be recycled, including used newspapers, cardboard, packaging, stationery, magazines, catalogues, greeting cards and wrapping paper. Recycled fibres are an essential raw material for the paper sector and wood fibres can be recycled between four and six times before their fibre content becomes too low for recovery. It is nevertheless important to note that the use of recovered paper is only possible if virgin fibres are introduced into the production process as well.

CEPI estimates that the utilisation of recovered paper in the EU was up by 6% in 2000 compared to 1999, to reach 38.7 million tonnes. Utilisation rates vary as a function of the final paper products being produced, with recovered paper accounting for approximately 90% of fibres used in the manufacture of corrugated packaging, around 65% for newsprint but less than 10% for high quality graphic papers.

Table 5.1

Paper recycling, 2000

	Recovered paper utilisation (thousand tonnes)	Collection rate (%)	Utilisation rate (%)
EU-15 (1)	38,730	52.0	45.8
B	606	51.6	35.1
DK	416	48.0	104.0
D	10,921	69.8	60.1
EL	380	34.9	76.6
E	3,829	48.0	80.4
F	5,778	46.1	57.8
IRL	47	18.6	109.3
I	4,620	37.4	51.3
L	:	:	:
NL	2,414	59.5	71.8
A	1,943	65.8	44.3
P	393	50.5	30.5
FIN	685	67.3	5.1
S	1,816	63.3	16.8
UK	4,882	41.1	73.9

(1) Excluding L.
Source: CEPI

STRUCTURAL PROFILE

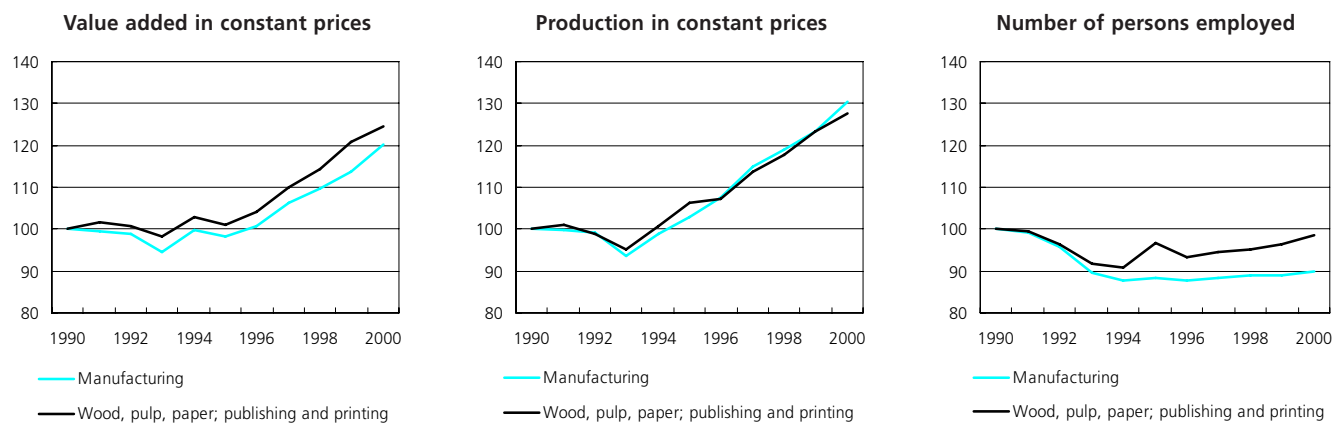
The value added generated by the EU's wood, pulp, paper, publishing and printing sector (NACE Subsections DD and DE) was equal to 137.7 billion EUR in 2000. This amounted to 10.4% of the manufacturing total almost identical to this sector's share of manufacturing employment, which was 10.3%.

With the entry of Austria, Finland and Sweden into the EU in 1995, there was a considerable change in the structure of these activities. Wood, pulp, paper, publishing and printing accounted for between 8% and 14% of manufacturing value added in the majority of Member States in 1999[1], however these activities were considerably more important in Sweden (17.0%) and Finland (27.1%). Indeed, more than one-tenth of the EU's value added in the sector was generated in Sweden and Finland. This sector accounted for a relatively low share of manufacturing value added in Italy (7.5%, 1998) and Luxembourg (6.7%, 1997). In absolute terms, Germany had the largest wood, pulp, paper, publishing and printing sector, accounting for almost one-quarter (24.4%) of the EU's value added in 1999.

(1) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; L and UK, 1997.

Figure 5.2

Wood, pulp, paper; publishing and printing (NACE Subsections DD and DE)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

In 1999 the share of small and medium-sized wood, pulp, paper, publishing and printing enterprises (with 249 or less persons employed) in total value added was above 50% in the majority of countries for which data are available[2]. The only exceptions were Finland and Sweden, where large, integrated pulp and paper enterprises played an important role and large enterprises accounted for 73.9% and 54.4% respectively of the value added generated in this sector in 1999.

Output of the EU's wood, pulp, paper, publishing and printing sector rose at a slightly faster pace than the manufacturing average during the 1990s. Value added at constant prices gained on average 2.2% per annum between 1990 and 2000 (compared to 1.9% for manufacturing as a whole). However between 1999 and 2000 constant price growth of value added for the wood, pulp, paper, publishing and printing sector was, at 3.0%, well below the manufacturing average of 6.0%.

EU output prices of wood and wood products (0.9%) and publishing, printing and recorded media (1.7%) rose at a relatively slow pace between 1999 and 2000, continuing their pattern of slow price growth that was apparent during the second half of the 1990s.

The price of pulp, paper and paper products had fallen by almost 10% in total between 1995 and 1999, however a 10.2% price increase between 1999 and 2000 meant that prices in this sector returned close to their 1995 level.

(2) F, A, P, FIN and S, 1999; B, DK and I, 1998; E, NL and UK, 1997; D, EL, IRL and L, not available.

Box 5.3: largest companies in the forest and paper sector

According to the Fortune 500, the EU's largest forest and paper products company, Stora Enso (FIN) was the fifth largest global enterprise in this sector in 2000.

Table 5.2

Top ten EU companies in the forest and paper sector, 2000 (million EUR)

		Sales		Net income		Return on capital employed (%)	
		1999	2000	1999	2000	1999	2000
Stora Enso	FIN	11,284	12,922	791	1,424	6.7	7.8
UPM-Kymmene	FIN	8,765	9,513	1,054	1,356	10.7	11.9
Svenska Cellulosa	S	7,816	7,896	433	841	6.4	10.5
Metsäliitto (1)	FIN	6,051	7,458	146	256	5.9	7.5
Worms	F	6,428	5,600	271	95	9.3	5.6
Jefferson Smurfit	IRL	3,914	4,532	129	241	1.5	7.4
Anglo American (Mondi) (1) (2)	UK	2,453	3,641	198	331	17.6	16.9
AssiDoman	S	2,950	2,897	-104	292	-1.8	9.2
Ahlstrom	FIN	2,295	2,098	415	63	7.1	3.7
David S. Smith	UK	1,838	1,979	55	13	7.0	4.3

(1) No market capitalisation, as shares are not publicly traded.
(2) Information reported is for the forest and paper related sector only.
Source: Global Forest & Paper Industry Survey, PricewaterhouseCoopers, 2001

Box 5.4: pulp and paper production

CEPI estimate that paper and board production in Europe rose by 5.6% in 2000, with output in excess of 90 million tonnes, an all-time record level. Output of pulp also increased, with production rising by 5.5% to reach 40.7 million tonnes.

According to FEFCO, there were over 35 billion m² of corrugated paper packaging produced in Europe in 1999, equivalent to 19.4 million tonnes. Corrugated packaging is the main transport packaging material in the world and its main market is for packaging food products (40% of total demand).

Table 5.3

Production of corrugated paper in Europe (1)

	(million m²)	(thousand tonnes)
1992	25,495	14,441
1993	25,751	14,663
1994	28,084	15,951
1995	29,074	16,287
1996	29,545	16,569
1997	32,543	18,160
1998	33,561	18,634
1999	35,096	19,352

(1) EU-15, CZ, HU, NO, PL, RO, SK, CH and TR.
Source: FEFCO

Table 5.4

Production of selected paper and paper board products in the EU, 1998 (thousand tonnes) (1)

	Sold production or production for sale	Total exports	Total imports	Apparent consumption
Newsprint in rolls or sheets	8,073	994	1,683	8,761
Uncoated paper and paperboard in rolls or sheets for corrugated paper and paperboard; weighing <= 150 g/m² (incl. Wellenstoff, Testliner)	5,544	260	136	5,420
Paper, for writing, printing, graphic purposes, weight <= 150 g/m², m.f. <= 10%	5,130	1,308	240	4,063
Semi-bleached or bleached non-coniferous chemical wood pulp; soda or sulphate (excl. dissolving grades) (2)	4,932	243	2,217	6,907
Light-weight coated paper for writing, printing, graphic purposes, m.f. > 10%	3,717	1,259	48	2,506
Graphic paper, paperboard: mechanical fibres <= 10%, 40 g/m² <= weight <= 150 g/m², sheets	3,187	269	201	3,119
Coated paper, for writing, printing, graphic purposes, weight > 150 g/m², m.f. <= 10%	2,990	713	57	2,334
Graphic paper, paperboard: mechanical fibres > 50%, weight < 72 g/m² (2)	2,924	1,074	312	2,161
Graphic paper, paperboard: mechanical fibres <= 10%, 40 g/m² <= weight <= 150 g/m², rolls	2,864	358	351	2,856
Uncoated semi-chemical fluting paper (corrugated medium); in rolls or sheets	1,947	213	196	1,930

(1) This table shows the top 10 headings where an EU total is available within CPA Group 21.1; please note there are 123 additional headings for which no EU total is available.
(2) 1997.
Source: Eurostat, European production and market statistics (theme4/europrom)

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

Intramural R&D expenditure was relatively low for all of the activities covered by this chapter. Of the three NACE Divisions for which data are available, the highest shares in business enterprise R&D expenditure were recorded in Finland (3.7%, 1998) and Sweden (3.4%, 1997) for the pulp, paper and paper products sector (NACE Division 21)[3].

Finland also had the largest stock of direct investment abroad in other Member States in 1999 (6.5 billion EUR)[4] within the wood, pulp, paper, publishing and printing sector, whilst the United Kingdom had the highest stock of FDI in non-Community countries (5.8 billion EUR).

(3) I, 1999; B, E, F, NL and FIN, 1998; D, EL, IRL, P and S, 1997; DK, L, A and UK, not available.
(4) For the whole of this section on FDI: B, EL, E, IRL, I, L and S, not available.

EMPLOYMENT

There were 2.5 million persons employed in the EU's wood, pulp, paper, publishing and printing sector in 2000, an almost identical figure to ten years earlier, when 38.4 thousand more persons were employed. The share of this sector in total manufacturing employment rose from 9.4% in 1990 to 10.3% by 2000, as a result of the general decline in the number of persons employed in the EU's manufacturing sector. Since a low of 2.3 million persons in 1996, there were four successive annual increases in employment in the wood, pulp, paper, publishing and printing sector, the largest of which was between 1999 and 2000 when there was a net increase of 2.0%.

The characteristics of the wood, pulp, paper, publishing and printing workforce are in many ways similar to those generally displayed for the whole of manufacturing. There was however a higher propensity to employ women (37.9% compared to 28.4% for total manufacturing) and persons working part-time (16.5% compared to 7.6%) in the EU's publishing and printing sector (Division 22) in 2000. This may in part be attributed to the fact that a larger than average share of this sector is accounted for by northern Member States, where there is a higher propensity to employ part-time or female staff. In addition, there were relatively more self-employed persons (16.9% compared to 7.3%) working in the wood sector (Division 20), whilst the number of employees (97.2% compared to 91.8%) was significantly higher in the pulp and paper sector (Division 21).

Table 5.5

Wood, pulp, paper; publishing and printing (NACE Subsections DD and DE)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000 (1)	1995	2000 (2)	1995	2000	1995	2000 (3)
EU-15	29.5	30.1	11.8	11.6	10.8	10.9	15.8	16.4
B	26.8	26.7	3.6	6.3	11.6	9.5	22.5	23.8
DK	34.0	29.5	18.8	19.5	6.0	3.8	23.6	14.9
D	32.6	35.2	14.1	17.8	8.5	7.5	19.4	20.3
EL	22.5	25.0	:	3.8	30.9	29.0	11.4	14.7
E	19.0	23.7	4.0	4.0	17.8	15.1	18.8	23.3
F	31.8	29.7	8.9	8.4	9.3	7.3	17.6	19.5
IRL	26.7	26.7	:	:	11.3	11.3	19.7	22.6
I	24.8	24.8	5.1	4.4	17.6	22.4	4.2	5.4
L	27.2	22.6	:	:	:	:	:	:
NL	26.4	29.2	39.8	32.5	9.6	7.0	:	19.8
A	27.0	26.7	10.0	12.1	7.6	6.8	4.4	9.5
P	22.1	27.0	:	:	18.0	16.8	:	8.1
FIN	32.2	30.8	4.1	6.6	3.7	6.1	13.0	28.1
S	30.3	27.4	14.5	10.1	7.4	8.5	17.9	15.1
UK	32.7	32.9	13.3	11.8	8.4	8.5	16.9	24.6

(1) L, 1999.
(2) EL, 1998.
(3) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

Table 5.6

Wood, pulp, paper; recorded media; printing services (CPA Subsections DD and DE)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	31,756	29,867	1,889	106.3
B	7,467	7,538	-71	99.1
DK	1,962	3,070	-1,108	63.9
D	22,343	20,800	1,543	107.4
EL	207	1,354	-1,147	15.3
E	4,778	6,270	-1,492	76.2
F	10,480	13,998	-3,518	74.9
IRL	1,345	1,752	-407	76.8
I	7,304	10,556	-3,252	69.2
L	371	404	-34	91.7
NL	6,458	7,918	-1,460	81.6
A	6,823	4,319	2,503	158.0
P	2,666	1,658	1,008	160.8
FIN	13,405	1,086	12,319	1,234.3
S	13,044	2,484	10,560	525.1
UK	7,835	15,564	-7,729	50.3

Source: Eurostat, Comext

EXTERNAL TRADE

The EU ran a 1.9 billion EUR trade surplus for wood, pulp, paper, publishing and printing products (CPA Subsections DD and DE) in 2000. This figure was somewhat lower than the surpluses recorded during the second half of the 1990s that peaked in 1997 at 3.4 billion EUR. Nevertheless, during the first half of the 1990s the EU had recorded a trade deficit for these products that rose as high as 2.4 billion EUR in 1991.

These aggregate figures hide the fact that the EU runs a substantial deficit for wood products, particularly for the first processing of wood, a deficit that remained fairly constant during the whole of the 1990s. On the other hand, the external trade situation for pulp, paper and publishing improved considerably during the same period.

At the level of individual Member States (intra-EU and extra-EU trade), the three largest trade surpluses were registered by the three newest members of the EU (Finland, Sweden and Austria), with surpluses in excess of 10 billion EUR in both Finland and Sweden. The only other Member States to record a trade surplus for wood, pulp, paper, publishing and printing products were Germany and Portugal.

The highest share of EU imports of wood products (CPA Division 20) from non-Community countries in 2000 came from the US (11.4%). The US was also the most important origin for articles made from paper or paperboard (CPA Group 21.2), accounting for 26.8% of total imports, whilst Canada (27.8%) was the most important origin for pulp, paper and paperboard (CPA Group 21.1).

The majority of the EU's wood, pulp, paper, publishing and printing exports are destined for the US or Switzerland. These two countries were the EU's most important export markets in 2000 for 8 out of the 10 CPA Groups that constitute CPA Subsections DD and DE. Japan and Norway were the EU's main markets for sawmilling and planing of wood (CPA Group 20.1) and builders' carpentry and joinery (CPA Group 20.3).

Table 5.7

Wood, pulp, paper; recorded media; printing services (CPA Subsections DD and DE)
Extra-EU exports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Wood, pulp, paper; recorded media; printing services	13,736.2	100.0	31,756.2	100.0	131.2	-
Wood, sawn, planed or impregnated	932.7	6.8	2,398.1	7.6	157.1	0.8
Veneer sheets; panels and boards	483.6	3.5	1,841.6	5.8	280.8	2.3
Builders' joinery and carpentry, of wood	441.7	3.2	1,179.5	3.7	167.0	0.5
Wooden containers	82.3	0.6	331.9	1.0	303.0	0.4
Other wood products; cork, straw and plaiting materials	431.0	3.1	934.1	2.9	116.7	-0.2
Pulp, paper and paperboard	5,918.5	43.1	13,705.1	43.2	131.6	0.1
Articles of paper and paperboard	1,909.0	13.9	4,542.2	14.3	137.9	0.4
Books, newspapers, printed matter & recorded media	2,713.0	19.8	5,089.8	16.0	87.6	-3.7
Printing services and services related to printing	822.5	6.0	1,650.8	5.2	100.7	-0.8

Source: Eurostat, Comext

Table 5.8

Wood, pulp, paper; recorded media; printing services (CPA Subsections DD and DE)
Extra-EU imports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Wood, pulp, paper; recorded media; printing services	16,087.1	100.0	29,866.8	100.0	85.7	-
Wood, sawn, planed or impregnated	4,219.4	26.2	5,815.9	19.5	37.8	-6.8
Veneer sheets; panels and boards	1,611.4	10.0	2,484.7	8.3	54.2	-1.7
Builders' joinery and carpentry, of wood	373.4	2.3	1,579.6	5.3	323.1	3.0
Wooden containers	133.8	0.8	416.8	1.4	211.5	0.6
Other wood products; cork, straw and plaiting materials	662.3	4.1	2,018.9	6.8	204.8	2.6
Pulp, paper and paperboard	6,549.0	40.7	11,407.8	38.2	74.2	-2.5
Articles of paper and paperboard	735.6	4.6	2,176.6	7.3	195.9	2.7
Books, newspapers, printed matter & recorded media	1,335.9	8.3	2,837.1	9.5	112.4	1.2
Printing services and services related to printing	465.7	2.9	1,129.5	3.8	142.5	0.9

Source: Eurostat, Comext

5.1: WOOD AND WOOD PRODUCTS

The manufacture of wood and wood products may be broken down into five NACE Groups that cover a number of integrated activities. These start with the first processing of wood (sawmilling and planing, veneer sheets, panels and boards), move through intermediate production stages (builders' carpentry and joinery, packing cases, pallets, barrels) and finish with the manufacture of consumer durables (for example, household utensils and ornaments). The main use of wood is in the furniture and construction sectors (note that the manufacture of furniture is found in sub-chapter 13.1).

The cost of the raw materials is one of the most important factors in determining the EU's competitiveness in this sector. Forest resources in the EU are steadily increasing and CEI-Bois estimates that raw material supply could increase by as much as 25% between 1990 and 2010. Nevertheless, considerable differences exist in the cost structures faced by wood producers worldwide. Forest ownership in the EU is largely fragmented and privately owned, which leads to relatively high stumpage costs, whilst in Russia and Canada forests are generally publicly owned and in Brazil and Chile they are industry owned.

Wood costs are particularly important for sawnwood and plywood manufacturers, accounting for between 35% and 40% of production value, according to CEI-Bois. EU manufacturers in these activities face stiff competition, together with those operating in downstream processing activities where a low degree of product innovation is required, for example the manufacture of pallets, containers and other wood products. For more technical products, such as medium-density fibreboard (MDF) and oriented strandboard (OSB), wood costs as a percentage of final production value are reduced, and it is usually in these high added value activities that EU manufacturers thrive.

An often cited environmental concern is the protection of tropical rain forests: according to CEI-Bois hardwood imports from these forests represent less than 5% of the EU's wood consumption.

STRUCTURAL PROFILE

The EU's wood and wood products sector generated 1.6% of total manufacturing value added in 2000, some 20.8 billion EUR. This sector reported constant price growth of value added in every year between 1994 and 2000, with output rising by 4.0% in both 1999 and 2000.

Finland and Sweden were particularly specialised in the sawing and planing of wood (NACE Group 20.1) with relative production specialisation ratios in excess of 700% in 1999[5].

Denmark and Austria were the most specialised countries for the manufacture of builders' carpentry and joinery (NACE Group 20.3), although Germany was the leading producer (accounting for 30.0% of the EU's value added in 1999)[6].

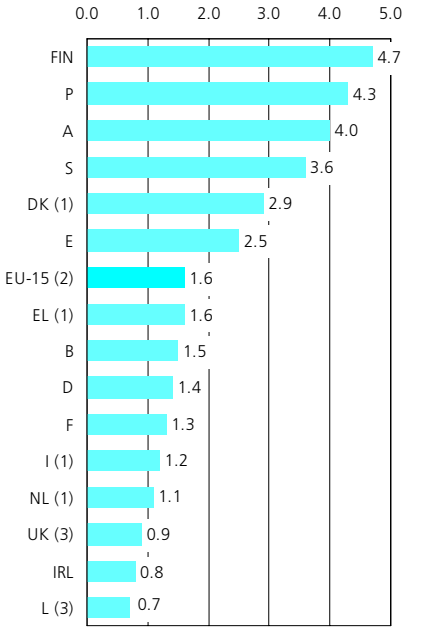
Portugal was the most specialised producer of other wood products (NACE Group 20.5), in particular of cork products; it accounted for 14.3% of the EU's value added of other wood products in 1999, with a production specialisation ratio of 1,648%[7].

There were large differences in the output prices of the different wood processing sectors between 1995 and 2000. The price of wooden sheets and boards (NACE Group 20.2) fell by 8% in the EU, due mainly to large price reductions in the United Kingdom (-21.4%), Germany (-11.6%) and Italy (-11.2%). The price of sawn and planed wood also fell over the same period by 1.4%, with particularly large reductions in Sweden (-12.9%). There was virtually no change in the price of wooden containers (NACE Group 20.4) in the EU between 1995 and 2000, whilst the price of builders' carpentry and joinery rose at an almost identical pace to the manufacturing average (up 6.4%). The highest price increases were recorded for other wood products, where prices rose by 14.3% between 1995 and 2000. Portuguese output prices in this sector rose by 52.4% in total between 1995 and 2000 and by 16.7% between 1999 and 2000.

(5) DK, EL, I and NL, 1998; L and UK, 1996.
(6) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; L and UK, 1997.
(7) DK, EL, I and NL, 1998; UK, 1997; L, not available.

Figure 5.3

Wood and wood products (NACE Division 20)
Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 2000.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 5.9

Wood and wood products (NACE Division 20)
Production specialisation ratio relative to total manufacturing (%)

	1990	1995	1999 (1)
EU-15	100.0	100.0	100.0
B	:	87.0	97.6
DK	132.0	161.7	161.7
D	82.5	94.7	87.0
EL	98.9	88.5	88.7
E	147.1	136.8	147.0
F	75.1	73.0	69.3
IRL	77.8	61.4	58.7
I	63.2	69.1	64.9
L	25.8	22.7	88.1
NL	50.6	56.6	57.5
A	211.2	252.9	278.2
P	319.3	299.1	332.6
FIN	381.4	309.6	368.2
S	350.5	268.8	282.8
UK	67.6	54.4	50.5

(1) EU-15, 2000; DK, EL, I and NL, 1998; L and UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 5.10

Breakdown of wood output in the EU, 1999 (% share of production value)

Sawmilling and planing	26.0
Panels and boards (1)	21.4
Builders' carpentry and joinery	35.5
Wooden containers (1)	6.9
Other wood products	10.3

(1) Estimates based on available country information.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

LABOUR AND PRODUCTIVITY

There were 576 thousand persons employed in the EU's wood and wood products sector in 2000, a net increase of 10.9 thousand on 1990. This sector is relatively labour intensive, accounting for 2.4% of the EU's manufacturing workforce in 2000 (some 0.8 percentage points more than its share of value added). Its apparent labour productivity was 36.1 thousand EUR per person employed in 2000, below the manufacturing average of 55.9 thousand EUR.

The EU's wood and wood products sector has a particularly high share of self-employed workers, some 16.9% of the workforce in 2000 according to LFS data. This trend was particularly pronounced in the southern Member States of Greece, Italy, Portugal and Spain, where many small, craft-based enterprises still exist. The proportion of self-employed persons was also relatively high in Belgium and the United Kingdom, where the self-employed in the wood sector accounted for at least 10 percentage points more of the workforce than their respective manufacturing averages.

EXTERNAL TRADE

The EU ran a 5.6 billion EUR trade deficit for wood and wood products in 2000, which was one billion euro more than in 1990. All five CPA Groups recorded a trade deficit in 2000, the largest being for sawn and planed wood (CPA Group 20.1, -3.4 billion EUR) and other wood products (CPA Group 20.5, -1.1 billion EUR).

The majority of the EU's imports of wooden products are from neighbouring countries, although the US had the highest individual share (11.4%) in 2000. The US was the main supplier of sawn and planed wood into the EU and also a leading supplier of sheets and boards (CPA Group 20.2), together with Indonesia and Brazil. Indonesia and Poland each provided more than 10% of the EU's imports of builders' carpentry and joinery (CPA Group 20.3), whilst Poland and the Czech Republic together provided almost half of the EU's imports of wooden containers (CPA Group 20.4). China accounted for almost a third of the EU's imports of other wood products in 2000.

5.2: PUBLISHING AND PRINTING

Publishing can be defined as the act of producing and issuing informative material. Printing involves placing the published material on paper (or other materials). These activities are covered by NACE Division 22 which is split into three Groups defined as publishing (Group 22.1), printing (Group 22.2) and the reproduction of recorded media (Group 22.3). For the purpose of this publication, the latter is treated together with the publishing of sound recordings (Class 22.14) in chapter 20. The statistics presented in this sub-chapter are based on an aggregate of NACE Groups 22.1 and 22.2 and hence include the publishing of sound recordings

Germany and the United Kingdom are the most important publishers of daily newspaper titles (in terms of daily circulation), whilst Spain and the United Kingdom publish the most non-dailies and Germany alone accounts for half of the free-sheets published in the EU[8]. As regards books, the United Kingdom, Germany and Spain together account for about 60% of the titles published in the EU.

Newspapers and magazines usually rely on advertising revenues to cover some or all of their costs. Publishing accounts for approximately 60% of total advertising revenues in the EU (including TV, cinema, radio and outdoors sites).

Barriers to entry are particularly high for daily newspapers, where it is very rare to see new titles launched at a national level. According to a study by the Enterprise Directorate-General of the European Commission, only 1% of newspaper circulation in the EU is accounted for by external trade (intra-EU and extra-EU), whilst foreign-owned and operated newspapers account for less than 4% of newspaper circulation in the EU.

The introduction of new technologies has led to more cost-efficient production, resulting in lower and more flexible print-runs and an increasing number of titles. The most rapid growth during the 1990s was recorded for educational material, specialist magazine titles, local community newsletters and free-sheets.

The introduction of new technologies means that publishers have also become content providers in related markets such as multimedia and web publishing.

Educational attainment, demographic factors and increased leisure time play an important role in determining demand for printed matter. Generally, northern Europe is characterised by higher levels of reading. Demand also depends on economic cycles, with the purchase of books being deferred during an economic downturn (when people may alternatively re-read old books), whilst newspapers remain relatively unaffected. Advertising revenues are also reduced when economic activity contracts.

(8) All the data cited in this paragraph comes from, Competitiveness of the European Union publishing industries, European Commission, 2000.

STRUCTURAL PROFILE

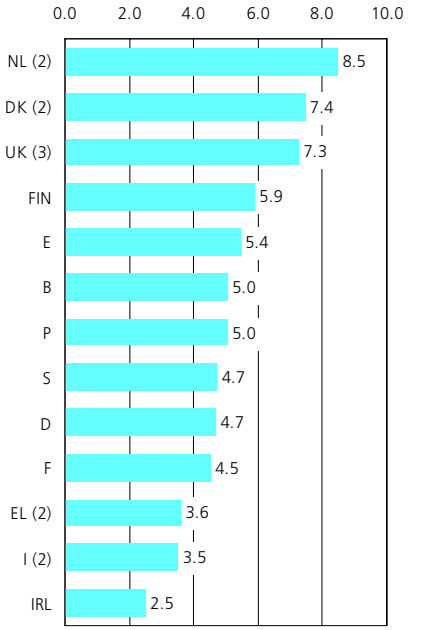
The EU's publishing and printing sector (NACE Groups 22.1 and 22.2) generated approximately 60 billion EUR of value added in 1999[9]. Publishing was the somewhat larger activity accounting for 56.4% of total value added.

EU output prices for publishing rose at a faster pace than the manufacturing average between 1995 and 2000, up 9.5% in total. Output prices for printing and services relating to printing rose by 3.0% in the EU between 1995 and 2000.

(9) DK, EL, I and NL, 1998; UK, 1997; L and A, incomplete data.

Figure 5.4

Publishing; printing and service activities related to printing (NACE Groups 22.1 and 22.2) Share of value added in manufacturing, 1999 (%) (1)



(1) L and A, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 5.5: top national dailies and magazines

According to the Fortune 500, two of the four largest publishing and printing groups (based on turnover revenues) in the world in 2000 were located in the EU; Bertelsmann (D) that includes Gruner+Jahr and Lagardère Groupe (F) that includes Hachette. Vivendi Universal Publishing (F) formerly Havas, Reed Elsevier (UK/NL) and Pearson (UK) that includes Penguin Books and the Financial Times, are all leading players in the EU's publishing sector.

Table 5.11

Top ten national dailies in the EU, 2001 (daily circulation in thousands)

		Circulation
Bild (1)	D	4,390
The Sun	UK	3,593
Daily Mail	UK	2,380
The Mirror	UK	2,271
Daily Express	UK	1,069
Daily Telegraph	UK	1,031
Kronen Zeitung (2)	A	945
De Telegraaf	NL	808
Times	UK	719
Corriere Della Sera	I	682

(1) 2000.
(2) 1999.
Source: Western European Market and Mediafact, Zenithmedia, 2001

Table 5.12

Top ten magazines in the EU, 2001 (circulation in thousands)

		Circulation	Category
ADAC Motorwelt (1)	D	13,035	Motoring
TV Magazine (2)	F	4,642	TV (weekly)
Kampioen	NL	3,488	Family
Bild am Sonntag (1)	D	2,573	General interest
Ide-Nyt	DK	2,517	General interest
Télé 7 Jours (2)	F	2,465	TV (weekly)
TV Movie (1)	D	2,429	TV
Télé Z (2)	F	2,261	TV (weekly)
TV Spielfilm (1)	D	2,078	TV
Hörzu (1)	D	2,043	TV

(1) 2000.
(2) 1999.
Source: Western European Market and Mediafact, Zenithmedia, 2001

LABOUR AND PRODUCTIVITY

There were 1.2 million persons employed in the EU's publishing and printing sector in 1999[10]. These activities are characterised by a large number of SMEs, and personnel costs often account for a relatively high share of value added, as work is often based on content and information processing. IT developments also mean that there have been significant changes in the skills and work processes used in publishing and printing enterprises.

There were considerable differences in the evolution of the number of persons employed in this sector during the 1990s. For example, there was a three-fold increase in employment in the publishing sector in Denmark between 1990 and 1998, whilst between 1990 and 1999 the publishing workforces of Portugal (34%), Spain (27%) and France (6%) also expanded.

(10) DK, EL and I, 1998; UK, 1997; L, NL and A, not available.

On the other hand, significant numbers of jobs were shed in Germany, which lost 18% of its publishing workforce and 25% of its printing workforce between 1995 and 1999. Employment fell by 34% in the Austrian printing sector between 1991 and 1999 and 12% in the United Kingdom's printing sector between 1990 and 1997.

Of the 12 countries for which recent data are available, only Italy reported a level of apparent labour productivity considerably lower in the publishing and printing sector than in manufacturing as a whole[11]. Apparent labour productivity was usually considerably higher in the publishing sector: indeed, the difference between the publishing and printing sectors was in excess of 20 thousand EUR per person employed in Belgium, Spain, France, Ireland and Italy (1998)[12].

EXTERNAL TRADE

A common language can lead to export opportunities for EU publishers, for example, Spanish and Portuguese in Latin America, German in Eastern Europe and English globally (as a business and academic language). The EU is a net exporter of published and printed goods, with a cover ratio of 169.9% in 2000, whilst the trade surplus was equal to 2.8 billion EUR. Germany (1.8 billion EUR) had the highest surplus in 2000 amongst the Member States, followed by the United Kingdom (903 million EUR), whilst Italy, Spain and Ireland also reported surpluses of between 550 and 750 million EUR. The largest deficit was registered in Portugal, at 224 million EUR in 2000.

Some 40.0% of the EU's publishing and printing imports originated from the US in 2000. China recorded the most rapid growth, as its share of EU imports rose from 2.0% in 1990 to 9.7% by 2000. On the export side, the US (18.8%) and Switzerland (17.5%) were the most important markets for EU exporters of published and printed goods in 2000, with no other country accounting for more than 5% of total exports.

(11) DK (1998), D, E, F, I (1998), P and UK (1997) reported labour productivity above their respective manufacturing averages; B, EL (1998), IRL, FIN and S did not; L, NL and A, not available.
(12) DK, EL and I, 1998; UK, 1997; L, NL and A, not available.

Table 5.13

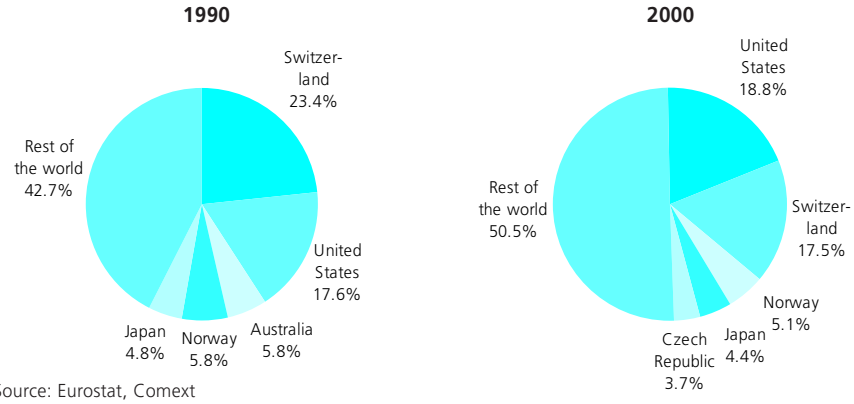
Printed matter and recorded media; printing and related services (CPA Groups 22.1 and 22.2)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	6,741	3,967	2,774	169.9
B	1,334	1,173	161	113.7
DK	463	470	-7	98.5
D	4,304	2,495	1,809	172.5
EL	72	148	-75	49.0
E	1,239	645	593	192.0
F	2,090	2,188	-98	95.5
IRL	929	378	551	245.6
I	1,681	927	754	181.4
L	40	108	-68	36.7
NL	1,337	920	417	145.3
A	666	855	-189	77.9
P	61	286	-225	21.4
FIN	351	231	119	151.5
S	336	504	-167	66.8
UK	3,709	2,806	904	132.2

Source: Eurostat, Comext

Figure 5.5

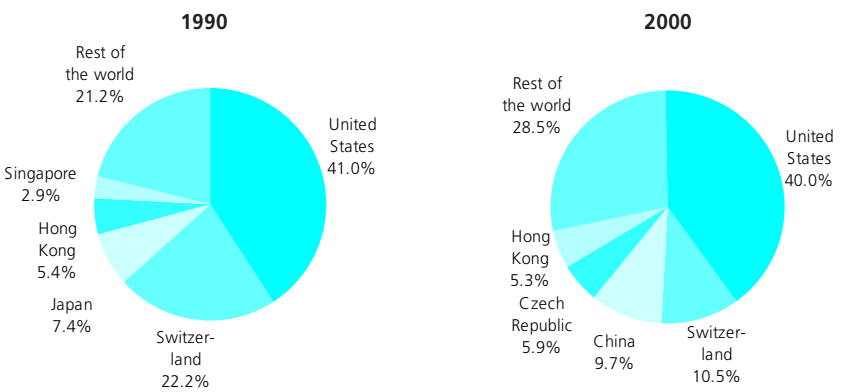
Printed matter and recorded media; printing and related services (CPA Groups 22.1 and 22.2)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 5.6

Printed matter and recorded media; printing and related services (CPA Groups 22.1 and 22.2)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 5.14

Sawmilling and planing of wood, impregnation of wood (NACE Group 20.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	12,267	11,394	11,331	10,838	13,378	13,303	13,851	:	16,449	17,159	:
Purchases of goods and services (million EUR)	:	:	:	:	:	10,263	11,170	:	13,573	14,392	:
Value added (million EUR)	3,512	3,095	3,171	3,243	4,045	3,533	3,424	:	4,107	4,184	:
Personnel costs (million EUR)	2,245	2,326	2,306	2,129	2,357	2,274	2,449	:	2,708	2,688	:
Number of persons employed (thousands)	122	118	113	103	110	95	108	:	113	109	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.3	6.1	6.9	9.2	11.4	9.0	6.7	:	8.0	8.1	:
App. labour productivity (thous. EUR/pers. emp.)	28.8	26.1	28.1	31.5	37.0	37.4	31.8	:	36.3	38.3	:
Simple wage adjusted labour productivity (%)	156.4	133.1	137.5	152.3	171.6	155.4	139.8	:	151.7	155.7	:
Output price index (1995=100)	:	:	:	:	:	100.0	95.7	98.8	98.3	97.7	98.6

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.15

Wood, sawn, planed or impregnated (CPA Group 20.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	933	824	773	980	1,221	1,408	1,406	1,766	1,680	2,064	2,398
Extra-EU imports (million EUR)	4,219	3,633	3,501	3,371	3,968	3,868	3,544	4,443	4,411	4,814	5,816
Trade balance (million EUR)	-3,287	-2,809	-2,728	-2,391	-2,747	-2,460	-2,137	-2,676	-2,730	-2,750	-3,418
Cover ratio (%)	22.1	22.7	22.1	29.1	30.8	36.4	39.7	39.8	38.1	42.9	41.2

Source: Eurostat, Comext

Table 5.16

Manufacture of veneer sheets; plywood, laminboard, particle board, fibre board and other panels and boards (NACE Group 20.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	866	145	3,766	203	1,691	1,595	186	1,719	:	63	608	364	882	232	1,200
Purchases of goods and services (million EUR)	679	105	2,683	172	1,423	1,249	125	1,284	:	48	447	271	543	179	819
Value added (million EUR)	211	46	1,195	76	456	383	60	476	:	18	205	97	350	69	435
Personnel costs (million EUR)	105	35	815	44	224	260	24	257	:	13	134	40	215	57	189
Number of persons employed (thousands)	2.8	1.2	20.3	2.5	11.6	8.5	0.7	10.2	:	:	3.5	2.8	7.1	1.6	7.2
Gross investment in tangible goods (million EUR)	141	:	296	:	146	:	14	:	:	:	:	:	51	:	:
Gross operating rate (%)	12.0	7.6	9.8	14.5	12.6	7.5	19.4	12.6	:	6.8	11.0	16.2	15.3	4.8	19.5
App. labour productivity (thous. EUR/pers. emp.)	74.9	37.9	58.9	30.8	39.2	45.0	80.5	46.5	:	:	58.9	34.4	49.5	44.3	60.8
Simple wage adjusted labour productivity (%)	201.6	131.8	146.7	170.3	203.3	147.4	251.1	185.6	:	134.1	153.1	245.1	162.9	121.0	229.8
Output price index (1995=100) (2)	:	:	88.4	124.5	103.8	95.0	:	88.8	:	105.9	:	106.4	:	101.0	78.6

(1) DK and A, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.17

Veneer sheets; plywood, laminboard; particle board, fibre board and other panels and boards (CPA Group 20.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	484	444	445	625	780	883	992	1,224	1,388	1,423	1,842
Extra-EU imports (million EUR)	1,611	1,545	1,616	1,596	1,810	1,937	1,791	2,124	2,220	2,217	2,485
Trade balance (million EUR)	-1,128	-1,101	-1,171	-971	-1,030	-1,054	-799	-901	-831	-795	-643
Cover ratio (%)	30.0	28.7	27.6	39.2	43.1	45.6	55.4	57.6	62.5	64.2	74.1

Source: Eurostat, Comext

Table 5.18

Manufacture of builders' carpentry and joinery (NACE Group 20.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	16,727	16,614	16,378	16,357	16,243	:	:	21,020	22,204	23,451	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	14,632	15,367	16,298	:
Value added (million EUR)	5,773	5,762	5,841	5,969	5,800	:	:	7,269	7,626	8,064	:
Personnel costs (million EUR)	4,256	4,476	4,495	4,505	4,237	:	:	5,499	5,706	5,903	:
Number of persons employed (thousands)	229	223	212	206	198	:	:	239	243	243	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	8.8	7.4	7.8	8.7	9.4	:	:	8.1	8.4	8.9	:
App. labour productivity (thous. EUR/pers. emp.)	25.2	25.9	27.6	29.0	29.3	:	:	30.4	31.4	33.1	:
Simple wage adjusted labour productivity (%)	135.6	128.7	129.9	132.5	136.9	:	:	132.2	133.6	136.6	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.9	102.0	103.7	104.7	106.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.19

Builders' joinery and carpentry, of wood (CPA Group 20.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	442	410	397	394	537	678	807	933	932	970	1,179
Extra-EU imports (million EUR)	373	471	598	766	969	995	1,013	1,141	1,173	1,342	1,580
Trade balance (million EUR)	68	-61	-201	-372	-432	-317	-207	-209	-242	-372	-400
Cover ratio (%)	118.3	87.1	66.4	51.5	55.4	68.1	79.6	81.7	79.4	72.3	74.7

Source: Eurostat, Comext

Table 5.20

Manufacture of wooden containers (NACE Group 20.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	3,764	3,890	3,667	3,369	3,559	:	4,160	:	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	3,069	:	:	:	:
Value added (million EUR)	1,233	1,264	1,245	1,135	1,124	:	1,265	1,307	:	:	:
Personnel costs (million EUR)	837	893	910	846	883	:	974	958	:	:	:
Number of persons employed (thousands)	48	49	46	43	43	:	45	44	45	44	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.2	9.4	8.9	8.3	6.4	:	6.6	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	25.8	26.0	26.9	26.3	26.2	:	28.4	30.0	:	:	:
Simple wage adjusted labour productivity (%)	147.3	141.5	136.8	134.2	127.3	:	129.9	136.4	:	:	:
Output price index (1995=100)	96.8	98.4	97.5	96.1	96.1	100.0	99.2	99.2	99.6	99.6	99.9

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.21

Wooden containers (CPA Group 20.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	82	89	84	94	118	139	163	203	251	277	332
Extra-EU imports (million EUR)	134	177	177	148	183	225	226	265	319	352	417
Trade balance (million EUR)	-51	-88	-93	-54	-65	-86	-62	-62	-68	-75	-85
Cover ratio (%)	61.5	50.5	47.3	63.5	64.4	61.6	72.4	76.6	78.6	78.8	79.6

Source: Eurostat, Comext

Table 5.22

Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials (NACE Group 20.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	4,655	4,988	5,201	4,998	5,230	5,323	:	6,179	6,594	6,807	:
Purchases of goods and services (million EUR)	:	:	:	:	:	3,822	:	4,547	4,905	5,165	:
Value added (million EUR)	1,766	1,878	1,944	1,858	1,933	1,796	:	2,010	2,107	2,202	:
Personnel costs (million EUR)	1,304	1,428	1,455	1,372	1,448	1,299	:	1,423	1,383	1,457	:
Number of persons employed (thousands)	82	85	81	73	76	72	:	79	76	79	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.4	8.5	9.0	9.2	8.8	8.8	:	9.0	10.5	10.3	:
App. labour productivity (thous. EUR/pers. emp.)	21.5	22.1	24.1	25.6	25.3	24.9	:	25.5	27.9	28.1	:
Simple wage adjusted labour productivity (%)	135.4	131.5	133.6	135.4	133.5	138.3	:	141.3	152.3	151.1	:
Output price index (1995=100)	:	:	:	:	:	100.0	103.7	106.0	107.9	109.8	114.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.23

Other products of wood; articles of cork, straw and plaiting materials (CPA Group 20.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	431	431	447	439	494	545	631	718	770	787	934
Extra-EU imports (million EUR)	662	811	862	961	1,053	1,144	1,202	1,382	1,434	1,637	2,019
Trade balance (million EUR)	-231	-381	-416	-522	-560	-598	-570	-664	-663	-850	-1,085
Cover ratio (%)	65.1	53.1	51.8	45.7	46.9	47.7	52.5	52.0	53.7	48.1	46.3

Source: Eurostat, Comext

Table 5.24

Manufacture of pulp, paper and paperboard (NACE Group 21.1)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,799	230	11,724	156	2,862	6,596	31	4,292	0	1,634	2,706	1,289	12,613	8,504	4,856
Purchases of goods and services (million EUR)	1,379	148	8,535	113	2,148	5,055	20	3,238	0	1,104	2,114	858	9,705	5,890	3,278
Value added (million EUR)	540	82	3,803	47	921	1,666	12	1,344	0	541	848	441	4,061	2,835	1,612
Personnel costs (million EUR)	276	50	2,133	40	448	1,119	7	591	0	267	412	140	1,584	1,337	825
Number of persons employed (thousands)	5.7	1.3	46.5	2.0	13.7	27.1	0.2	17.3	0.0	:	8.3	5.9	37.1	32.8	23.9
Gross investment in tangible goods (million EUR)	95	:	1,323	:	171	:	0	:	:	:	:	:	587	:	:
Gross operating rate (%)	14.1	13.6	13.5	6.5	15.7	8.0	17.2	16.6	:	16.8	14.7	23.2	18.1	17.3	16.0
App. labour productivity (thous. EUR/pers. emp.)	95.1	62.9	81.9	23.2	67.2	61.5	58.4	77.5	:	:	101.6	75.0	109.5	86.5	67.5
Simple wage adjusted labour productivity (%)	196.1	161.9	178.3	118.0	205.7	148.9	184.6	227.5	:	202.6	205.8	315.0	256.3	212.0	195.5
Output price index (1995=100) (2)	103.3	:	97.3	93.2	94.7	99.1	:	97.7	:	102.3	:	108.5	103.7	93.9	86.8

(1) DK, 1998; L, 1997; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL and UK.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.25

Pulp, paper and paperboard (CPA Group 21.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	5,918	5,617	5,650	6,288	7,320	9,540	9,060	10,161	9,972	10,719	13,705
Extra-EU imports (million EUR)	6,549	6,254	6,098	5,379	6,800	9,280	7,481	7,962	8,359	8,377	11,408
Trade balance (million EUR)	-631	-637	-447	909	520	260	1,579	2,199	1,614	2,343	2,297
Cover ratio (%)	90.4	89.8	92.7	116.9	107.6	102.8	121.1	127.6	119.3	128.0	120.1

Source: Eurostat, Comext

Table 5.26

Manufacture of articles of paper and paperboard (NACE Group 21.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,688	851	15,088	484	5,384	9,896	672	8,390	:	2,746	1,361	609	560	1,903	10,598
Purchases of goods and services (million EUR)	1,460	554	11,145	353	3,933	7,389	420	6,212	:	2,242	974	436	391	1,389	7,350
Value added (million EUR)	565	325	5,226	179	1,670	2,878	280	2,427	:	946	561	193	217	691	3,849
Personnel costs (million EUR)	359	231	3,969	99	928	2,100	138	1,320	:	586	348	117	144	466	2,430
Number of persons employed (thousands)	9.6	6.5	104.5	5.3	38.6	59.1	4.5	44.4	:	:	8.6	9.0	4.3	12.0	83.7
Gross investment in tangible goods (million EUR)	112	:	987	:	409	:	32	:	:	:	:	:	41	:	:
Gross operating rate (%)	10.2	10.7	7.7	15.8	13.5	7.5	20.2	12.9	:	11.4	14.0	12.2	12.3	11.4	12.7
App. labour productivity (thous. EUR/pers. emp.)	59.1	49.9	50.0	33.5	43.3	48.7	62.3	54.6	:	:	64.9	21.5	50.8	57.7	46.0
Simple wage adjusted labour productivity (%)	157.6	140.3	131.6	181.2	180.0	137.0	202.7	183.8	:	161.4	161.3	164.4	151.4	148.2	158.4
Output price index (1995=100) (2)	103.0	:	100.9	106.9	102.2	99.3	:	97.5	:	103.3	:	96.1	106.3	102.7	100.9

(1) DK, 1998; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 5.27

Articles of paper and paperboard (CPA Group 21.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,909	1,991	2,155	2,398	2,791	3,358	3,797	4,139	4,107	3,931	4,542
Extra-EU imports (million EUR)	736	913	880	920	1,050	1,215	1,251	1,449	1,542	1,770	2,177
Trade balance (million EUR)	1,173	1,079	1,275	1,478	1,741	2,143	2,546	2,690	2,565	2,162	2,366
Cover ratio (%)	259.5	218.2	244.8	260.6	265.9	276.3	303.5	285.6	266.4	222.1	208.7

Source: Eurostat, Comext

Chemicals, rubber and plastics

The initial processing stages of this sector use materials that have rarely undergone more than basic processing, mainly sourced from petroleum refining and mining. Some sub-sectors have a particular focus on downstream sectors, notably rubber products and agro-chemicals, but many provide a broad range of products that are used across many business sectors as well as directly by consumers.

The chemicals sector is a major consumer of energy products. In volume terms, this sector's use of energy as a raw material accounted for 74.0% of the consumption of energy products for non-energy purposes in the EU in 1999. Combined with the consumption for energy purposes, the chemical sector's share of final consumption of energy products was 10.6%.

_ Box 6.1: strategy for a future Chemicals Policy

In February 2001 the European Commission adopted and released its White Paper[1] outlining a strategy for a future Chemicals Policy, notably for a sustainable use of chemicals. The multi-objective strategy aims to ensure a high level of protection for human health and the environment, an efficient Internal Market and to stimulate innovation and competitiveness in the chemical sector.

A single regulatory procedure should replace the current system that differentiates between existing and "new" substances, the latter concerning products marketed since September 1981. Responsibility for testing and risk assessment will pass to the producers of chemical substances and also to downstream sectors that use these substances. The chemical sector will take on responsibility to provide information to users, including consumers. Chemical manufacturers should benefit from a clearer regulatory environment with fewer delays, which it is hoped will encourage technological innovation, including the promotion of non-animal testing and development of less dangerous substances.

In June 2001 the Environment Council called on the Commission to present its main proposals for a regulatory framework to implement this strategy.

(1) COM(2001) 88.

The manufacture of chemicals, rubber and plastics are covered by NACE Divisions 24 and 25. The chemicals sector includes the manufacture of man-made fibres.

NACE

24: manufacture of chemicals and chemical products;
24.1: manufacture of basic chemicals;
24.2: manufacture of pesticides and other agro-chemical products;
24.3: manufacture of paints, varnishes and similar coatings, printing ink and mastics;
24.4: manufacture of pharmaceuticals, medicinal chemicals and botanical products;
24.5: manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations;
24.6: manufacture of other chemical products;
24.7: manufacture of man-made fibres;
25: manufacture of rubber and plastic products;
25.1: manufacture of rubber products;
25.2: manufacture of plastic products.

STRUCTURAL PROFILE

The combined chemicals, plastics and rubber sector accounted for 16.2% of EU manufacturing value added in 2000, split between 151.9 billion EUR for chemicals and 62.9 billion EUR for rubber and plastics. Germany's share of the EU total was the largest in 1999, at 27.7% and the sector played an important role in Belgium (24.1% of the manufacturing total) and Luxembourg (21.3%, 1997)[2].

(2) This sector accounted for 38.2% of Irish manufacturing value added but the inclusion of taxes on products (other than VAT) distorts this figure.

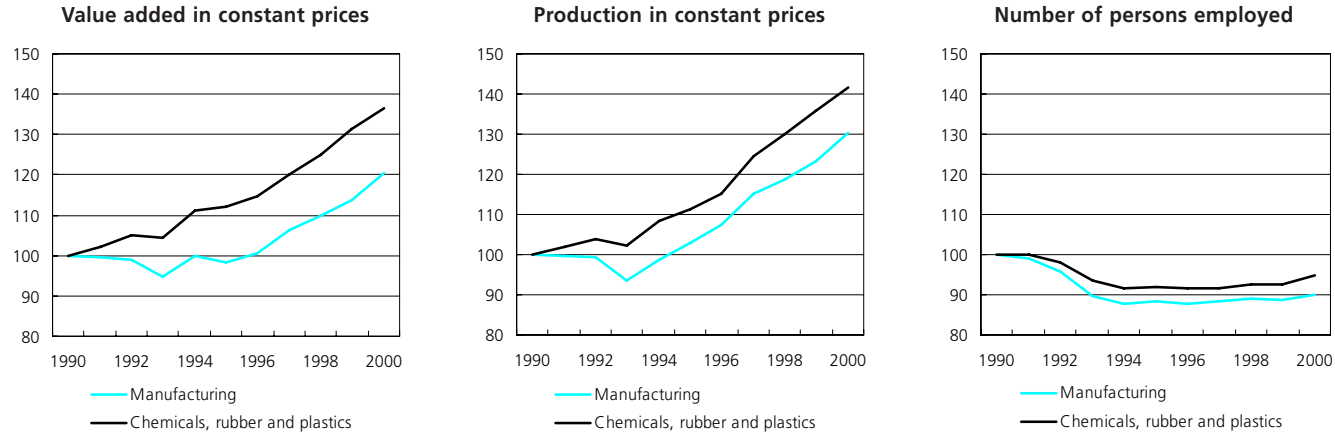
The EU recorded growth in constant price value added for this sector in every year except 1993 during the 1990s. The average growth rate per annum over the ten-year period to 2000 was 3.2%, notably higher than the 1.9% manufacturing average. Over this period the rubber and plastics sector grew faster than the chemicals sector and as a result the share of the chemicals sector fell, although it still accounted for 70.7% of the combined chemicals, rubber and plastics activity in 2000. The plastics sector was approximately three times the size of the rubber sector. Within chemicals, the two largest sub-sectors at the NACE Group level in 1999 were the manufacture of basic chemicals and the manufacture of pharmaceuticals.

The role of large enterprises in the chemicals sector is considerably greater than in rubber and plastics - see figure 6.3. Large enterprises (with 250 or more persons employed) accounted for 69.8% of the chemical sector's value added in 1999[3], compared to 40.3% for the rubber and plastics sector. The comparable figure for manufacturing as a whole was 50.9%. Micro enterprises (1-9 persons employed) played a small role in the chemicals, rubber and plastics sector, with only 2.2% of value added in chemicals and 6.1% in rubber and plastics.

(3) B, DK, E, IRL, I and FIN, 1998; NL and UK, 1997; D, EL and L, incomplete or not available.

Figure 6.1

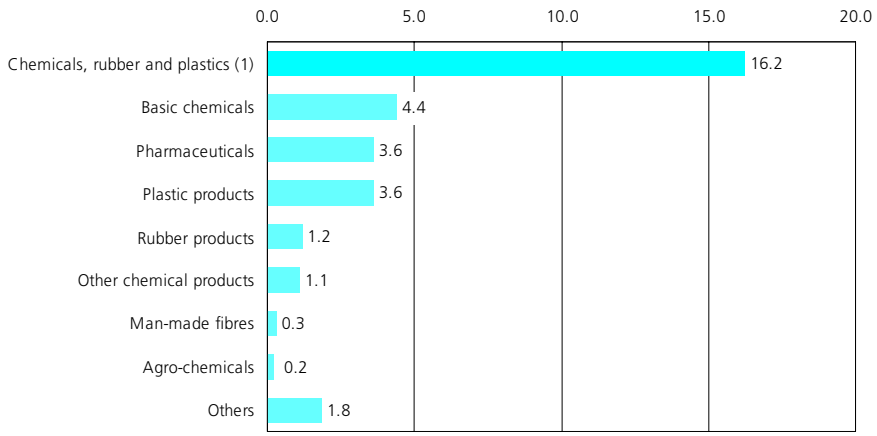
Manufacture of chemicals, rubber and plastics (NACE Subsections DG and DH)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.2

Manufacture of chemicals, rubber and plastics (NACE Subsections DG and DH)
Share of manufacturing value added in the EU, 1999 (%)



(1) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Output prices of chemicals, rubber and plastics fell in three of the four years after 1995, but in 2000 this downward trend changed as EU prices rose by 4.9%. The large increase in 2000 can be associated with the increased cost of raw materials, notably petroleum products - see sub-chapter 1.1 for information on oil prices. Trends were broadly similar across sub-sectors, although the increase in prices between 1999 and 2000 was much less marked for the rubber sector which relies heavily on natural rubber, whilst output prices continued to fall in the agro-chemicals sector.

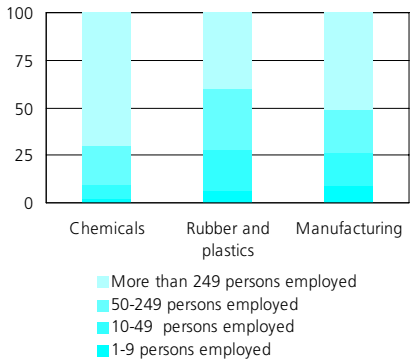
RESEARCH AND DEVELOPMENT

The chemicals, rubber and plastics sector accounted for 26.0% of manufacturing intra-mural R&D expenditure in 1998[4]. A comparison with the sector's share of manufacturing value added (16.0% in 1998) confirms that the sector invests heavily in R&D. Closer analysis of this expenditure shows that most (92.5%) of the R&D in this sector was in chemicals and that pharmaceuticals (NACE Group 24.4) alone accounted for 53.8% of the chemicals, rubber and plastics total[5] - see sub-chapter 6.4.

(4) I, 1999; D, EL, IRL and S, 1997;
L, A and P, not available.
(5) FIN, also not available.

Figure 6.3

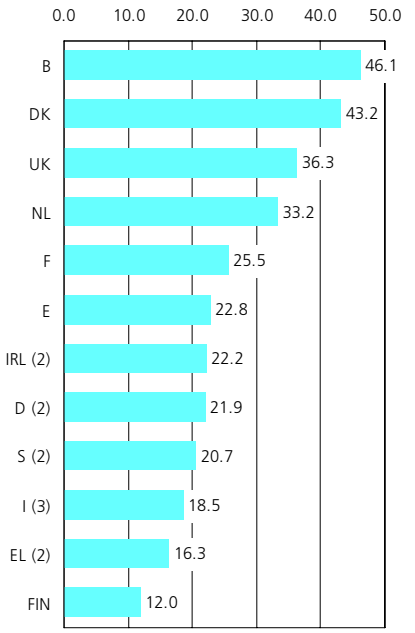
Breakdown of value added according to enterprise size class, 1998 (%) (1)



(1) F, A, P and S, 1999; NL and UK, 1997;
D, EL and L, not available.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Figure 6.4

Manufacture of chemicals, rubber and plastics (NACE Subsections DG and DH) Share in manufacturing R&D, 1998 (%) (1)



(1) L, A and P, not available.
(2) 1997.
(3) 1999.
Source: Basic Science and Technology Statistics (BSTS), OECD

LABOUR AND PRODUCTIVITY

Across the EU the chemicals, rubber and plastics sector employed 2.9 million persons in 2000, 12.4% of the manufacturing total. The number of persons employed rose more often than it fell between 1990 and 2000, but significant reductions from 1992 to 1994 meant that the sector employed 160.3 thousand persons less in 2000 than in 1990. Nevertheless, this sector's share of manufacturing employment rose from 11.8% in 1990 to 12.3% by 1993 and has remained within 0.1 percentage points of this level since.

The net fall in employment between 1990 and 2000 hid a larger reduction of 229.6 thousand persons in the chemical sector which was partially offset by an increase of 69.3 thousand persons in rubber and plastics. The chemical sector's workforce contracted every year between 1992 and 1999 whilst the number of persons employed in the rubber and plastics sector grew every year from 1994 through to the latest available year (2000). By far the largest fall in employment in the chemicals sector was in Germany where there were 168.5 thousand less persons employed in 1999 than in 1990. Larger falls in percentage terms were recorded in Austria (1991 to 1999) and Portugal[6]. Only Ireland, Sweden and Denmark recorded significant increases in employment in the chemicals sector during the 1990s. The increase in employment in the EU's rubber and plastics sector between 1990 and 1999 resulted from reductions in the workforce ranging from 10% to 20% in Sweden, Luxembourg (to 1997) and Germany, whilst employment was stable or rising in most other countries.

The division of employment between the chemicals and rubber and plastics sectors was much more even than the value added split, indicating different levels of productivity. The chemicals sector reported apparent labour productivity of 90.6 thousand EUR per person employed, one of the highest levels for a manufacturing NACE Division, mainly due to the performance of basic chemicals, agro-chemicals and pharmaceuticals. In contrast the apparent labour productivity of the rubber and plastics sector was 50.0 thousand EUR per person employed, below the manufacturing average.

(6) NL, no recent data available.

Table 6.1

Manufacture of chemicals, rubber and plastics (NACE Subsections DG and DH)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000	1995	2000 (1)	1995	2000 (2)
EU-15	29.3	29.9	5.7	6.7	2.7	3.3	20.3	21.5
B	24.9	30.7	4.5	10.4	:	3.4	34.0	37.4
DK	39.8	43.9	6.2	5.5	:	:	26.6	28.4
D	30.3	28.8	7.1	8.4	1.7	1.6	22.6	25.7
EL	27.2	31.3	:	:	7.4	6.2	21.8	26.2
E	20.8	29.2	2.4	1.4	3.5	4.5	25.2	28.9
F	34.2	33.8	3.9	4.7	1.1	1.3	21.1	25.7
IRL	31.9	35.0	:	:	:	:	26.3	35.9
I	27.6	27.8	3.0	4.3	6.5	9.5	6.8	11.4
L	9.7	11.8	:	:	:	:	16.0	11.8
NL	19.2	22.1	14.7	18.4	:	:	:	26.2
A	34.8	29.0	7.2	11.3	:	:	5.8	15.6
P	35.7	43.1	:	:	:	:	:	:
FIN	34.4	39.3	:	:	:	:	22.0	34.4
S	34.9	37.3	:	:	:	:	20.4	23.6
UK	28.2	27.3	6.9	7.0	2.8	3.0	22.3	31.6

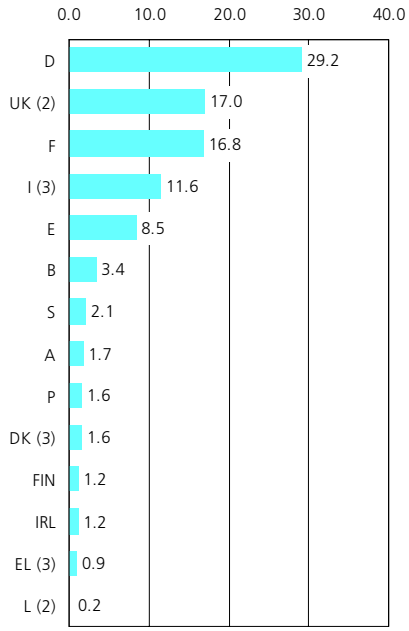
(1) EL, 1998.
(2) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

The composition of the chemicals, rubber and plastics labour force was typical of a manufacturing sector in 2000, both in terms of the participation of women (29.9%) and the rate of part-time employment (6.0% in rubber and plastics and 7.2% in chemicals). The proportion of persons in employment classified as employees was notably above the manufacturing average, reaching 97.4% in chemicals and 95.0% in rubber and plastics, indicating that there was a low share of self-employed and family workers. This sector also stood out from the manufacturing average because of its large proportion of persons in employment that had completed a higher level of education (25.3%)[7].

(7) IRL, L and P, no recent data available.

Figure 6.5

Manufacture of chemicals, rubber and plastics (NACE Subsections DG and DH)
Share of number of persons employed in the EU, 1999 (%) (1)



(1) NL, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

In 2000, the 142.8 billion EUR of exports of chemical, rubber and plastics products (CPA Divisions 24 and 25) represented 16.6% of all manufactured exports from the EU to non-Community countries. The value of imports was 91.1 billion EUR, equivalent to 11.3% of the total. At the CPA Group level only man-made fibres and rubber products recorded trade deficits in 2000, with pharmaceuticals and basic industrial chemical products generating the largest surpluses.

Over the ten years to 2000, three groups of countries reported a significant movement in their trade balance (intra-EU and extra-EU trade combined): Denmark and Sweden moved from a trade deficit to a surplus that was in excess of one billion EUR; the Belgium-Luxembourg Economic Union, France and Ireland increased their trade surpluses from less than 1.5 billion EUR to over 5 billion EUR; whilst the deficits of Greece, Spain and Portugal increased approximately two-fold.

The main destinations of the EU's chemicals, rubber and plastics exports in 2000 were similar to those for manufactured goods as a whole. Among the ten most important destinations the absence of China was notable (thirteenth) whilst Brazil (ninth) and Australia (tenth) both accounted for a higher proportion of exports of these goods than they did for all manufactured goods. All of the Asian countries that had figured in the top fifteen export destinations in 1995 experienced a fall in their shares by 2000. The origin of the EU's chemical, rubber and plastics imports was more concentrated, as the US and Switzerland together accounted for nearly 50% in 2000.

Table 6.2

Chemicals, rubber and plastics (CPA Subsections DG and DH)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	142,832	91,124	51,708	156.7
B	46,717	36,022	10,695	129.7
DK	7,437	6,254	1,183	118.9
D	84,768	66,003	18,765	128.4
EL	1,143	4,311	-3,168	26.5
E	16,144	22,652	-6,507	71.3
F	56,482	49,586	6,896	113.9
IRL	28,193	7,160	21,033	393.8
I	31,429	38,102	-6,673	82.5
L	1,300	1,464	-164	88.8
NL	36,456	28,947	7,509	125.9
A	7,427	10,202	-2,775	72.8
P	2,197	5,477	-3,279	40.1
FIN	3,481	4,597	-1,115	75.7
S	10,506	9,153	1,353	114.8
UK	47,171	43,318	3,854	108.9

Source: Eurostat, Comext

Table 6.3

Chemicals, rubber and plastics (CPA Subsections DG and DH)
External trade for the EU, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
Chemicals, rubber and plastics	142,832	91,124	51,708	156.7
Basic chemicals	45,214	34,693	10,521	130.3
Agro-chemicals	2,475	771	1,704	320.9
Paints, varnishes, printing ink and mastics	4,720	1,144	3,576	412.5
Pharmaceuticals	39,139	19,927	19,212	196.4
Soaps, detergents and toiletries	9,838	2,669	7,168	368.6
Other chemical products	16,449	11,043	5,406	149.0
Man-made fibres	1,040	2,410	-1,370	43.1
Rubber products	6,044	6,352	-308	95.1
Plastic products	15,199	11,242	3,957	135.2

Source: Eurostat, Comext

6.1: BASIC INDUSTRIAL CHEMICALS

The manufacture of basic chemicals (NACE Group 24.1) distinguishes between industrial gases, dyes and pigments, base chemicals and fertilisers, as well as the manufacture of the primary forms of plastics and synthetic rubber.

A large share of basic industrial chemicals are further processed by the chemical, plastics and rubber sector itself; other important downstream sectors include transport equipment, metals, construction and agriculture, the latter notably for fertilisers.

Industrial gases are used in food and beverage processing, metal manufacturing and the health sector. The manufacture of inorganic chemicals mainly involves the processing of mineral products and covers the production of basic chemical elements (for example, chlorine and carbon), acids (for example, phosphoric and hydrochloric acids), bases/alkalines (for example, sodium hydroxide) and other inorganic compounds.

Mineral fertilisers are used as supplements to nutrients present in the ground or obtained from manure or compost. The use of manufactured fertilisers provides greater control over the supply of nutrients relative to the specific requirements of different crops. The main nutrients provided by fertilisers are nitrogen, potassium phosphate and sulphur which are prepared as straight (single-nutrient) or multi-nutrient fertilisers. The production process passes from the raw material (such as nitrogen, phosphate rock or potash), normally through an intermediate product such as ammonia or nitric acid, to final products such as urea and various nitrates, phosphates and sulphates.

Petrochemicals account for a very large proportion of the basic industrial chemicals sector and result from the processing of oil and natural gas. The manufacture of petrochemicals is not identified as an activity within NACE, but it does represent an important part of base organic chemicals, fertilisers and the primary forms of plastic and synthetic rubber, all covered within this sub-chapter. Basic petrochemical activities involve cracking olefins (for example propylene and ethylene) and producing their derived intermediate products such as vinyl chloride and styrene - see box 6.3. It also includes manufacturing aromatics (such as toluene and benzene) as well as methanol and synthetic gases. Derived products from these basic petrochemicals are dealt with in other sub-chapters, for example man-made fibres in sub-chapter 6.7.

The performance of the EU petrochemicals sector is clearly dependent on oil prices as products such as naphtha, which form the majority (69% in 1999, according to CEFIC) of the EU's feedstock for crackers are derived from oil - see subchapter 1.1 for information on crude oil prices.

Environmental concerns in the basic industrial chemicals sector are numerous, starting from the high level of energy consumption by the petrochemicals sector to emissions of several greenhouse gases. The impact of the use of agricultural fertilisers results in leaching into the water table, run-off from erosion and gaseous emissions.

Box 6.2: fertiliser legislation

Legislation on fertilisers covers issues such as the health and safety of employees and the public, safe storage and transportation, limits on emissions and noise levels, and the treatment and disposal of waste products. In September 2001 the European Commission proposed that the numerous Community Directives on fertilisers be recast in a single proposal for a Regulation[8]. This aim of this proposal was to simplify compliance and inspections for large EU manufacturers and importers of mineral fertilisers.

(8) COM(2001) 508 final.

Box 6.3: crackers in the EU

Table 6.4

Steam crackers operating in the EU, end 1999

	Number	Total capacity (thousand tonnes ethylene/year)
BENELUX	9	4,840
D	11	5,121
EL (1)	1	20
E	3	1,395
F	8	3,230
IRL	5	2,110
A	1	345
P	1	350
FIN	1	290
S	1	405
UK	4	2,555

(1) Closure foreseen for 2001.
Source: CEFIC Petrochemicals Programme, more information from the Communications manager (fhu@cefic.be)

Table 6.5

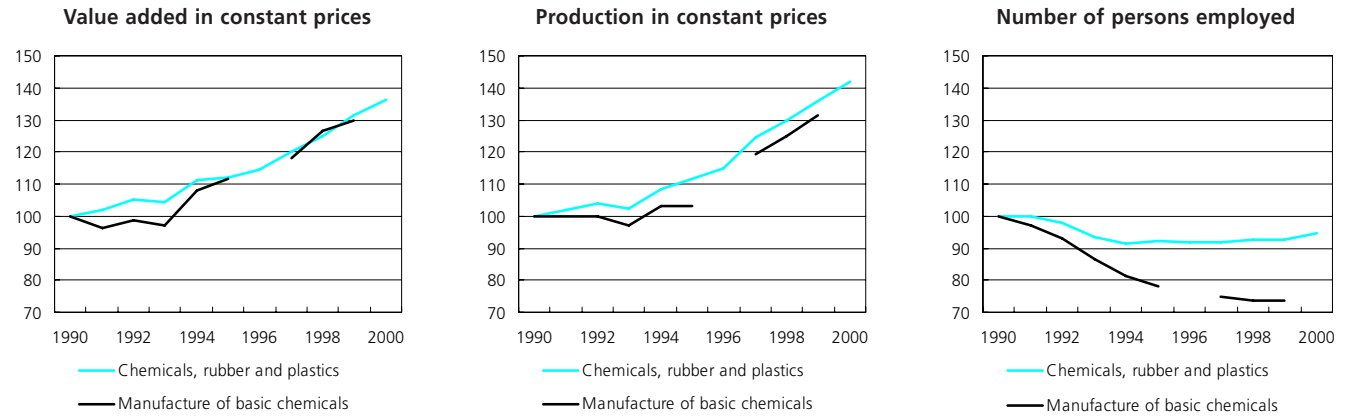
EU production value of selected products from CPA Groups 24.1, latest year (million EUR)

	PRODCOM code	Latest year	Value
Styrene	24.14.12.50	1999	1,250
Oxygen-function amino-compounds (excl. amino-alcohols their esters and ethers and salts thereof, lysine and its salts and esters, glutamic acid its salts and esters)	24.14.42.90	1998	1,053
Isocyanates	24.14.44.50	1999	1,176
Compounds with pyridine, (iso)quinoline cycle,... other heterocyclic compounds only with N	24.14.52.50	1998	4,363
Nucleic acids and other heterocyclic compounds - thiazole, benzothiazole, other cycles	24.14.52.90	1999	3,361
Linear polyethylene having a specific gravity < 0.94; in primary forms	24.16.10.35	1999	1,510
Polyethylene having a specific gravity < 0.94; in primary forms (excl. linear)	24.16.10.39	1998	2,780
Polyethylene having a specific gravity of >= 0.94; in primary forms	24.16.10.50	1999	2,942
Expansible polystyrene; in primary forms	24.16.20.35	1998	1,050
Polystyrene; in primary forms (excl. expansible polystyrene)	24.16.20.39	1998	1,288
Acrylonitrile-butadiene-styrene (ABS) copolymers; in primary forms	24.16.20.70	1999	1,185
Polyvinyl chloride; not mixed with any other substances; in primary forms	24.16.30.10	1997	2,936
Plasticised polyvinyl chloride mixed with any other substance; in primary forms	24.16.30.25	1998	1,138
Polyethylene glycols and other polyether alcohols; in primary forms	24.16.40.15	1997	979
Polycarbonates; in primary forms	24.16.40.40	1999	1,598
Polyesters; in primary forms (excl. polyacetals, polyethers, epoxide resins, polycarbonates, alkyd resins, polyethylene terephthalate, other unsaturated polyesters)	24.16.40.90	1997	1,641
Polypropylene; in primary forms	24.16.51.30	1999	4,859
Silicones; in primary forms	24.16.57.00	1999	2,094
Cellulose ethers and cellulose and its related derivatives; in primary forms (excl. cellulose acetates, cellulose nitrates)	24.16.58.50	1998	870
Synthetic latex rubber	24.17.10.50	1999	859
Synthetic rubber (excl. latex)	24.17.10.90	1997	2,151

Source: Eurostat, European production and market statistics (theme4/europrom)

Figure 6.6

Manufacture of basic chemicals (NACE Group 24.1)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

STRUCTURAL PROFILE

The EU's basic industrial chemicals sector generated 53.1 billion EUR of value added in 1999, 38.3% of the chemicals total and 4.4% of manufacturing. This sector's activity has grown throughout most of the 1990s - in 1999 its value added was 29.9% higher than it had been in 1990 in constant price terms. Germany (31.8%) accounted for the largest share of EU output in 1999. The contribution of this sector to the manufacturing total ranged in 1999 from 0.9% in Denmark (1998) to 4.8% in Germany, with the Netherlands (8.5%, 1998) and Belgium (8.3%) well above this range[9].

Output prices for basic industrial chemicals fluctuated significantly in the EU during the second half of the 1990s. In 1996 and 1998 prices fell by more than 5%, while in 2000 they rose by 15.9%. The overall result was that prices in 2000 were only 0.4% lower than they had been five years earlier.

(9) DK, EL, I and NL, 1998; L and UK, 1997; the Irish share of 24.9% may well be influenced by the fact that Irish value added is net of VAT, but not of other taxes on products (for example, excise duties), which play an important role in this sector.

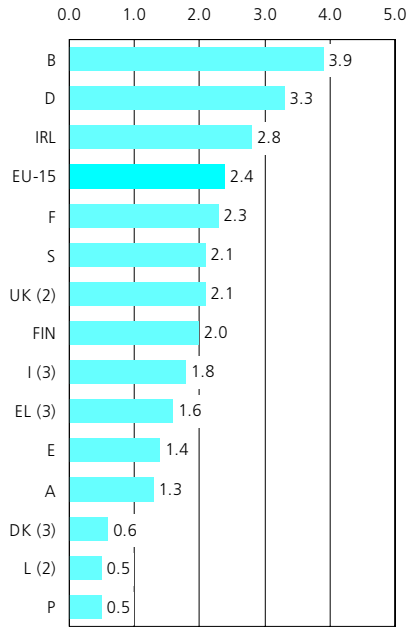
LABOUR AND PRODUCTIVITY

The basic industrial chemicals sector employed 553.6 thousand persons across the EU in 1999, 2.4% of the manufacturing total. Its share of manufacturing employment reached 3.9% in Belgium, 3.3% in Germany and 2.8% in Ireland; whilst in all other Member States it was below the EU average[10]. Employment in the EU's basic industrial chemicals sector fell throughout the 1990s, with sharp contractions in 1993 and 1994. In 1999 there were nearly 200 thousand less persons employed than in 1990, a 26.4% reduction. In relative terms the Member States to experience the largest fall in employment levels were Austria (-54.7%, 1991 to 1999), Germany (-38.4%, 1990 to 1999) and Greece (-37.9%, 1990 to 1998). In contrast, employment grew significantly between 1990 and 1999 in Ireland (66.4%) and Portugal (61.7%).

(10) DK, EL and I, 1998; L and UK, 1997; NL, no recent data available.

Figure 6.7

Manufacture of basic chemicals (NACE Group 24.1)
Share of number of persons employed in manufacturing, 1999 (%) (1)



(1) NL, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

The apparent labour productivity of the EU's basic industrial chemicals sector was high in 1999; 95.9 thousand EUR per person employed compared to the manufacturing average of 51.9 thousand EUR. The productivity advantage was less when measured using simple wage adjusted labour productivity: as EU value added in the basic industrial chemicals sector represented 186.4% of personnel costs in 1999 compared to a manufacturing average of 151.0%.

EXTERNAL TRADE

The EU experienced a record external trade surplus in basic industrial chemicals in 2000, equal to 10.5 billion EUR. Exports to non-Community countries increased by 27.4% compared to 1999 to reach 45.2 billion EUR. In excess of one-third of the EU's exports in 2000 were destined for the US, approximately double the share of ten years earlier. During the 1990s, Poland and China became more important as export markets for the EU, accounting for 3.0% and 2.4% of basic industrial chemical exports in 2000.

Table 6.6

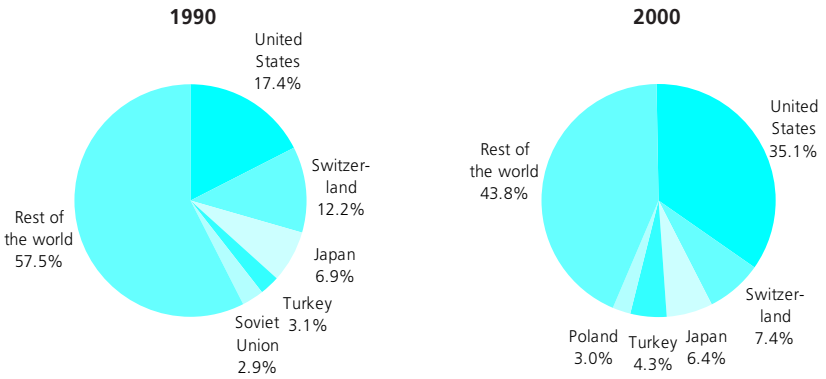
Basic chemicals (CPA Group 24.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	45,214	34,693	10,521	130.3
B	21,621	16,525	5,096	130.8
DK	1,287	1,985	-698	64.8
D	25,897	27,261	-1,364	95.0
EL	297	1,161	-864	25.6
E	5,417	8,461	-3,044	64.0
F	15,734	17,417	-1,683	90.3
IRL	15,357	2,501	12,856	614.1
I	7,695	16,960	-9,265	45.4
L	76	394	-318	19.2
NL	15,630	11,219	4,412	139.3
A	1,661	2,673	-1,012	62.1
P	792	1,574	-782	50.3
FIN	1,655	1,880	-225	88.1
S	2,316	3,451	-1,135	67.1
UK	14,393	13,388	1,005	107.5

Source: Eurostat, Comext

Figure 6.8

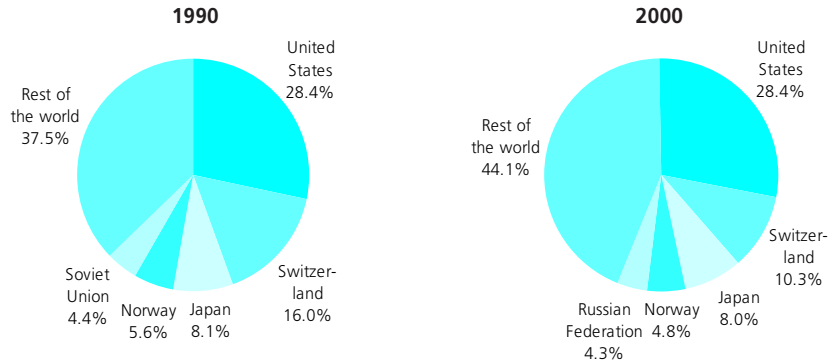
Basic chemicals (CPA Group 24.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.9

Basic chemicals (CPA Group 24.1)
Origin of extra-EU imports



Source: Eurostat, Comext

6.2: AGRO-CHEMICALS

NACE Group 24.2 covers the manufacture of plant growth regulators, disinfectants and products to fight pests and diseases, such as insecticides, fungicides, herbicides and rodenticides. The manufacture of fertilisers and nitrogen compounds are not covered by this NACE Group - see sub-chapter 6.1.

Some of the factors influencing demand for agro-chemicals are the area of land farmed for different purposes, the price of agricultural output and the incidence of various pests and diseases. The purpose of these products is to help protect quality and yields, but these advantages need to be balanced against concerns raised about the potential negative impact that they may have on the environment and food safety.

Table 6.7

EU production value of selected products from CPA Group 24.2, latest year (million EUR)

	PRODCOM code	Latest year	Value
Insecticides based on carbamates; put up in forms or packings for retail sale or as preparations or articles	24.20.11.40	1998	113.4
Insecticides based on organophosphorus products; put up in forms or packings for retail sale or as preparations or articles	24.20.11.50	1998	404.1
Insecticides based on pyrethroids; put up in forms or packings for retail sale or as preparations or articles	24.20.11.60	1998	526.1
Herbicides based on amides; put up in forms or packings for retail sale or as preparations or articles	24.20.12.40	1998	257.2
Herbicides based on carbamates; put up in forms or packings for retail sale or as preparations or articles	24.20.12.50	1998	144.9
Herbicides based on dinitroanilines derivatives; put up in forms or packings for retail sale or as preparations or articles	24.20.12.60	1997	159.9
Herbicides based on urea; uracil and sulphonylurea; put up in forms or packings for retail sale or as preparations or articles	24.20.12.70	1997	423.7
Herbicides p.r.s. or as preparations/articles excl. based on phenoxy-phytohormones, triazines, amides, carbamates, dinitroanaline derivatives, urea, uracil, sulphonylurea	24.20.12.90	1998	1,448.6
Inorganic fungicides; bactericides and seed treatments; put up in forms or packings for retail sale or as preparations or articles	24.20.15.52	1998	159.7
Fungicides; bactericides and seed treatments based on dithiocarbamates; put up in forms or packings for retail sale or as preparations or articles	24.20.15.53	1998	393.2
Fungicides; bactericides and seed treatments based on benzimidazoles; put up in forms or packings for retail sale or as preparations or articles	24.20.15.55	1998	51.2
Fungicides; bactericides and seed treatment based on triazoles or diazoles; put up in forms or packings for retail sale or as preparations or articles	24.20.15.56	1998	481.0
Other fungicides, bactericides and seeds treatments: (ex: Captan,...)	24.20.15.59	1998	662.3

Source: Eurostat, European production and market statistics (theme4/europrom)

STRUCTURAL PROFILE

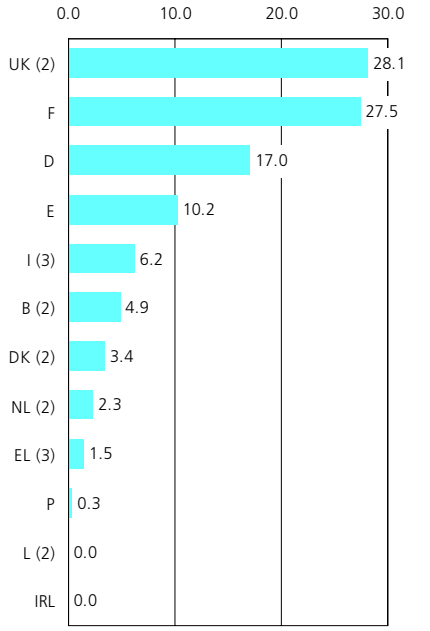
The agro-chemicals sector generated 2.6 billion EUR of value added in 1999, with value added in constant prices growing by 10.7% compared to 1998. It was the smallest chemicals NACE Group in the EU, contributing only 1.9% to total value added for the whole chemicals sector in 1999. Value added generated by the agro-chemicals sector only exceeded 3% of the chemical's total in Greece, the United Kingdom, France and Spain. The largest agro-chemicals sectors in absolute terms were in the United Kingdom and France[11].

Agro-chemical output prices for the EU grew from 1995 (first year available) to 1997 and have since declined, falling 2.0% below their 1995 level by 2000. This was the only chemicals sub-sector where output prices fell in 2000.

(11) EL and I, 1998; B, DK, L, NL and UK, 1997; A, FIN and S, no recent data available.

Figure 6.10

Manufacture of agro-chemicals (NACE Group 24.2)
Share of value added in the EU, 1999 (%) (1)



(1) A, FIN and S, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

Employment in the agro-chemicals sector in 1999 was 27.5 thousand, a net increase of 2.7% compared to 1998. Spain increased its workforce by 1.9 thousand persons (80.5%). Value added per person employed was higher in this sector (95.0 thousand EUR) in 1999 than the average for the whole chemicals sector (84.2 thousand EUR).

EXTERNAL TRADE

Although small in absolute size, the EU's external trade surplus in agro-chemicals (1.7 billion EUR) reflected a high cover ratio (320.9%) compared to the average for all chemical products (165.4%). The trade surplus in 2000 represented a 6.7% increase compared to 1999, but was still below the levels recorded in 1997 and 1998. The US was the EU's largest export destination for agro-chemicals, accounting for 11.1% of agro-chemical exports. The EU's imports were much more concentrated, with Switzerland (45.2%), the US (23.6%) and Israel (8.0%) the origin of more than three-quarters of total imports in 2000.

6.3: PAINTS, VARNISHES AND PRINTING INKS

This sub-chapter covers the manufacture of paints, varnishes, enamels, lacquers, solvents, thinners, varnish removers, as well as printing inks (NACE Group 24.3).

The main downstream activities that are supplied by this sector include transport equipment, printing and construction; their demand is supplemented by purchases made by households for home decoration.

Box 6.4: Volatile Organic Compounds (VOCs)

Solvent-based products (as opposed to water-based products) have advantages for use in difficult conditions but release VOCs. The issue of VOC emissions, not just from paints and varnishes, is covered by a recent Council Directive on the use of organic solvents[12].

(12) Council Directive 99/13/EC OJ N° L 085, 29 March 1999.

STRUCTURAL PROFILE

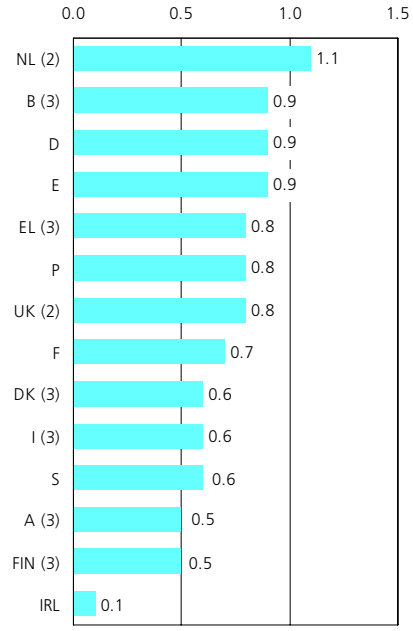
This sector generated 8.2 billion EUR of value added in 1999[13], 6.6% of the chemicals sector's total. In most Member States paints, varnishes and printing inks contributed between 5% and 10% to the chemicals sectors' value added, with Portugal (15.0%) and Ireland (0.3%) outside of this range. The five largest Member States together accounted for about nine-tenths of the activity in this sector.

After a large increase in output prices for this sector in 1991, prices rose at a modest, but steady pace throughout the 1990s, with year on year growth rates of 1.0% or less in each of the last four years (1997 to 2000).

(13) B, DK, EL, I, A and FIN, 1998, NL and UK, 1997; L, not available.

Figure 6.11

Manufacture of paints, varnishes and similar coatings, printing ink and mastics (NACE Group 24.3)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

The number of persons employed in the paints, varnishes and printing inks sector in the EU was 152.3 thousand in 1997, equivalent to 9.2% of employment in the chemicals sector or 0.7% of total manufacturing employment. German employment levels in this sector fell sharply in 1995 and continued to fall each year to 1999. Employment in the United Kingdom fell for most of the first half of the 1990s to a low in 1996, but reversed this trend in 1997.

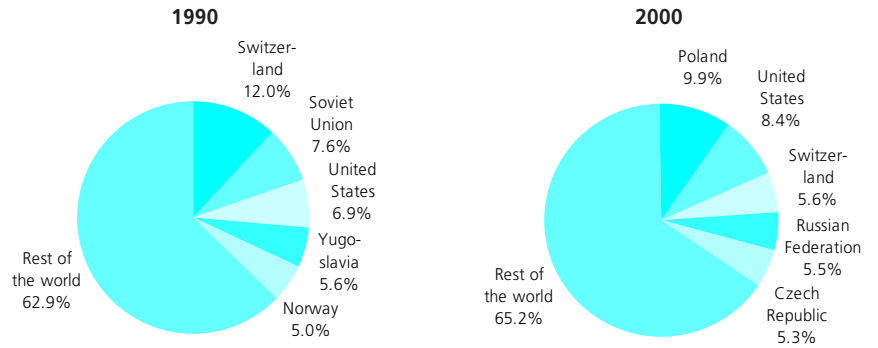
All Member States reported that apparent labour productivity and average personnel costs per employee in this sector were below the average for the chemicals sector, whilst only Germany and Greece recorded simple wage adjusted labour productivity ratios above those for chemicals as a whole.

EXTERNAL TRADE

The EU's paints, varnishes and printing inks product group (CPA Group 24.3) recorded a very high cover ratio (412.5%) in 2000. The external trade surplus with non-Community countries was 3.6 billion EUR. The EU's surplus recorded double-digit year on year growth from 1992 to 1997, followed by more moderate growth in 1998 and 1999; and a return to high growth rates in 2000 (18.0%). This was the only chemicals CPA Group where the US was not the main export destination for the EU; Poland accounted for a 9.9% of the EU's exports of these products in 2000. Switzerland (36.9%) was the main origin of EU imports, followed by the US (34.4%).

Figure 6.12

Paints, varnishes and similar coatings, printing ink and mastics (CPA Group 24.3)
Destination of extra-EU exports



Source: Eurostat, Comext

6.4: PHARMACEUTICALS

The manufacture of pharmaceuticals is broken down into two Classes within NACE: the manufacture of basic pharmaceutical products (NACE Class 24.41) and pharmaceutical preparations (NACE Class 24.42), such as medicaments, vaccines, homeopathic preparations, chemical and hormonal contraceptives, dental fillings, as well as medical impregnated bandages and dressings. This sector covers prescription and non-prescription (self-medication) pharmaceuticals, including homeopathic preparations, for human and veterinary use.

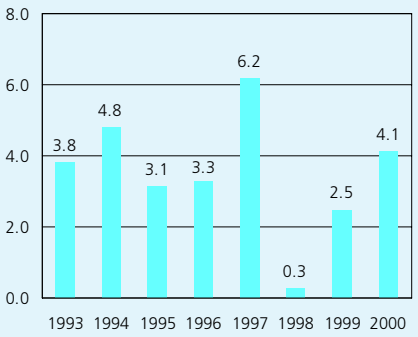
Over the long-term, demand for pharmaceutical products is expected to grow as a result of changing demographics. Self-medication products (such as herbal remedies, vitamin and mineral supplements) are a growing market segment - see box 6.5. Whilst the volume of pharmaceuticals consumed may grow, in value terms there is pressure to replace generally more expensive, branded products with cheaper, generic ones.

Major issues for the sector are quality control in the production process, the high R&D cost of new drug development and the related effectiveness of patent protection.

Box 6.5: self-medication

Figure 6.13

Self-medication market at market prices, EU-15 annual growth rates in current prices, (%) (1)



(1) Excluding DK, EL and L.
Source: AESGP

Box 6.7: animal health care

The sector for animal health care products includes feed additives, such as vitamins and growth promoters, as well as more traditional pharmaceutical products such as antibiotics and vaccines. Agricultural livestock represent the largest market for these products.

Table 6.8

Sales of animal pharmaceuticals by European enterprises to the European market by selected therapeutic class, 2000 (million EUR) (1)

Anti-inflammatory agents	133
Antimicrobial products injectable form	280
Antimicrobial products oral form	320
Antiparasitic	822
Topical products	220
Vaccines	725

(1) Excluding FIN and S; including CH.
Source: CEESA

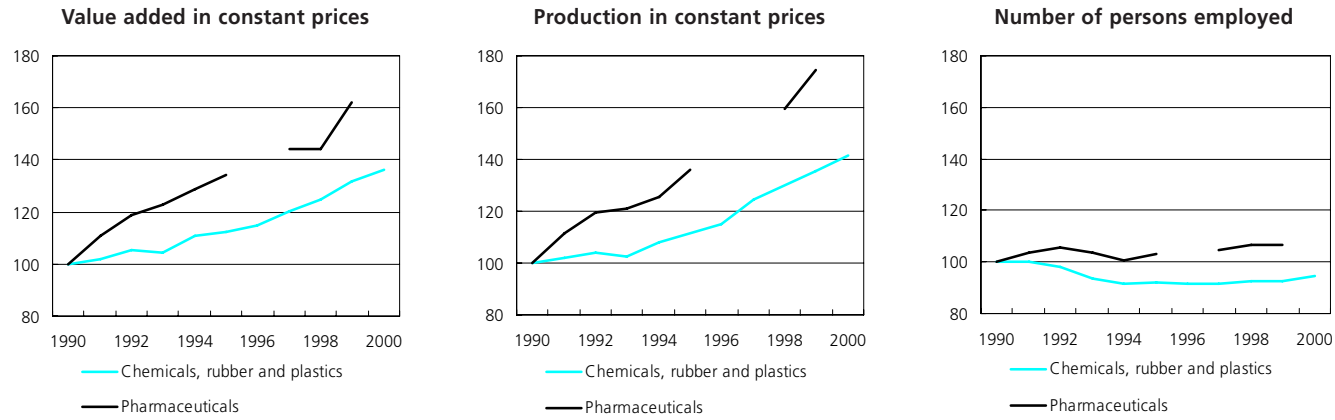
Box 6.6: pharmaceuticals legislation

In 2001 the European Commission made three legislative proposals under its review of pharmaceuticals legislation in the EU. These concerned the authorisation and supervision of medicinal products (and the establishment of a European Agency for the Evaluation of Medicinal Products) and two Regulations for amending the Community codes relating separately to human and veterinary medicinal products. The two-fold objective of these proposals was to guarantee a high level of health protection and to complete the Internal Market for pharmaceutical products, boosting the competitiveness of the EU's pharmaceutical sector, within an environment of rapid scientific advances in medicines. Clearer procedures for the pharmaceutical sector are also foreseen.

In January 2002, the European Commission adopted a proposal for a Directive on traditional herbal medicinal products, addressing issues of registration of these products with the goal that quality, safe, effective products are available in order to protect public health.

Figure 6.14

Pharmaceuticals (NACE Group 24.4)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

STRUCTURAL PROFILE

The pharmaceuticals sector generated 43.3 billion EUR of value added in 1999, equal to 3.6% of total manufacturing. This is the second largest NACE Group within the EU's chemicals sector. Its share of chemical's value added increased from 28.8% in 1998 to 31.2% in 1999, marking the first time it had exceeded its 1993 share of 29.3%. The EU's pharmaceuticals sector recorded growth in constant price value added throughout this period (its 1999 level of value added was 32.0% higher than its 1993 level).

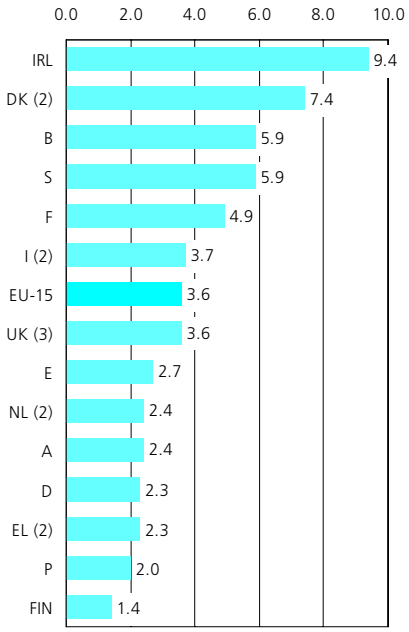
France and Germany each accounted for just under 20% of the EU's pharmaceuticals sector in 1999[14]. Measured as a share of manufacturing value added, Ireland, Denmark, Sweden, Belgium and France were specialised in pharmaceuticals relative to the EU average; the least specialised countries in the EU were Finland and Portugal.

Output prices for pharmaceuticals rose each and every year in the EU from 1995 to 2000, at an average rate of 1.3% per annum.

(14) DK, EL, I and NL, 1998, UK, 1997; L, not available.

Figure 6.15

Pharmaceuticals (NACE Group 24.4)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

RESEARCH AND DEVELOPMENT

The pharmaceuticals sector accounted for 58.0% of intramural R&D expenditure by the chemical sector and 14.1% of the manufacturing total in 1998[15]. The EU's intramural R&D expenditure in pharmaceuticals was most heavily focused in the United Kingdom (3.3 billion EUR) and France (2.2 billion EUR). A time-series based on intramural R&D expenditure for eleven Member States indicates that expenditure increased on average by 7.9% per annum between 1989 and 1997[16], more than double the rate for the chemical sector as a whole (3.7%) for the same Member States.

(15) I, 1999; D, EL, IRL and S, 1997; L, A, P and FIN, not available.
(16) L, A, P and FIN, not available.

LABOUR AND PRODUCTIVITY

EU employment in the pharmaceuticals sector in 1999 was 470.2 thousand, 1.3 thousand more than in 1998 and 10.3 thousand more than in 1997. Those employed represented only 2.0% of the manufacturing total, considerably lower than the pharmaceutical sector's share of manufacturing value added.

Several Member States recorded large increases in employment: between 1990 and 1999: employment growth was 129.7% in Ireland and between 50% and 75% in Sweden and Denmark (1990 to 1998).

Germany's share of the EU's pharmaceutical sector's workforce was 23.4% in 1999, which made it the largest employer in this sector. This was however several percentage points higher than its share of value added, and as a result Germany's apparent labour productivity was considerably below the EU average. Nevertheless, Germany's apparent labour productivity for the pharmaceuticals sector was above its average for the chemicals sector, as it was in all Member States except for Finland and Greece[17].

(17) DK, EL and I, 1998, UK, 1997;
L and NL, not available.

EXTERNAL TRADE

The EU's exports of pharmaceuticals in 2000 were valued at 39.1 billion EUR, the second highest level among chemicals (at the level of CPA Groups). The pharmaceuticals trade surplus grew nearly every year during the 1990s from 4.1 billion EUR in 1990 to 19.2 billion EUR in 2000, recording the highest trade surplus among chemicals CPA Groups (a position that pharmaceuticals held throughout the 1990s, with the exception of 1993).

Table 6.9

Pharmaceuticals (CPA Group 24.4)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	39,139	19,927	19,212	196.4
B	8,972	7,370	1,602	121.7
DK	3,206	1,087	2,119	295.0
D	16,000	11,210	4,789	142.7
EL	256	1,269	-1,013	20.2
E	2,509	4,426	-1,917	56.7
F	12,861	10,852	2,010	118.5
IRL	7,587	1,831	5,756	414.4
I	7,475	7,076	399	105.6
L	23	173	-150	13.2
NL	5,569	5,253	316	106.0
A	1,980	2,234	-255	88.6
P	315	1,060	-745	29.8
FIN	353	793	-440	44.5
S	4,284	1,498	2,787	286.0
UK	12,468	9,452	3,015	131.9

Source: Eurostat, Comext

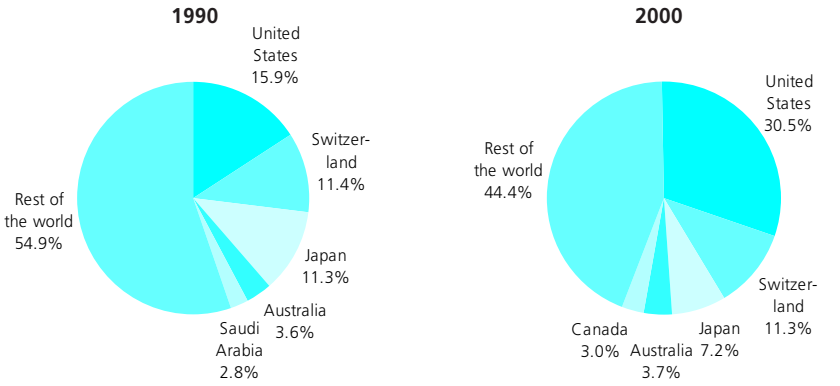
Considering intra-EU and extra-EU trade together, Germany (19.1%), France (15.3%), the United Kingdom (14.9%) and Belgium (10.7%) all accounted for 10% or more of the total exports by the fifteen Member States in 2000. Ireland and Denmark were the most specialised in exporting pharmaceutical products, as these products accounted for 10.1% and 6.8% respectively of manufactured exports (whereas the share was below 5% in all other Member States).

The US accounted for three-tenths of the EU's exports of pharmaceuticals in 2000. Switzerland, Japan, Australia and Canada completed the top 5 ranking. All of these countries, in particular Australia, reported larger shares of the EU's exports of pharmaceuticals than their shares of all manufactured goods.

The EU was very dependent on a small number of countries for its imports of pharmaceutical products. The US (43.9%) and Switzerland (32.7%) alone accounted for more than three-quarters of all imports in 2000. The further inclusion of Japan, China, Israel and Australia took the combined share of the top six countries to over 90%.

Figure 6.16

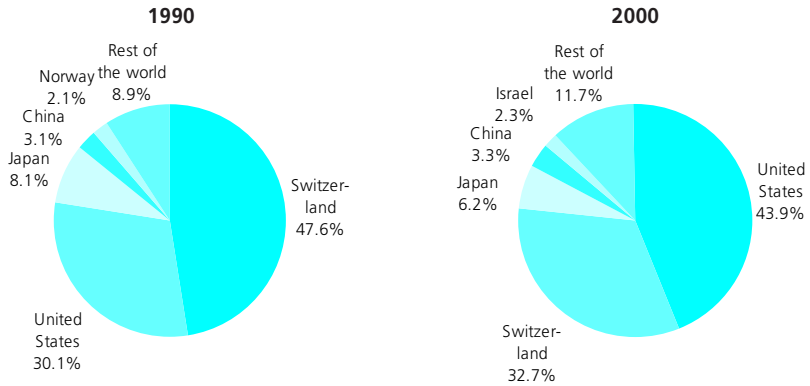
Pharmaceuticals (CPA Group 24.4)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.17

Pharmaceuticals (CPA Group 24.4)
Origin of extra-EU imports



Source: Eurostat, Comext

6.5: SOAPS, DETERGENTS AND TOILETRIES

This sub-chapter covers the manufacture of washing and cleaning products, as well as perfumes, toiletries, cosmetics and related products (NACE Group 24.5).

Soaps and detergents are used in sectors where hygiene is paramount (for example catering) and there is also a market for cleaning equipment and materials used in manufacturing processes (for example food and beverage processing). The main market for these products is however households. An indication of the importance of the different product markets is given in figure 6.19. The soaps, detergents and toiletries sector invests strongly in product R&D and marketing, particularly for branded consumer goods.

Box 6.8: detergents legislation

In August 2001 the Enterprise Directorate-General of the European Commission announced a consultation process on its draft proposal to revise the EU's detergents legislation. The proposal was aimed at reworking the existing Directives concerning the biodegradability of surfactants[18], a key substance used in detergents that results in foam in water systems. It is intended that the proposed legislation should increase protection for the aquatic environment, better inform consumers on the contents of products and increase transparency in the existing legislation.

(18) Council Directive 73/404/EEC, OJ N° L 347, 17 December 1973; Council Directive 73/405/EEC, OJ N° L 347, 17 December 1973; Council Directive 82/242/EEC, OJ N° L 109, 22 April 1982; Council Directive 82/243/EEC, OJ N° L 109, 22 April 1982; Council Directive 86/94/EEC, OJ N° L 080, 25 March 1986.

STRUCTURAL PROFILE

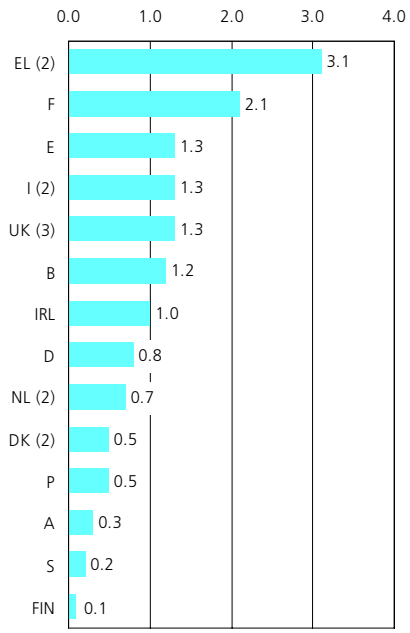
The soaps, detergents and toiletries sector generated 13.6 billion EUR of value added in the EU in 1999[19], equivalent to 1.1% of manufacturing value added and 9.9% of the chemicals sector's value added. In Greece (1998) this sector accounted for 3.1% of manufacturing value added and nearly one-third of the chemicals total.

EU output prices for soaps, detergents and toiletries rarely grew by more than 1% per year between 1995 and 2000; by 2000 prices were 4.7% higher than in 1995 and 21.6% higher than in 1990.

(19) DK, EL, I and NL, 1998; UK, 1997, L, not available.

Figure 6.18

Soaps, detergents and toiletries (NACE Group 24.5)
Share of value added in manufacturing, 1999 (%) (1)

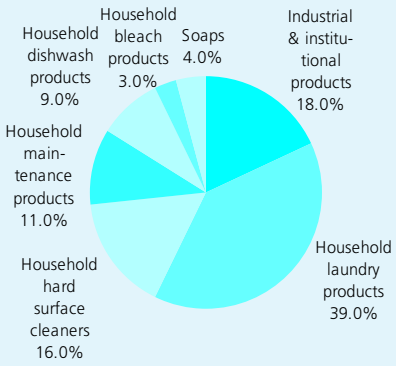


(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 6.9: sales of soaps, detergents and toiletries

Figure 6.19

Value of sales of soaps, detergents and cleaning products in Europe, 1999 (1)



(1) EU-15, NO and CH.
Source: AISE

LABOUR AND PRODUCTIVITY

EU employment in this sector in 1997 was 219.9 thousand, 13.3% of the chemicals total. Greece was the only Member State that reported apparent labour productivity in the soaps, detergents and toiletries sector above the average for the whole of its chemicals sector[20]. This was also the case for simple wage adjusted labour productivity, despite the fact that all Member States reported that average personnel costs per employee in the soaps, detergents and toiletries sector were below the average for the chemicals sector.

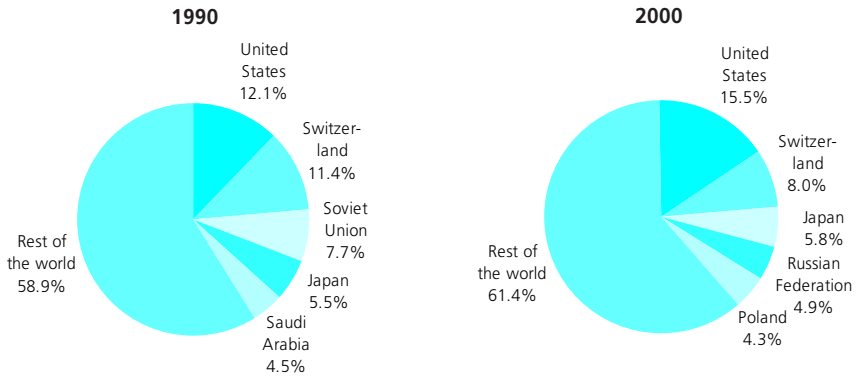
EXTERNAL TRADE

The EU recorded an external trade surplus of 7.2 billion EUR for soaps, detergents and toiletries (CPA Group 24.5) in 2000 based on exports to non-Community countries of 9.8 billion EUR. Exports grew throughout the 1990s with the exception of 1998 when their level remained unchanged.

(20) DK, EL and I, 1998; UK, 1997; L and NL, not available.

Figure 6.20

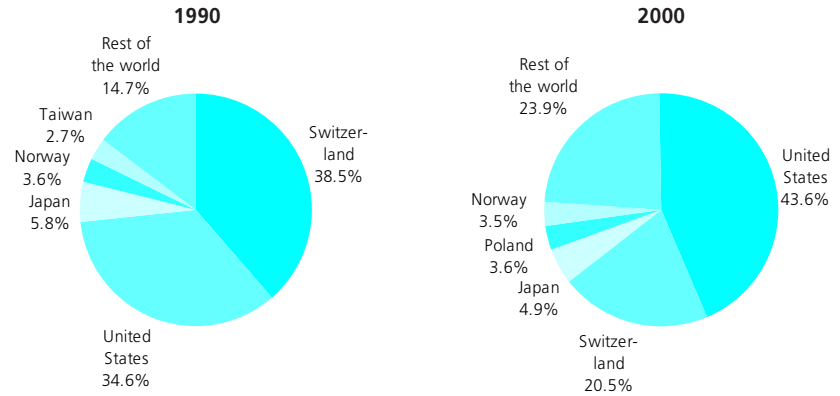
Soaps, detergents and toiletries (CPA Group 24.5)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.21

Soaps, detergents and toiletries (CPA Group 24.5)
Origin of extra-EU imports



Source: Eurostat, Comext

6.6: MISCELLANEOUS CHEMICAL PRODUCTS

NACE Group 24.6 is a residual group covering a miscellaneous selection of chemicals. The product range of this sector is extensive. Photographic chemical materials include plates and film, as well as chemical preparations used for photographic purposes but not cinematographic film. A large part of the explosives output is used in mining and quarrying. This sector also covers the manufacture of glues, gelatines and essential oils, as well as a range of products that are mainly used as intermediate inputs in other manufacturing processes.

STRUCTURAL PROFILE

This sector generated 13.4 billion EUR of value added in 1999, 9.7% of the total for the chemicals sector. In constant price terms value added in this sector grew 9.0% in 1999. Over the previous five years the sector averaged annual growth of 1.5%. The Member States most active in the manufacture of miscellaneous chemical products relative to their total manufacturing activity were Belgium (2.5% of manufacturing value added) and the Netherlands (1.8%, 1998)[21]. The largest sectors in absolute terms were found in Germany and the United Kingdom (1997).

Output prices of miscellaneous chemical products in the EU remained quite stable between 1995 and 1999, but grew by 2.6% in 2000. Within this sector, the manufacture of prepared, unrecorded media (NACE Class 24.65) registered the largest fall (9.5%) in output prices between 1995 and 2000. The manufacture of explosives, glues and gelatines and other chemical products (NACE Classes 24.61, 24.62 and 24.66) all recorded an overall increase in output prices of between 4% and 6% between 1995 and 2000.

(21) DK, EL, I and NL, 1998; FIN and UK, 1997; IRL and L, not available.

LABOUR AND PRODUCTIVITY

Employment in the EU's miscellaneous chemical products sector was 175.4 thousand in 1999, 10.6% of the chemical sector's workforce. Apparent labour productivity was 76.6 thousand EUR per person employed in 1999, nearly 10% below the average for the chemicals sector, but still clearly above the manufacturing average. With the exception of Belgium, all Member States reported average personnel costs per employee lower in this sector than for the whole of the chemicals sector[22].

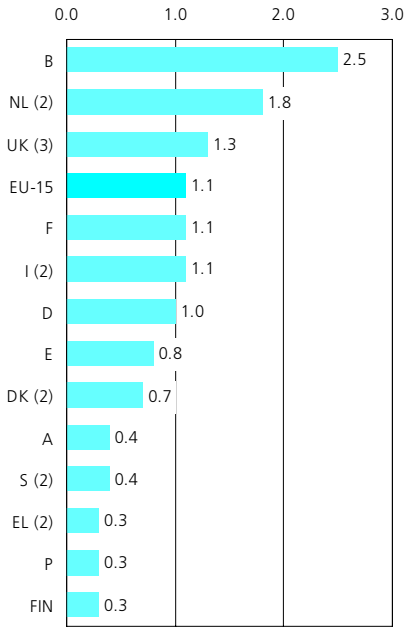
EXTERNAL TRADE

The EU's external trade surplus in miscellaneous chemical products (CPA Group 24.6) was 5.4 billion EUR in 2000, from exports of 16.4 billion EUR. During the 1990s the trade surplus grew every year except 1998 (-13.0%). The EU exported miscellaneous chemical products to a wide range of countries, with the ten largest export destinations accounting collectively for only just over half (51.4%) of all exports. In contrast, the EU was heavily dependent upon the US (44.9%), Japan (20.5%) and Switzerland (10.3%) for its imports of these products.

(22) DK, EL, I and S, 1998; UK, 1997; IRL, L and NL, not available.

Figure 6.22

Manufacture of other chemical products (NACE Group 24.6)
Share of value added in manufacturing, 1999 (%) (1)



(1) IRL and L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 6.10

Other chemical products (CPA Group 24.6)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	16,449	11,043	5,406	149.0
B	4,015	2,752	1,263	145.9
DK	421	665	-244	63.3
D	11,407	7,523	3,884	151.6
EL	84	441	-357	19.1
E	1,032	2,397	-1,365	43.1
F	6,473	5,718	755	113.2
IRL	3,656	747	2,909	489.4
I	2,509	4,135	-1,626	60.7
L	243	172	72	141.7
NL	4,355	3,485	870	125.0
A	631	1,190	-559	53.0
P	145	523	-378	27.7
FIN	275	499	-224	55.2
S	787	1,012	-225	77.8
UK	6,219	5,548	671	112.1

Source: Eurostat, Comext

6.7: MAN-MADE FIBRES

This sub-chapter relates to the manufacture of artificial and synthetic fibres from organic materials (NACE Group 24.7). Man-made fibres derived from minerals (carbon, ceramic, glass or metal) are not covered by this NACE Group.

Organic man-made fibres are generally intermediate products that are further processed into clothing and textiles; they are often mixed with natural fibres. The fibres are either extruded as filaments (yarn) or as staple fibres; the latter may be used as filling or converted later into yarn. Synthetic polymer fibres, such as polyester and nylon, are based on petrochemicals and are characterised by their durability. Fibres from natural polymers, such as viscose, are made from renewable raw material sources such as wood.

STRUCTURAL PROFILE

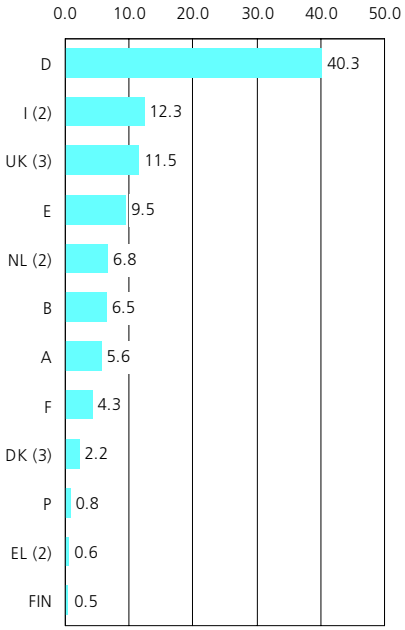
The EU's man-made fibres sector generated just 3.0 billion EUR of value added in 1999, 2.2% of the chemical sector's total. The sector was dominated by Germany, which alone accounted for almost two-fifths of the EU's value added. The man-made fibres sector accounted for less than 4% of chemical's value added in all Member States in 1999, except Austria (8.5%)[23].

In constant price terms EU value added in this sector grew substantially in 1997 (23.4%), but declined in 1998 and 1999 (by 5.2% and 8.2%). Output prices rose in 2000 by 4.8% but remained 9.4% below their level of five years earlier due to prices falling in each year between 1995 and 1999.

(23) EL, I and NL, 1998; DK and UK, 1997; IRL, L and S, not available.

Figure 6.23

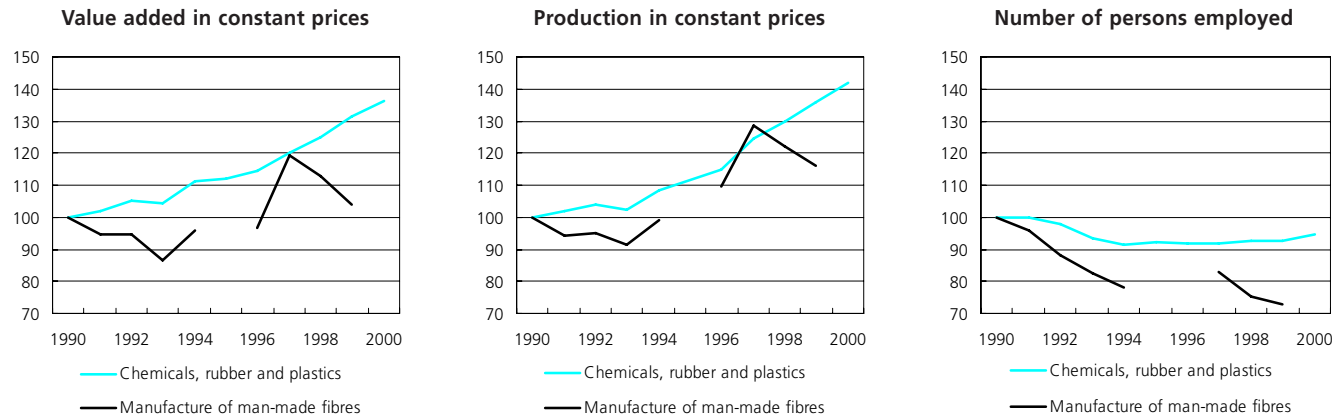
Manufacture of man-made fibres (NACE Group 24.7)
Share of value added in the EU, 1999 (%) (1)



(1) IRL, L and S, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.24

Manufacture of man-made fibres (NACE Group 24.7)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

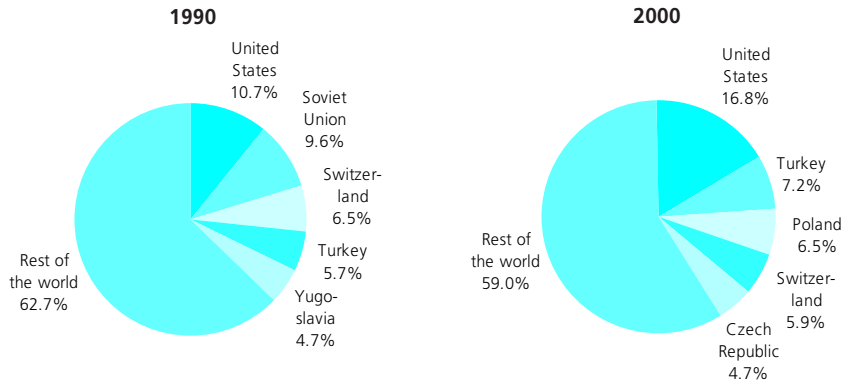
Employment in the man-made fibres sector was down to 56.3 thousand in 1999, 1.8 thousand less than in 1998 and 7.9 thousand less than in 1997; most of this net employment contraction was recorded in Germany and Italy. Man-made fibres contributed 3.9% of the EU's workforce in the chemicals sector in 1997, a share that fell to 3.4% in 1999. Apparent labour productivity of the EU's man-made fibre sector fell sharply from 60.7 thousand EUR per person employed in 1998 to 53.9 thousand EUR in 1999, only just above the manufacturing average.

EXTERNAL TRADE

Man-made fibres (CPA Group 24.7) is the only chemicals CPA Group to have reported a trade deficit in 2000. Imports of 2.4 billion EUR from non-Community countries exceeded exports by 1.4 billion EUR. These products recorded a trade deficit throughout the 1990s, increasing in magnitude each year between 1993 and 1998, most notably doubling in 1997. The EU's exports of these products in 2000 were mainly destined for the US, as well as other European countries, most notably Turkey. These two countries were also an important origin of EU imports, as were South Korea and Japan.

Figure 6.25

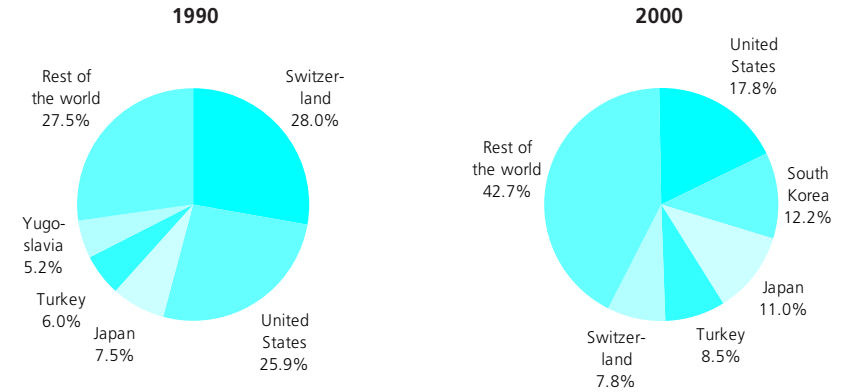
Man-made fibres (CPA Group 24.7)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.26

Man-made fibres (CPA Group 24.7)
Origin of extra-EU imports



Source: Eurostat, Comext

6.8: RUBBER

The rubber sector (NACE Group 25.1) has three distinct parts: the manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres; the manufacture of all other rubber products.

The most important downstream sector for the rubber products sector is transport equipment, primarily because the production of tyres is the largest part of the rubber sector. As well as the original equipment market there is a large replacement tyre market. The world tyre industry is dominated by a few, very large manufacturers. The tyre retreading sub-sector is particularly important for lorry and aircraft tyres. Non-tyre markets may be split between the transport equipment sector (for example, wiper blades and hoses) and other manufacturing sectors (for example, mining conveyor belts, floor coverings and engineering components). Foam rubber is used in furniture manufacturing.

The main environmental problem faced by the rubber products sector is the disposal of products after use, particularly for tyres. Practices vary between countries and include landfill, retreading, granulating and incineration (to generate energy).

Box 6.10: used tyre mountain

Extending the life of tyres can play a part in reducing the generation of waste, but it will not solve the problem of the existing stockpile. Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste[24] bans the landfilling of tyres with exceptions for certain categories and sizes of tyres and this ban has already been implemented by some Member States.

(24) Council Directive 99/31/EC, OJ N° L 182, 16 July 1999.

Table 6.11

Used tyre arisings per year, 2000 (thousand tonnes)

EU-15	2,509
B	70
DK	38
D	650
EL	59
E	244
F	370
IRL	32
I	350
L	3
NL	67
A	50
P	52
FIN	30
S	60
UK	435

Source: VIRIDIS project, ETRA

STRUCTURAL PROFILE

Value added in the EU's rubber sector in 1999 was 14.5 billion EUR, 1.2% of manufacturing value added. Germany and France together accounted for more than half of the activity in this sector[25]. Luxembourg (1997) was the most specialised Member State, as the rubber sector contributed 6.3% to total manufacturing value added, whilst in no other Member State did this share rise above 2%.

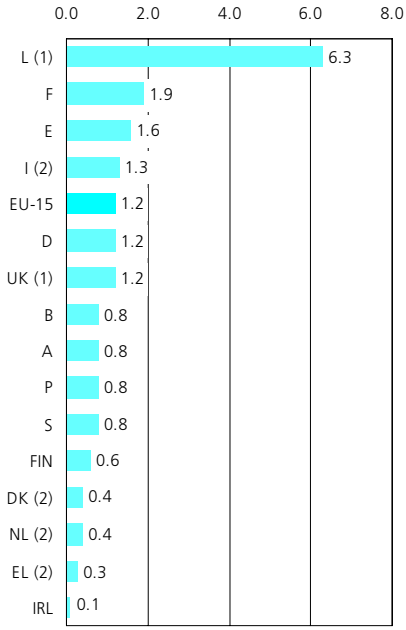
EU value added in constant prices in the rubber sector fell in 1992 and 1993 before recovering, a similar trend to that observed in manufacturing as a whole. By 1995 the rubber sector had recovered beyond its previous peak (1991) and by 1999 output was 19.6% above its low of 1993. The sector's average growth rate in the five years to 1999 was 2.2% per annum, lower than the manufacturing average of 2.6% per annum. However, the rubber sector experienced strong growth in constant price terms between 1994 and 1999 in several Member States, as can be seen from the annual average growth rates for Finland (9.3%), Belgium (8.1%, 1995 to 1999), Sweden (7.4%, 1993 to 1998), Spain (5.9%) and France (5.2%).

After growing during the first half of the 1990s (2.2% per annum on average, 1990 to 1995), and in 1996, EU output prices for the rubber sector fell for three consecutive years, before increasing slightly (0.2%) in 2000. The output price level in 2000 was the same as it had been in 1995.

(25) DK, EL, I and NL, 1998; L and UK, 1997.

Figure 6.27

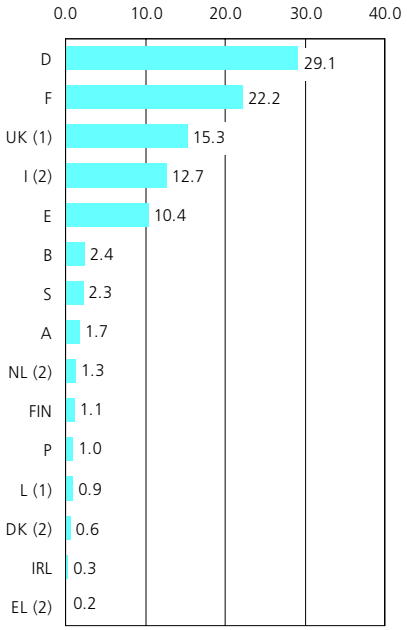
Manufacture of rubber products (NACE Group 25.1)
Share of value added in manufacturing, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.28

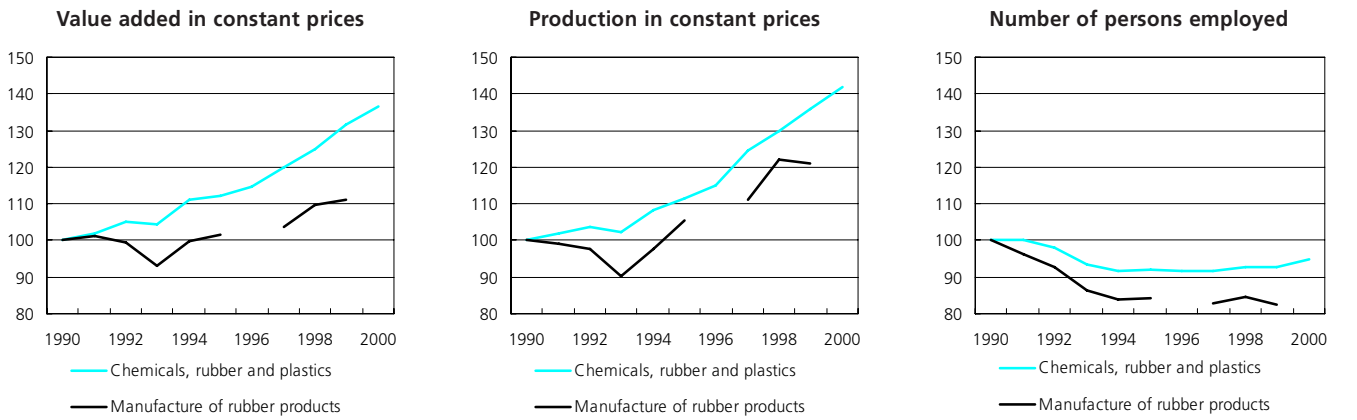
Manufacture of rubber products (NACE Group 25.1)
Share of value added in the EU, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.29

Manufacture of rubber products (NACE Group 25.1)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

Employment in the EU's rubber sector in 1999 was 295.2 thousand, a similar level to that recorded since 1994. This stable level of employment followed a reduction of almost 60 thousand in the number of persons employed between 1989 and 1994, most of which was concentrated in Germany, the United Kingdom and France. The apparent stabilisation of the EU employment level since 1994 however hides a continuing reduction in employment levels in Germany and sustained or new growth in several Member States, particularly Italy, Spain and the United Kingdom.

Apparent labour productivity (49.1 thousand EUR per person employed) and simple wage adjusted labour productivity (value added equal to 137.0% of personnel costs) in the EU's rubber sector were below manufacturing averages in 1999; both of these productivity measures for the rubber sector were below the manufacturing average throughout the 1990s, although the differential rarely exceeded 10%.

EXTERNAL TRADE

The EU's external trade in rubber products recorded a small deficit in 2000, as imports (6.4 billion EUR) exceeded exports (6.0 billion EUR) by 5.1%, the third consecutive year that a deficit was recorded (although smaller than in 1999). Considering intra-EU and extra-EU trade together Germany, Spain, France, Italy and Luxembourg all recorded a surplus for rubber products.

The Czech Republic accounted for a particularly large proportion of the EU's exports of rubber products relative to its share of all manufactured goods exported from the EU. The growth in the importance of the Czech Republic as an origin of EU imports was even greater: in 1990 Czechoslovakia supplied 1.9% of the EU's imports of rubber products, whilst by 2000 the Czech Republic alone accounted for 8.3% of the total, the third largest share behind Japan and the US.

Table 6.12

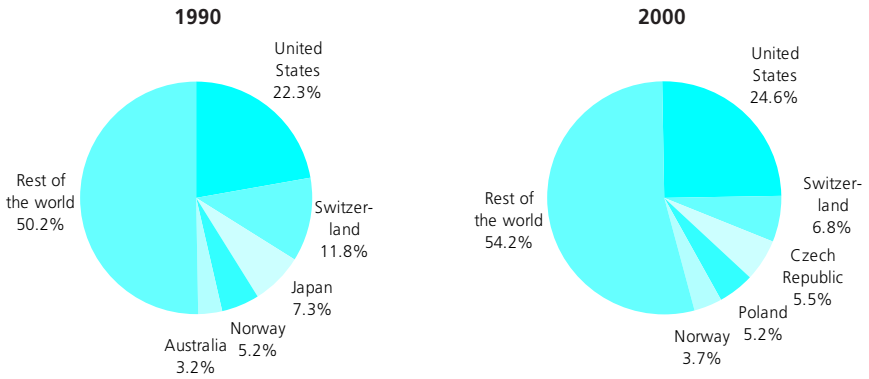
Rubber products (CPA Group 25.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	6,044	6,352	-308	95.1
B	1,387	1,711	-324	81.1
DK	180	419	-239	43.0
D	5,379	5,098	281	105.5
EL	41	226	-184	18.4
E	2,124	1,740	384	122.1
F	4,108	2,630	1,478	156.2
IRL	115	245	-129	47.1
I	2,481	2,102	379	118.0
L	273	84	189	324.8
NL	1,212	1,497	-285	81.0
A	264	825	-561	32.0
P	298	453	-155	65.8
FIN	222	275	-53	80.6
S	614	850	-236	72.2
UK	2,256	2,654	-398	85.0

Source: Eurostat, Comext

Figure 6.30

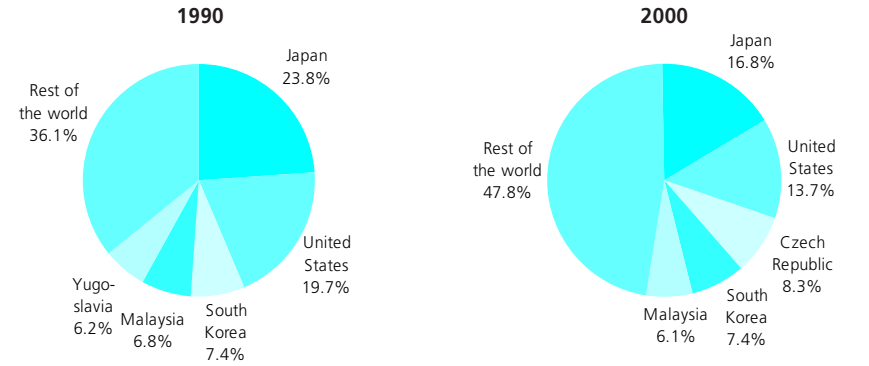
Rubber products (CPA Group 25.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.31

Rubber products (CPA Group 25.1)
Origin of extra-EU imports



Source: Eurostat, Comext

6.9: PLASTICS

This final sub-chapter covers plastic products which in NACE are sub-divided into four Classes. NACE Class 25.21 covers the manufacture of plastic sheets, pipes and tubes. The manufacture of plastic packaging goods, such as bags, containers and bottles are included within NACE Class 25.22, whilst the manufacture of various plastic products for the construction sector (such as doors, frames and baths) are classified in NACE Class 25.23. The manufacture of other plastic products, such as insulating and lighting fittings, office supplies, clothing and furniture fittings are included within NACE Class 25.24. These activities do not cover the manufacture of plastic games, toys, footwear, furniture and linoleum.

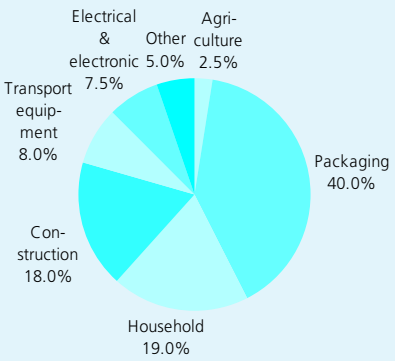
Box 6.11: consumption of plastics products

The environmental issues relating to waste plastic products have attracted growing attention throughout the 1990s and into the 21st Century. One of the first pieces of Community legislation relating to this area was Directive 94/62/EC of 20 December 1994 on packaging and packaging waste[26], which covered all materials used for this purpose, including plastics. As well as being used extensively for packaging, plastics are also an important component in many capital goods for which end-of-life legislation is under discussion or has recently been adopted, notably electrical and electronic equipment (see box 11.2 in chapter 11) and transport equipment[27]. Figures 6.32 and 6.33 illustrate the importance of these key markets for the plastic products sector and also the origin of post-user plastics waste.

(26) European Parliament and Council Directive 94/62/EC, OJ N° L 365, 31 December 1994.
(27) European Parliament and Council Directive 00/53/EC relating to End of Life vehicles entered into force on 21 October 2000; it establishes producer responsibility and maintains restrictions on the use of certain substances.

Figure 6.32

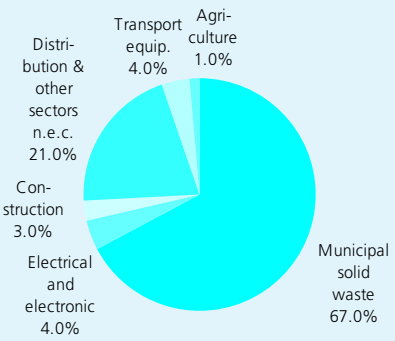
Quantity of plastics consumption by application or sector in Europe, 1999 (1)



(1) EU-15, NO and CH.
Source: An analysis of plastics consumption and recovery in Western Europe, 1999, APME

Figure 6.33

Quantity of plastics waste by end-use in Europe, 1999 (1)



(1) EU-15, NO and CH.
Source: An analysis of plastics consumption and recovery in Western Europe, 1999, APME

The plastic products sector converts primary plastics into products by a variety of methods such as injection moulding and extrusion. The first plastics were used as substitutes for ivory, but the expansion of plastics use in the second half of the 20th Century has been as substitutes for more widely used materials such as glass, wood, metals and paper. Plastics are often a substitute for heavier materials, leading to improved fuel efficiency in transport equipment and reductions in the weight and volume of packaged products (leading to a reduction in energy consumption within transport services).

Plastic products have a negative impact on the environment through the consumption of energy in their production and through their disposal. Particular attention has focused on PVCs[28] and the European Commission has adopted a Green Paper on this subject - see box 6.12. At present, the main methods of plastics disposal are incineration and landfill, energy recovery and mechanical recycling - see box 6.13.

(28) Polyvinyl chloride.

Box 6.12: PVC and the environment

On 26 July 2000 the European Commission adopted a Green Paper on the environmental issues of PVC[29]. Its purpose is to assess the impact of PVC wastes on the environment and to propose solutions to address identified problems. The Green Paper is mainly based on the results of a comprehensive study programme launched by the Commission in 1999-2000 to examine the environmental and economic end-of-life factors of PVC waste management, studying mechanical and chemical recycling, landfill and incineration. The Green Paper also deals with environmental and health questions concerning the use of additives in PVC, particularly lead, cadmium and phthalates.

(29) COM(2000) 469.

STRUCTURAL PROFILE

The EU's plastics sector generated 43.4 billion EUR of value added in 1999. This sector's share of manufacturing value added has grown steadily for many years, rising from 2.8% of the total in 1989 to 3.6% ten years later. Luxembourg was the EU's most specialised Member State in the plastics sector, having generated 156.5 million EUR of value added (1997) equivalent to 7.7% of its manufacturing value added[32]. The largest plastics sectors were in Germany and the United Kingdom, which together accounted for around 50% of the EU's value added in this sector.

(32) DK, EL, I and NL, 1998; L and UK, 1997.

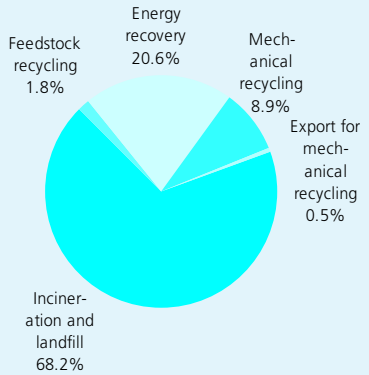
Box 6.13: plastics recovery

Landfilling and incineration of waste have been subject to recent Community legislation: Directive 1999/31/EC of 26 April 1999 on the landfill of waste[30] and Directive 2000/76/EC of 4 December 2000 on the incineration of waste[31].

(30) Council Directive 99/31/EC, OJ N° L 182, 16 July 1999.
(31) European Parliament and Council Directive 00/76/EC, OJ N° L 332, 28 December 2000.

Figure 6.34

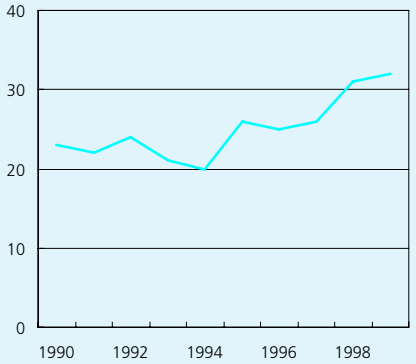
Quantity of plastics waste by recovery route in Europe, 1999 (1)



(1) EU-15, NO and CH.
Source: An analysis of plastics consumption and recovery in Western Europe, 1999, APME

Figure 6.35

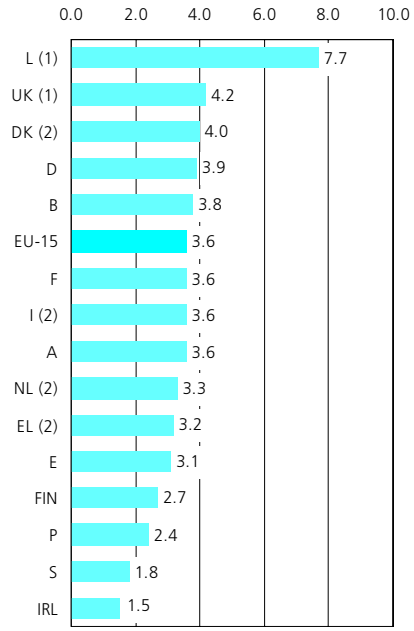
Quantity of plastics waste by end-use in Europe, 1999 (1)



(1) EU-15, NO and CH; recovery includes mechanical and feedstock recycling and energy recovery; time-series have been re-evaluated to take account of methodological changes, however, comparison between years should be treated with care.
Source: An analysis of plastics consumption and recovery in Western Europe, 1999, APME

Figure 6.36

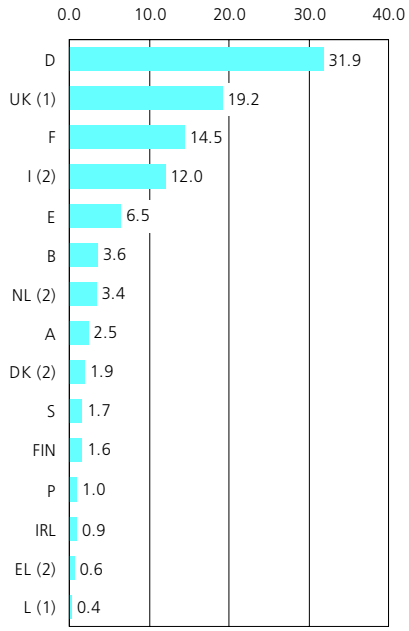
Manufacture of plastic products (NACE Group 25.2)
Share of value added in manufacturing, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.37

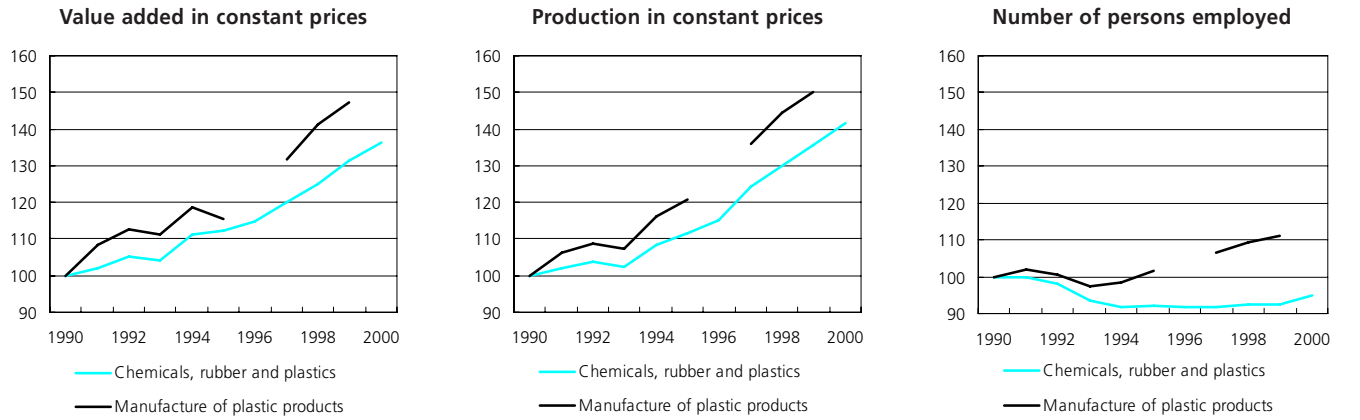
Manufacture of plastic products (NACE Group 25.2)
Share of value added in the EU, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 6.38

Manufacture of plastic products (NACE Group 25.2)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Unlike much of the rest of manufacturing the EU's plastics sector did not record a contraction in value added (in constant prices) in the early 1990s. In fact value added grew in constant price terms most years during the 1990s and recorded strong year on year growth in the most recent years for which data are available, 7.4% in 1998 and 4.3% in 1999. The average growth rate in the five years to 1999 was 4.4%, considerably higher than the manufacturing average of 2.6%. Growth was widespread across the EU with no Member State reporting any considerable decrease in value added in recent years.

Output prices for the EU's plastics sector were stable throughout the first half of the 1990s, they then jumped 8.0% in 1995 and then fell back 2.7% in total between 1995 and 1999. In 2000 the price of plastic products rose fairly sharply (2.8% compared to 1999), as was the case for many sectors influenced by oil prices. Most Member States followed a similar pattern of falling prices or low price growth between 1995 and 1999, with a sharp increase in prices in 2000, the exception being Greece where by 1999 output prices already stood 15.1% above their 1995 level.

LABOUR AND PRODUCTIVITY

The plastics sector accounted for 3.9% of the EU's manufacturing employment in 1999. The employment level was 922.9 thousand persons, 12.3 thousand more than in 1998 (an increase of 1.4%). The sector reported a net increase in employment of 111.6 thousand persons between 1993 and 1999. Over this period only Germany recorded a net reduction in employment (-2.2%), whilst Austria, Finland and Ireland reported growth of close to 50%[33]. Despite the fall in employment, Germany remained the largest employer in the plastics sector in 1999 and contributed 29.7% of the EU's workforce, considerably ahead of the United Kingdom (20.3%, 1997).

(33) DK, EL and I, 1998; UK, 1997;
L and NL, incomplete or not available.

Like the rubber sector, the plastics sector regularly recorded a lower level of apparent labour productivity than the manufacturing average during the 1990s. Among the Member States, the plastics sectors in Luxembourg and Portugal recorded higher apparent labour productivity than the manufacturing average, whilst in Finland and Sweden apparent labour productivity in this sector was particularly low. In 1999, all Member States, except for Portugal, reported lower average personnel costs for the plastics sector than for manufacturing[34]. As a consequence the EU's plastics sector achieved a simple wage adjusted labour productivity ratio (151.9%) that was slightly higher than the manufacturing average (151.0%) in 1999; this slight productivity advantage in wage adjusted terms was a constant feature of the plastics sector throughout the 1990s.

(34) DK, EL and I, 1998; L and UK, 1997;
NL, not available.

EXTERNAL TRADE

The EU's trade in plastic products (CPA Group 25.2) with non-Community countries is relatively low; in 2000 exports were valued at 15.2 billion EUR and imports at 11.2 billion EUR. As such, plastic products accounted for 1.8% of manufactured exports and 1.4% of manufactured imports, an increase compared to the 1990 shares of 1.5% for exports and 1.2% for imports. The value of exports and imports of plastic products both grew at an annual rate of 11.4% per annum between 1990 and 2000, leading to steady growth in the trade surplus.

Combining intra-EU and extra-EU trade in these products, both Germany (5.5 billion EUR) and Italy (3.6 billion EUR) recorded large trade surpluses in 2000, whilst France (-1.6 billion EUR) and the United Kingdom (-1.4 billion EUR) recorded the largest deficits among the Member States. Between 1990 and 2000 the Netherlands, Austria and Sweden turned trade deficits into trade surpluses for these products.

The EU's exports of plastic products in 2000 were less concentrated on one or two particular markets than is the case for many manufactured goods. The US accounted for 14.6% of plastic exports, 10 percentage points less than its share of all manufactured goods, and there were 6 countries with 4% or more of the total, all of which apart from the US were European. The only Asian country in the top ten was Japan with a 2.2% share. Compared to 1990 Switzerland's share more than halved and fell below that of the US. Over the same period Poland, the Czech Republic and Hungary all moved from outside of the top ten destinations to within the top five; all three recorded a share of EU plastic exports that was more than twice their share of manufactured goods.

The US remained the largest supplier of EU imports of plastics in 2000, with 22.7% of the total. However, China's share rose from 6.3% in 1990 to 22.2% by 2000. China's share grew mainly at the expense of Switzerland, Japan and Taiwan who all moved down the ranking of major suppliers. Amongst the Eastern European countries, the Czech Republic accounted for the biggest share of EU imports of plastic products; its 4.1% share in 2000 was 1.5 percentage points more than its corresponding share of all EU manufactured goods.

Table 6.13

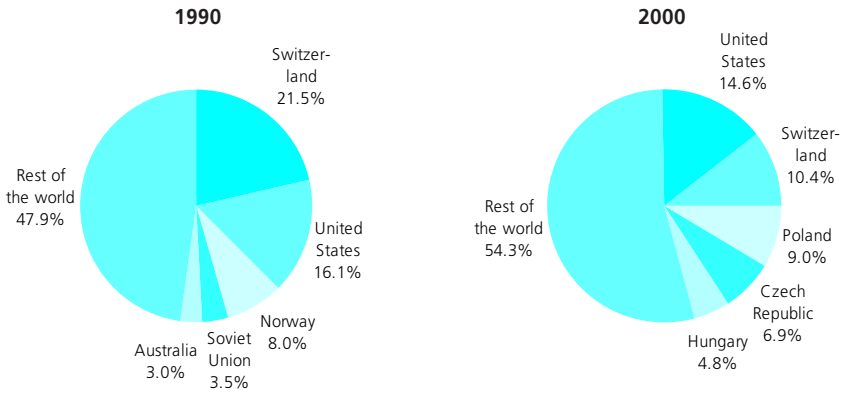
Plastic products (CPA Group 25.2)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	15,199	11,242	3,957	135.2
B	4,933	3,549	1,384	139.0
DK	1,458	1,168	290	124.8
D	13,943	8,410	5,533	165.8
EL	227	418	-191	54.4
E	2,046	2,769	-723	73.9
F	5,215	6,858	-1,643	76.0
IRL	561	973	-412	57.6
I	6,775	3,220	3,554	210.4
L	531	253	278	209.8
NL	3,229	3,125	104	103.3
A	2,033	1,905	129	106.8
P	423	851	-428	49.7
FIN	592	630	-37	94.1
S	1,560	1,365	196	114.3
UK	4,517	5,883	-1,366	76.8

Source: Eurostat, Comext

Figure 6.39

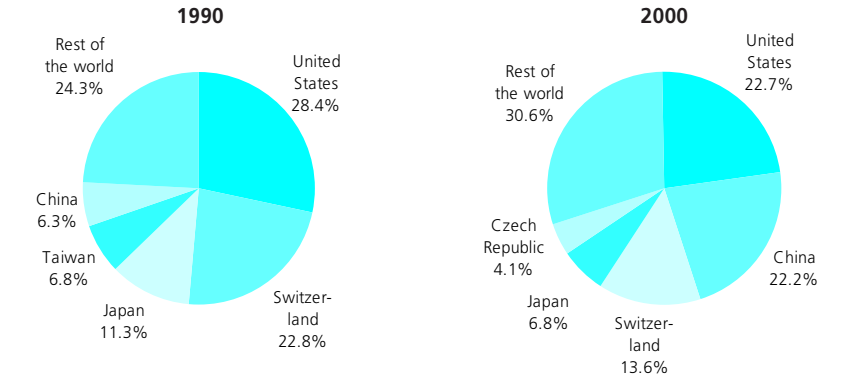
Plastic products (CPA Group 25.2)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 6.40

Plastic products (CPA Group 25.2)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 6.14

Manufacture of basic chemicals (NACE Group 24.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	140,143	133,721	127,096	120,983	134,516	156,983	:	172,399	169,756	172,300	:
Purchases of goods and services (million EUR)	:	:	:	:	:	118,313	:	139,791	137,512	142,446	:
Value added (million EUR)	43,702	40,250	39,136	37,699	43,960	53,015	:	53,120	53,653	53,115	:
Personnel costs (million EUR)	27,092	28,102	28,310	27,907	27,334	27,843	:	28,052	27,679	28,488	:
Number of persons employed (thousands)	753	730	699	651	613	588	:	564	555	554	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.6	8.1	7.6	7.0	10.8	14.4	:	13.0	13.6	12.6	:
App. labour productivity (thous. EUR/pers. emp.)	58.1	55.2	56.0	57.9	71.7	90.2	:	94.3	96.7	95.9	:
Simple wage adjusted labour productivity (%)	161.3	143.2	138.2	135.1	160.8	190.4	:	189.4	193.8	186.4	:
Output price index (1995=100)	90.5	88.2	83.4	81.9	85.9	100.0	93.4	94.4	89.1	86.0	99.6

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.15

Basic chemicals (CPA Group 24.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	18,867	19,750	19,848	23,920	26,800	29,200	30,207	32,386	30,600	35,481	45,214
Extra-EU imports (million EUR)	16,638	16,982	17,000	16,431	19,777	23,847	22,802	26,892	28,187	28,195	34,693
Trade balance (million EUR)	2,229	2,768	2,848	7,489	7,022	5,353	7,405	5,494	2,413	7,286	10,521
Cover ratio (%)	113.4	116.3	116.8	145.6	135.5	122.4	132.5	120.4	108.6	125.8	130.3

Source: Eurostat, Comext

Table 6.16

Manufacture of pesticides and other agro-chemical products (NACE Group 24.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	5,609	6,662	:	:	8,377	9,829	9,163	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	7,577	8,730	8,593	:
Value added (million EUR)	:	:	:	2,029	2,118	:	:	2,546	2,382	2,609	:
Personnel costs (million EUR)	:	:	:	1,015	1,040	:	:	1,255	1,345	1,467	:
Number of persons employed (thousands)	:	:	:	29	28	:	:	26	27	28	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	14.4	13.7	:	:	12.8	9.1	10.2	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	70.7	74.9	:	:	96.6	89.0	95.0	:
Simple wage adjusted labour productivity (%)	:	:	:	199.9	203.7	:	:	202.9	177.1	177.8	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.5	103.3	100.9	99.9	98.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.17

Pesticides and other agro-chemical products (CPA Group 24.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,402	1,474	1,399	1,625	1,929	1,944	2,220	2,463	2,560	2,331	2,475
Extra-EU imports (million EUR)	622	644	496	462	499	618	704	667	649	734	771
Trade balance (million EUR)	780	830	904	1,163	1,430	1,326	1,516	1,796	1,911	1,597	1,704
Cover ratio (%)	225.4	228.7	282.4	351.9	386.7	314.6	315.5	369.3	394.3	317.6	320.9

Source: Eurostat, Comext

Table 6.18

Manufacture of paints, varnishes and similar coatings, printing ink and mastics (NACE Group 24.3)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,561	426	8,336	168	2,556	3,581	87	3,296	:	1,400	412	422	402	728	4,221
Purchases of goods and services (million EUR)	1,226	361	6,138	118	1,932	2,906	68	2,616	:	1,121	335	315	350	557	3,208
Value added (million EUR)	341	127	3,154	60	836	1,135	33	838	:	474	159	148	131	244	1,434
Personnel costs (million EUR)	222	100	2,091	29	460	799	17	525	:	290	115	78	67	142	859
Number of persons employed (thousands)	4.2	2.5	45.2	1.8	15.8	18.1	0.5	14.7	:	:	2.9	4.6	2.0	3.4	27.2
Gross investment in tangible goods (million EUR)	:	:	316	:	95	:	6	:	:	:	:	:	14	:	:
Gross operating rate (%)	7.6	5.6	11.4	18.0	13.7	8.2	15.6	9.2	:	11.8	8.8	15.7	13.6	13.1	12.2
App. labour productivity (thous. EUR/pers. emp.)	81.1	50.6	69.8	34.2	52.7	62.6	60.6	57.2	:	:	54.0	32.5	64.3	72.3	52.8
Simple wage adjusted labour productivity (%)	153.6	127.3	150.9	209.4	181.7	142.0	190.8	159.8	:	163.5	138.0	191.2	196.7	171.9	166.9
Output price index (1995=100) (2)	108.7	:	103.6	130.7	107.1	102.2	:	110.3	:	109.9	:	114.5	89.2	117.4	106.2

(1) DK and A, 1998; B, EL, I and FIN, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.19

Paints, varnishes and similar coatings, printing ink and mastics (CPA Group 24.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,708	1,748	1,933	2,150	2,478	2,788	3,201	3,708	3,792	4,007	4,720
Extra-EU imports (million EUR)	469	508	538	541	601	669	710	839	895	976	1,144
Trade balance (million EUR)	1,238	1,241	1,395	1,609	1,877	2,119	2,491	2,869	2,897	3,031	3,576
Cover ratio (%)	363.8	344.3	359.6	397.6	412.2	416.7	450.9	441.9	423.6	410.5	412.5

Source: Eurostat, Comext

Table 6.20

Manufacture of pharmaceuticals, medicinal chemicals and botanical products (NACE Group 24.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	60,383	68,329	74,357	75,451	78,813	86,287	:	:	105,270	116,841	:
Purchases of goods and services (million EUR)	:	:	:	:	:	57,450	:	:	77,639	85,065	:
Value added (million EUR)	24,096	27,107	29,394	30,487	32,207	33,997	:	37,688	37,975	43,284	:
Personnel costs (million EUR)	15,086	16,832	18,137	18,215	18,200	19,374	:	21,015	22,223	23,054	:
Number of persons employed (thousands)	441	457	466	456	443	455	:	460	469	470	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	13.6	13.8	13.8	14.6	15.8	15.5	:	:	13.9	16.2	:
App. labour productivity (thous. EUR/pers. emp.)	54.7	59.4	63.1	66.9	72.7	74.8	:	82.0	81.0	92.1	:
Simple wage adjusted labour productivity (%)	159.7	161.0	162.1	167.4	177.0	175.5	:	179.3	170.9	187.8	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.0	103.1	104.1	105.6	106.8

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.21

Pharmaceuticals, medicinal chemicals and botanical products (CPA Group 24.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	9,523	10,879	12,428	15,383	17,394	18,766	20,086	25,338	29,593	33,470	39,139
Extra-EU imports (million EUR)	5,445	6,232	7,107	7,933	9,014	9,835	11,296	12,886	14,785	17,130	19,927
Trade balance (million EUR)	4,078	4,647	5,320	7,450	8,379	8,932	8,790	12,452	14,808	16,340	19,212
Cover ratio (%)	174.9	174.6	174.9	193.9	193.0	190.8	177.8	196.6	200.2	195.4	196.4

Source: Eurostat, Comext

Table 6.22

Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations (NACE Group 24.5)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,579	287	10,231	640	4,280	14,510	598	7,898	:	911	298	344	65	241	8,356
Purchases of goods and services (million EUR)	1,378	256	8,574	503	3,427	11,670	338	6,529	:	745	311	310	54	203	6,835
Value added (million EUR)	496	93	2,915	242	1,209	3,622	270	1,765	:	305	102	88	24	94	2,420
Personnel costs (million EUR)	279	58	2,374	99	682	2,334	86	1,028	:	167	78	54	16	61	1,272
Number of persons employed (thousands)	6.5	1.6	47.6	4.5	23.8	50.0	3.2	25.4	:	:	1.8	2.9	0.5	1.5	41.0
Gross investment in tangible goods (million EUR)	51	:	431	:	103	:	36	:	:	:	:	:	2	:	:
Gross operating rate (%)	11.5	9.9	4.7	19.5	11.5	8.4	30.7	8.9	:	13.2	5.7	8.6	9.2	11.2	12.4
App. labour productivity (thous. EUR/pers. emp.)	76.2	57.0	61.2	53.3	50.7	72.4	84.3	69.6	:	:	56.9	30.5	44.7	63.1	59.0
Simple wage adjusted labour productivity (%)	177.5	158.6	122.8	243.8	177.3	155.2	314.7	171.7	:	182.8	130.0	162.2	144.2	153.8	190.3
Output price index (1995=100) (2)	108.7	:	101.0	124.6	107.1	103.2	:	102.6	:	107.3	:	113.5	:	119.9	108.3

(1) DK, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.23

Glycerol; soap and detergents, cleaning and polishing preparations; perfumes and toilet preparations (CPA Group 24.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,701	3,907	4,386	4,956	5,747	6,258	6,999	7,811	7,813	8,216	9,838
Extra-EU imports (million EUR)	791	949	1,054	1,169	1,358	1,518	1,597	1,744	1,953	2,246	2,669
Trade balance (million EUR)	2,910	2,958	3,332	3,787	4,389	4,740	5,403	6,067	5,860	5,970	7,168
Cover ratio (%)	467.7	411.6	416.0	424.1	423.2	412.2	438.4	448.0	400.1	365.9	368.6

Source: Eurostat, Comext

Table 6.24

Manufacture of other chemical products (NACE Group 24.6)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	28,098	30,361	31,846	35,016	35,842	38,013	39,579	:
Purchases of goods and services (million EUR)	:	:	:	:	:	24,481	28,220	27,783	30,646	31,651	:
Value added (million EUR)	:	:	:	10,262	11,011	10,850	12,170	12,055	12,250	13,440	:
Personnel costs (million EUR)	:	:	:	6,551	6,822	6,781	7,366	7,204	7,461	8,095	:
Number of persons employed (thousands)	:	:	:	176	178	164	174	171	175	175	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	11.6	12.0	11.2	11.9	12.2	11.1	11.7	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	58.2	61.9	66.1	69.8	70.5	69.9	76.6	:
Simple wage adjusted labour productivity (%)	:	:	:	156.6	161.4	160.0	165.2	167.3	164.2	166.0	:
Output price index (1995=100)	:	:	:	:	:	100.0	99.9	100.5	100.1	100.7	103.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.25

Other chemical products (CPA Group 24.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	6,726	7,171	7,420	8,995	9,878	10,558	11,725	13,653	13,297	14,556	16,449
Extra-EU imports (million EUR)	6,183	6,576	6,686	6,306	6,774	6,814	7,245	8,088	8,457	9,347	11,043
Trade balance (million EUR)	542	595	735	2,690	3,104	3,743	4,480	5,566	4,840	5,209	5,406
Cover ratio (%)	108.8	109.0	111.0	142.7	145.8	154.9	161.8	168.8	157.2	155.7	149.0

Source: Eurostat, Comext

Table 6.26

Manufacture of man-made fibres (NACE Group 24.7)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	9,162	8,730	8,737	8,402	9,325	:	10,743	12,292	11,422	10,185	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	8,043	9,713	9,536	8,662	:
Value added (million EUR)	3,053	2,917	2,891	2,652	3,011	:	3,157	3,800	3,527	3,036	:
Personnel costs (million EUR)	2,391	2,356	2,330	2,290	2,391	:	2,243	2,543	2,367	2,178	:
Number of persons employed (thousands)	77	74	68	64	60	:	:	64	58	56	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.0	6.2	6.2	4.1	6.3	:	8.2	9.4	8.8	7.4	:
App. labour productivity (thous. EUR/pers. emp.)	39.4	39.2	42.3	41.5	49.9	:	:	59.2	60.7	53.9	:
Simple wage adjusted labour productivity (%)	127.7	123.8	124.1	115.8	125.9	:	140.7	149.4	149.0	139.4	:
Output price index (1995=100)	:	:	:	:	:	100.0	96.1	93.9	92.2	86.4	90.6

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.27

Man-made fibres (CPA Group 24.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	998	1,026	958	989	1,106	1,090	1,012	821	788	831	1,040
Extra-EU imports (million EUR)	1,290	1,246	1,252	1,115	1,393	1,601	1,538	1,867	2,127	1,949	2,410
Trade balance (million EUR)	-292	-219	-294	-126	-287	-512	-527	-1,046	-1,339	-1,118	-1,370
Cover ratio (%)	77.4	82.4	76.5	88.7	79.4	68.1	65.8	44.0	37.1	42.6	43.1

Source: Eurostat, Comext

Table 6.28

Manufacture of rubber products (NACE Group 25.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	26,587	27,021	27,676	25,942	28,191	31,443	:	33,406	36,484	36,005	:
Purchases of goods and services (million EUR)	:	:	:	:	:	21,744	:	24,552	27,663	27,234	:
Value added (million EUR)	11,633	12,085	12,338	11,700	12,608	13,293	:	13,638	14,347	14,494	:
Personnel costs (million EUR)	9,319	9,402	9,531	9,408	9,375	9,601	:	9,914	10,418	10,577	:
Number of persons employed (thousands)	358	345	331	309	300	301	:	296	303	295	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.7	8.7	8.9	7.7	9.8	10.2	:	9.7	9.2	9.4	:
App. labour productivity (thous. EUR/pers. emp.)	32.5	35.0	37.2	37.9	42.0	44.1	:	46.0	47.4	49.1	:
Simple wage adjusted labour productivity (%)	124.8	128.5	129.5	124.4	134.5	138.5	:	137.6	137.7	137.0	:
Output price index (1995=100)	89.6	91.4	95.1	96.0	96.6	100.0	102.1	101.0	100.1	99.7	99.9

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 6.29

Rubber products (CPA Group 25.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,902	2,792	3,067	3,386	3,557	3,694	4,153	4,628	5,007	5,157	6,044
Extra-EU imports (million EUR)	2,237	2,450	2,785	2,809	3,198	3,781	4,114	4,482	5,218	5,645	6,352
Trade balance (million EUR)	664	342	282	577	359	-87	39	145	-212	-488	-308
Cover ratio (%)	129.7	114.0	110.1	120.5	111.2	97.7	100.9	103.2	95.9	91.4	95.1

Source: Eurostat, Comext

Table 6.30

Manufacture of plastic products (NACE Group 25.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	76,165	80,928	82,876	81,639	88,874	99,585	:	110,681	116,886	120,248	:
Purchases of goods and services (million EUR)	:	:	:	:	:	67,710	:	76,538	80,518	84,300	:
Value added (million EUR)	28,012	30,356	31,533	31,104	33,345	35,027	:	39,376	42,072	43,425	:
Personnel costs (million EUR)	18,860	20,563	21,679	21,658	22,513	23,504	:	26,021	27,275	28,590	:
Number of persons employed (thousands)	832	849	837	811	820	844	:	888	911	923	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	11.4	11.5	11.2	10.9	11.5	11.0	:	11.5	12.0	11.7	:
App. labour productivity (thous. EUR/pers. emp.)	33.7	35.7	37.7	38.3	40.7	41.5	:	44.4	46.2	47.1	:
Simple wage adjusted labour productivity (%)	148.5	147.6	145.5	143.6	148.1	149.0	:	151.3	154.3	151.9	:
Output price index (1995=100)	92.4	92.2	92.2	91.9	92.6	100.0	99.3	98.9	98.3	97.3	100.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

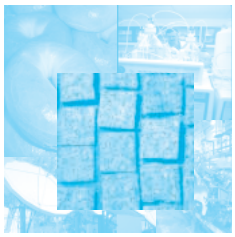
Table 6.31

Plastic products (CPA Group 25.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	5,147	5,457	5,820	6,572	7,678	9,219	9,885	11,708	12,299	12,674	15,199
Extra-EU imports (million EUR)	3,814	4,361	4,608	4,926	5,597	6,301	6,610	7,790	8,373	9,153	11,242
Trade balance (million EUR)	1,333	1,097	1,212	1,646	2,081	2,918	3,275	3,918	3,926	3,521	3,957
Cover ratio (%)	135.0	125.1	126.3	133.4	137.2	146.3	149.5	150.3	146.9	138.5	135.2

Source: Eurostat, Comext

Non-metallic mineral products



The manufacturing of non-metallic mineral products is to a large extent an activity transforming materials that have often been mined or quarried (see chapter 2) for use as intermediate goods in downstream activities. Although this sector accounts for a relatively small share of total EU manufacturing output (4.4% in 2000), it plays an important role as a supplier to the construction, steel, chemical and packaging sectors. It also produces consumer goods in the form of glass or ceramic tableware and ornaments.

STRUCTURAL PROFILE

The non-metallic mineral products sector generated 57.9 billion EUR of value added in 2000. The largest contribution in 1999 came from Germany, which accounted for 25.4% of the EU total, followed by Italy (1998), Spain, France and the United Kingdom (1997), all with shares of between 12% and 15%[1]. These averages across the whole non-metallic minerals sector hide the fact that the endowment of mineral resources plays an important role in determining country specialisation. Spain and Italy were the leading EU producers of stone (NACE Group 26.7), accounting together for 57.5% of the EU's output in 1997, whilst the ceramic tiles sector (NACE Group 26.3) was dominated by Italian enterprises (50.8% of EU value added in 1998); such dominance by a single country is rare within the manufacturing sector.

(1) DK, EL, I and NL, 1998; L and UK, 1997.

Box 7.1: Construction Products Directive

The Construction Products Directive (Council Directive 89/106/CE), subsequently amended by Council Directive 93/68/EC outlines procedures for the completion of the Internal Market for construction products. It outlines six essential requirements (mechanical resistance and stability; safety in case of fire; hygiene, health and the environment; safety in use; protection against noise; and energy economy and heat retention) each of which is addressed in its own interpretative document and supported by a set of guidance papers.

The non-metallic mineral products sector experienced its seventh consecutive year of constant price value added growth in the EU in 2000. However, value added tended to grow at a slower pace than the EU manufacturing average, with average annual growth of 2.9% between 1993 and 2000, compared to 4.9% per annum for manufacturing as a whole.

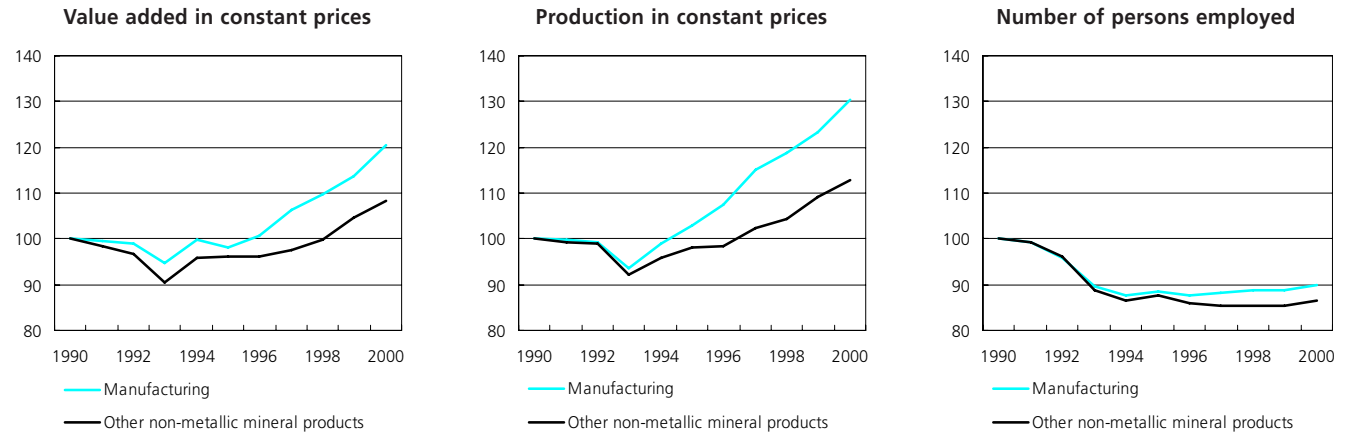
This chapter includes information on the manufacture of other non-metallic mineral products as covered by Division 26 of NACE.

NACE

26: manufacture of other non-metallic mineral products;
26.1: manufacture of glass and glass products;
26.2: manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products;
26.3: manufacture of ceramic tiles and flags;
26.4: manufacture of bricks, tiles and construction products, in baked clay;
26.5: manufacture of cement, lime and plaster;
26.6: manufacture of articles of concrete, plaster and cement;
26.7: cutting, shaping and finishing of stone;
26.8: manufacture of other non-metallic mineral products.

Figure 7.1

Manufacture of other non-metallic mineral products (NACE Division 26)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

The manufacture of articles of concrete, plaster and cement (NACE Group 26.6) was the principal sub-sector, generating some 15.4 billion EUR of value added in the EU in 1999. The glass industry (NACE Group 26.1) was the second largest sub-sector when summing the latest available data with 12.8 billion EUR of value added in 1999[2]. All of the remaining activities accounted for less than 14% of the EU's non-metallic minerals output (see figure 7.2).

In the concrete, brick and tile sectors, supply is often closely linked to local resources and as a result enterprise structure tends to be dominated by small enterprises. On the other hand, diversification through product innovation (for example, the development of technical ceramics in applications such as engine parts, catalyst carriers or bio-medical products) or restructuring and rationalisation (for example, in the cement and glass sectors) has led to higher levels of concentration. Nevertheless, large enterprises generally accounted for a lower share of value added within this sector than for total manufacturing, generating between 40% and 55% of value added in 1999[3], although higher shares were reported in France (64.4%) and the United Kingdom (57.9%), whilst Spain (37.1%) and Italy (32.8%) were below this range.

(2) DK, EL, I and NL, 1998; UK, 1997;
L, not available.
(3) B, DK, E, IRL, I and NL, 1998; UK, 1997,
D, EL and L, not available.

The EU output price index for the manufacture of non-metallic mineral products rose by 6.0% in total between 1995 and 2000, which was in line with the growth of prices for total manufacturing (6.5%). Germany was the only Member State to report falling output prices[4] and this during each year from 1996 to 2000, although the total reduction between these years was only 2.2%. Double-digit price increases were recorded in Greece (26.4%), Sweden (16.4%), Belgium (13.2%), Italy (11.9%) and Austria (11.1%) between 1995 and 2000.

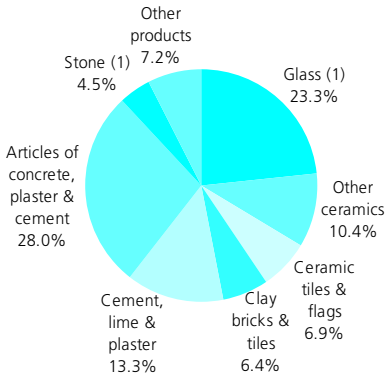
RESEARCH AND DEVELOPMENT

The non-metallic minerals sector is characterised by a low level of intramural R&D expenditure. Some 751.9 million EUR of R&D expenditure was carried out in the EU in 1998[5], equivalent to 1.0% of the manufacturing total, whilst this sector generated 4.4% of manufacturing value added in the EU in the same year.

(4) NL and UK, incomplete data.
(5) I, 1999; D, EL, IRL, P and S, 1997;
L and A, not available.

Figure 7.2

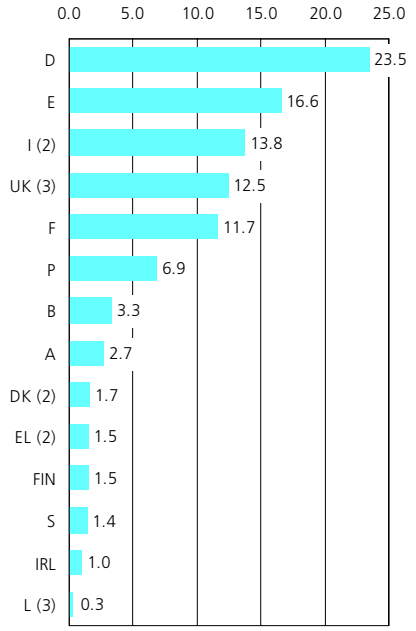
Manufacture of other non-metallic mineral products (NACE Division 26)
Breakdown of value added in the non-metallic mineral products industry in the EU, 1999



(1) Estimates based on available country information for 1997-1999.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

Figure 7.3

Manufacture of other non-metallic mineral products (NACE Division 26)
Share of number of persons employed in the EU, 1999 (%) (1)



(1) NL, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

There were 1.08 million persons employed in this sector in the EU in 2000. This figure represented a net increase of 1.3% compared to 1999 and was the first time that the number of persons employed in the EU had risen since 1995. The average change in employment during the period 1995 to 2000 was -0.3% per annum.

The proportion of men employed in the EU's non-metallic mineral products industry was equal to 78.8% in 2000, above the average for manufacturing as a whole (71.6%). This percentage approached 90% in the Netherlands, whilst displaying its lowest value in Portugal (72.5%) - although this was significantly higher than the Portuguese manufacturing average of 55.5%. The EU workforce was almost entirely hired on a full-time basis, 94.7% of those in employment in 2000.

The apparent labour productivity of the EU's non-metallic minerals sector is almost identical to that for the whole of manufacturing; between 1990 and 1996 the difference in productivity ratios was never more than +/-0.5 thousand EUR per person employed. Apparent labour productivity in this sector subsequently fell slightly behind the manufacturing average, and by 2000 each person employed generated an average of 53.8 thousand EUR of value added, some 2.1 thousand EUR less than for manufacturing.

As average personnel costs were generally lower than in manufacturing, the non-metallic minerals sector reported higher simple wage adjusted labour productivity (value added expressed as a percentage of personnel costs). This ratio reached 166.2% in 2000, its highest level during the period 1990-2000 and some 8.5 percentage points above the EU manufacturing average.

Table 7.1

Manufacture of other non-metallic mineral products (NACE Division 26)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000 (1)	1995	2000 (2)	1995	2000 (3)
EU-15	20.6	21.2	:	5.3	8.1	7.6	11.7	12.5
B	12.0	13.3	:	:	6.8	:	21.5	21.0
DK	14.3	25.8	:	17.0	:	:	18.6	18.2
D	25.5	25.4	6.6	7.2	5.6	5.8	17.5	18.4
EL	15.0	12.5	:	:	18.4	19.2	:	13.1
E	12.2	14.2	2.1	1.9	12.9	8.3	9.9	16.4
F	18.3	22.0	4.3	3.8	5.3	5.2	7.9	11.9
IRL	:	17.5	:	:	:	:	:	:
I	21.4	23.1	3.8	5.3	11.1	13.2	3.2	3.8
L	:	:	:	:	:	:	:	:
NL	:	:	13.2	19.5	:	:	:	:
A	19.9	18.2	6.0	8.3	:	:	:	8.0
P	33.5	27.5	:	:	:	12.1	:	:
FIN	:	21.9	:	:	:	:	23.3	23.7
S	:	:	:	:	:	:	:	:
UK	23.6	22.3	7.0	6.2	9.3	6.4	14.7	16.4

(1) DK, 1998.
(2) P and UK, 1999.
(3) EL, 1999; EU-15, 1997.
Source: Eurostat, Labour Force Survey

Table 7.2

Manufacture of other non-metallic mineral products (NACE Division 26)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15 (1)	53.8	:	:
B	62.9	40.9	153.7
DK (2)	51.9	32.2	161.1
D	56.0	39.5	141.9
EL (2)	44.3	22.5	197.2
E	43.4	23.5	184.5
F	57.0	37.3	153.1
IRL	66.2	30.6	216.7
I (2)	50.6	31.0	163.1
L (3)	78.1	33.3	234.8
NL	:	:	:
A	62.1	43.1	144.2
P	25.3	12.2	207.2
FIN	55.7	32.0	174.2
S	53.0	36.8	144.2
UK (3)	46.2	27.1	170.6

(1) 2000.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

The EU is a net exporter of non-metallic mineral products (7.4 billion EUR in 2000). Its trade balance with non-Community countries increased by 5.2% compared to 1999, as exports rose by more than 2 billion EUR (or 14.3% compared to the previous year). On the other hand, imports grew at an even more rapid pace, increasing by 23.3%, bringing the cover ratio (exports divided by imports) down to 183.7%, its lowest level during the period 1990 to 2000.

Among the Member States, Italy was the largest exporter of non-metallic mineral products (to both intra-EU and extra-EU partners) and also the country with the highest trade surplus (6.4 billion EUR), whilst the largest deficits were registered in the United Kingdom and the Netherlands (407 and 586 million EUR).

Table 7.3

Other non metallic mineral products (CPA Division 26)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	16,267	8,836	7,431	184.1
B	3,477	2,335	1,141	148.9
DK	766	815	-48	94.1
D	8,106	7,090	1,016	114.3
EL	359	451	-92	79.5
E	4,182	1,936	2,246	216.0
F	5,010	4,980	31	100.6
IRL	386	633	-247	60.9
I	9,161	2,795	6,366	327.8
L	355	237	118	149.9
NL	1,826	2,410	-584	75.8
A	1,393	1,513	-120	92.1
P	929	657	272	141.3
FIN	520	421	100	123.7
S	749	883	-134	84.8
UK	3,162	3,569	-407	88.6

Source: Eurostat, Comext

7.1: GLASS

This sub-chapter contains information on the manufacture of glass and glass products (NACE Group 26.1), which is composed of flat glass, hollow glass (containers, bottles and glasses), glass fibres and other glass (technical glass used in laboratories or optical glass). This sub-chapter separately provides information on glass recycling which is part of NACE Group 37.2.

The glass industry is a mature sector of the economy. Unlike many of the other activities in the non-metallic minerals sector, it is characterised by high levels of concentration due to the capital-intensive nature of the production process. According to CPIV, more than 80% of output in the EU is realised by a handful of multi-national enterprises; the remaining enterprises are small or medium sized, operating largely in specialist markets. The largest manufacturers in the EU include Saint-Gobain, ARC International (formerly Verrerie Cristallerie d'Arques) (both F), Pilkington (UK) and Schott (D).

There are a number of important sectors to which the performance of the glass sector is tied, including food and beverages for packaging (the most common use of glass), construction, transport equipment, as well as more specialist applications and households.

STRUCTURAL PROFILE

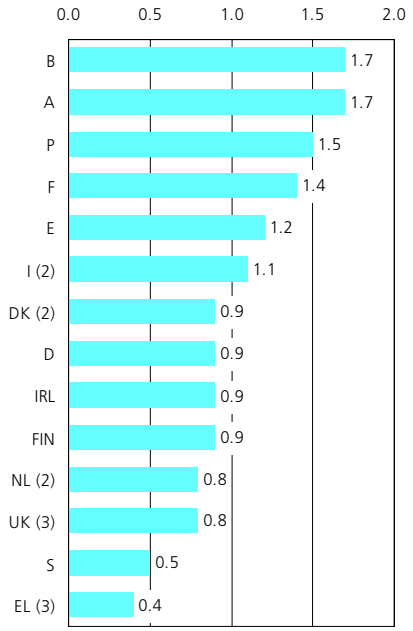
The EU's glass industry generated 12.8 billion EUR of value added in 1999[6], equivalent to 23.3% of the non-metallic mineral products total. The main EU glass producers were Germany and France, where value added reached 3.4 and 2.5 billion EUR respectively in 1999.

Glass faces competition from substitute materials such as plastics and metals and, as a result, there is pressure to reduce costs. Output prices in the EU fell during the period 1995 to 2000 by 1.5%, with larger reductions in the Netherlands (12.4%), Germany (6.5%), France (4.1%) and the United Kingdom (3.7%).

(6) B, D, E, F, IRL, A, P, FIN and S, 1999; DK, EL, I and NL, 1998; UK, 1997; L, not available.

Figure 7.4

Manufacture of glass and glass products (NACE Group 26.1)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 7.2: volume of glass production

CPIV estimate that EU glass production in volume terms reached 28.1 million tonnes in 2000, representing about 27% of the world's output.

Table 7.4

Glass production in the EU (thousand tonnes)

	1995	2000
Flat glass	6,458	7,500
Container glass	16,938	17,650
Tableware (1)	998	1,072
Reinforcement fibres	488	550
Others (1)	1,531	1,319

(1) E, not available.
Source: CPIV

Table 7.5

Production of selected glass products in the EU, 1998 (million) (1)

	Sold production or production for sale	Total exports	Total imports	Apparent consumption
Bottles of coloured glass of a nominal capacity of =>0.15 litre for beverages and foodstuffs excl. bottles covered with leather or composition leather, infants' feeding bottles	29,203	647	524	29,079
Bottles of colourless glass of a nominal capacity of =>0.15 litre for beverages and foodstuffs excl. bottles covered with leather or composition leather, infants' feeding bottles (2)	17,344	663	405	17,085
Glass ampoules used for the conveyance or packing of goods	7,948	905	139	7,183
Glass containers for beverages and foodstuffs excl. bottles, flasks covered with leather or composition leather, domestic glassware - vacuum flasks and vessels	7,094	389	275	6,980
Glass containers used for the conveyance or packing of pharmaceutical products; of a capacity <= 0.33 l (2)	5,756	1,111	280	4,924
Glass containers for the conveyance or packing of goods (excl. for beverages and foodstuffs, for pharmaceutical products, containers made from glass tubing)	4,483	1,265	176	3,394
Drinking glasses of toughened glass gathered (incl. cut or otherwise decorated) (excl. of lead crystal) (2)	2,233	498	338	2,073
Bottles for beverages and foodstuffs of a nominal capacity < 0.15 litre	2,146	129	281	2,298
Table/kitchen glassware with linear coefficient of expansion<=5x10-6 / K, temperature range of 0-300°c excl. of glass-ceramics, lead crystal/toughened glass, drinking glasses (2)	129	37	13	106
Cut or otherwise decorated drinking glasses of lead crystal gathered mechanically	60	11	5	54

(1) This table shows the top 10 headings where an EU total is available for the number of items produced within CPA Group 26.1; please note there are 54 additional headings for which no EU total is available.
(2) 1997.
Source: Eurostat, European production and market statistics (theme4/europrom)

Box 7.3: glass recycling

Table 7.6

Glass recycling (thousand tonnes) (1)

	1990	1999
EU-15 (2)	4,966	8,009
B	204	295
DK	61	120
D	1,791	2,845
EL	18	40
E	304	575
F	906	1,750
IRL	13	38
I	732	930
L	:	:
NL	310	397
A	135	200
P	46	132
FIN	24	41
S	50	147
UK	372	499

(1) Glass collected from the general public and from bottlers.
(2) Excluding L.
Source: FEVE

EMPLOYMENT

Between 1990 and 1999 the number of persons employed in the EU's glass industry declined by almost 40 thousand[7]. The largest reductions were recorded in Greece and Sweden where the workforce declined by more than 40%. There were also double-digit losses of between 10% and 20% in Germany, Spain, Italy and the United Kingdom. Employment in Finland rose by 24.6%.

(7) B, D, E, F, IRL, A, P, FIN and S, 1990-1999; DK, EL and I, 1990-1998; UK, 1990-1997; L and NL, not available.

EXTERNAL TRADE

The EU trade balance for glass products was 1.4 billion EUR in 2000, despite imports (27.0%) increasing at a faster pace than exports (18.8%) when compared to 1999. The EU's cover ratio decreased during the three years from 1997, reaching 139.9% by 2000. Glass exports accounted for 30.9% of the EU's exports of non-metallic mineral products to non-Community countries in 2000.

Extra-EU imports of glass are increasingly coming from Eastern Europe. The Czech Republic was the second most important origin of EU glass imports in 2000, following the US, whilst Poland was also present in the five most important suppliers. The share of Chinese imports also rose at a rapid pace, up from 2.7% in 1990 to 7.3% by 2000.

Table 7.7

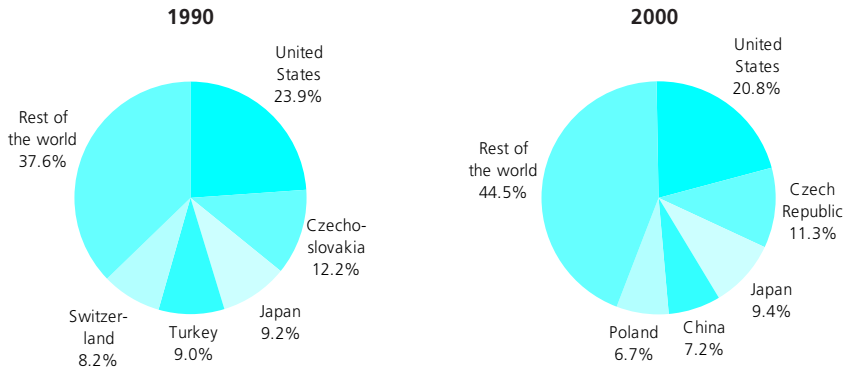
Glass and glass products (CPA Group 26.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	5,028	3,587	1,441	140.2
B	1,866	1,109	757	168.3
DK	267	357	-91	74.6
D	3,268	2,560	708	127.7
EL	14	162	-147	8.9
E	736	856	-120	86.0
F	2,755	2,099	656	131.3
IRL	235	241	-5	97.8
I	1,884	1,339	545	140.7
L	229	54	176	426.2
NL	652	750	-98	86.9
A	821	605	216	135.7
P	242	196	47	123.8
FIN	274	149	125	183.5
S	313	386	-73	81.2
UK	1,034	1,466	-432	70.5

Source: Eurostat, Comext

Figure 7.5

Glass and glass products (CPA Group 26.1)
Origin of extra-EU imports



Source: Eurostat, Comext

7.2: CERAMIC AND CLAY PRODUCTS

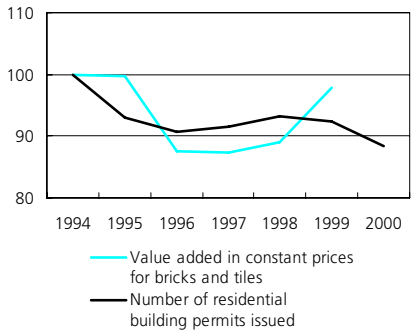
This chapter presents information on the manufacture of ceramic and clay products. The NACE classification splits up these activities into three separate headings: namely, ceramic goods other than for construction purposes (NACE Group 26.2), ceramic tiles and flags (NACE Group 26.3) and clay bricks and tiles (NACE Group 26.4).

The ceramics sector has centuries of tradition and some of the leading manufacturing locations are steeped in history and expertise, such as Limoges (F) and Stoke-on-Trent (UK) for table and ornamental ware and Castellón (E), Sassuolo (I) and Aveiro and Marinha Grande (P) for wall and floor tiles. Ceramics are nowadays used for a variety of applications beyond table, ornamental and sanitary ware; their use spreading to laboratory equipment, refractory products, electrical engineering, electronics and automotives.

New building and construction is by far the most important end-use of ceramic and clay products, whilst the replacement market (maintenance and renovation) is also an important source of demand for tiles and sanitary ware. Demand for table and ornamental ware comes on the one hand from hotels and restaurants, where hard-wearing ceramics ("hotel ware") have been developed to meet the needs of customers, as well as from households. The number of new housing starts provides a good guide of the demand for clay bricks and tiles (see figure 7.6).

Figure 7.6

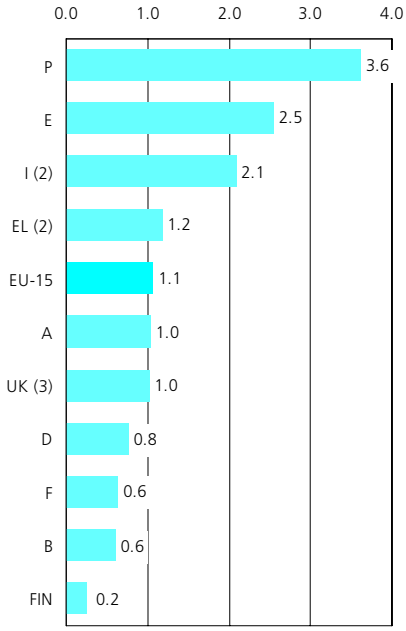
Evolution of the bricks and tiles sector and the number of residential building permits issued in the EU (1994=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends (theme4/ebt)

Figure 7.7

Ceramic and clay products (NACE Groups 26.2 to 26.4) Share of value added in manufacturing, 1999 (%) (1)



(1) DK, IRL, L, NL and S, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

STRUCTURAL PROFILE

The ceramics and clay sector generated 13.0 billion EUR of value added in 1999, equivalent to 23.6% of the non-metallic minerals total. The largest share of this sector's output was accounted for by ceramic goods other than for construction purposes (43.8% in 1999), whilst the ceramic tiles and flags (29.1%) and clay bricks and tiles (27.0%) sectors were fairly similar in size.

The manufacture of ceramics and clay products is generally characterised by a high proportion of small and medium sized enterprises, reflecting the localised nature of markets for building materials and the craft nature of ceramics production. Such enterprises are most common in Italy, Spain and Portugal where high levels of relative specialisation exist for all three sub-sectors. A handful of large enterprises are active in the table and ornamental ware sector, including Waterford Wedgewood (that recently took over Hutschenreuther and Rosenthal), Villeroy & Boch and Royal Doulton; and they are surrounded by a multitude of small and medium sized enterprises. There is a much higher degree of concentration in the refractory products, technical ceramics and sanitary ware sectors, with Germany, France and the United Kingdom the largest and most specialised producers.

LABOUR AND PRODUCTIVITY

There were just over 303 thousand persons employed in the EU's ceramics and clay sector in 1999; their apparent labour productivity was 42.8 thousand EUR each. Only the clay bricks and tiles sector (57.1 thousand EUR) reported a productivity ratio above the non-metallic mineral products average (51.7 thousand EUR).

EXTERNAL TRADE

There was a very low level of external trade in clay bricks and tiles (CPA Group 26.4) in 2000, with the EU running a 100.9 million EUR surplus with non-Community countries on exports of 144.4 million EUR. EU exports of ceramic tiles and flags (CPA Group 26.3) were more important (3.0 billion EUR compared to imports of 289 million EUR) and the resulting trade balance represented 36.0% of the EU's surplus for non-metallic mineral products in 2000. Ceramic goods other than for construction purposes (CPA Group 26.2) recorded the highest level of exports (3.3 billion EUR) to non-Community countries amongst the three Groups covered in this sub-chapter, with a trade surplus of 1.1 billion EUR. A large share of the EU's imports of ceramic goods other than for construction purposes (24.9%) originated from China (low value tableware and ornamental ware); otherwise, technical ceramics were of growing importance, with Japan and the US the main suppliers to EU markets.

7.3: CONCRETE, PLASTER AND CEMENT

This sub-chapter covers the production of cement, lime and plaster (NACE Group 26.5) which are used as inputs for the manufacture of building materials made from concrete, plaster and cement (NACE Group 26.6), also covered in this sub-chapter.

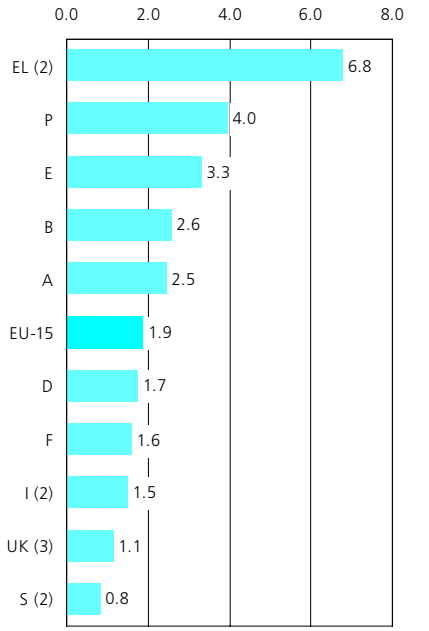
Cement, lime and plaster are important materials for residential and non-residential building and civil engineering works. Cement is used as an input in the manufacture of pre-cast concrete, resulting in end-products such as prefabricated components, paving and kerb stones, beams and columns, bridge girders, tunnel elements and lighting poles. Cement is also used to make ready-mixed concrete, which is made off-site in a fresh form before being transported relatively short distances (tens of kilometres) to a final point of use. Plaster is almost exclusively used as a building material, either in its raw state or as plasterboard; its use is linked not only to building and civil engineering work, but also maintenance and renovation.

STRUCTURAL PROFILE

Concrete, plaster and cement (NACE Groups 26.5 and 26.6) together accounted for 41.2% of the value added generated in the EU's non-metallic minerals sector in 1999. The manufacture of cement, lime and plaster generated 7.3 billion EUR of value added, whilst the manufacture of articles of concrete, plaster and cement was more than double this size (15.4 billion EUR).

Figure 7.8

Concrete, plaster and cement (NACE Groups 26.5 and 26.6) Share of value added in manufacturing, 1999 (%) (1)



(1) DK, IRL, L, NL and FIN, not available.
(2) 1998. (3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Production specialisation ratios for this sector are largely influenced by the choice of building materials within a given country and this is often related to the local availability of raw materials. Cement (in particular) is favoured in the southern Member States, as confirmed by the relative production specialisation ratios for the manufacture of cement, lime and plaster in Greece (822.7%, 1998), Portugal (310.4%) and Spain (200.7%) in 1999[8]. Greece, Austria, Spain, Denmark and Portugal were the most specialised countries concerning the manufacture of articles of concrete, plaster and cement, with ratios above 150% in 1999[9].

(8) EL, I and S, 1998; UK, 1997;
DK, IRL, L, NL and FIN, not available.
(9) DK, EL, I and FIN, 1998;
IRL, L, NL and UK, not available.

Because of the high investment and financial cost involved in building a new plant and the nature of the product, which is heavy and expensive to transport, the cement industry is largely characterised by regional markets. This has not prevented a number of EU enterprises from establishing an international presence through acquisitions not only within the EU but also in North America (chiefly during the 1970s and from 1985 to 1988), Latin America (during the late 1980s) and Central and Eastern Europe (in the 1990s). The internationalisation of cement production has not been repeated to any large extent within the ready-mixed concrete and pre-cast concrete industries, where small and medium-sized enterprises predominate.

Box 7.4: cement consumption

According to Cembureau, cement consumption in the EU increased by 2.8% between 1999 and 2000. EU output reached 193.9 million tonnes (including clinker), with all Member States reporting increases in the volume of cement produced except Austria, Germany and Sweden.

Box 7.5: ready mixed concrete

Table 7.9

Main indicators for the ready mixed concrete industry, 1999

	Number of plants	Production (million m³)	Consumption (m³/inhabitant)
B	242	8.6	0.9
DK	105	2.0	0.4
D	2,351	62.3	0.8
EL	:	:	:
E	1,200	59.3	1.5
F	1,650	33.2	0.5
IRL	165	3.1	0.9
I	2,400	64.5	1.1
L	:	:	:
NL	185	8.0	0.5
A	315	10.5	1.3
P	200	8.5	0.9
FIN	200	2.2	0.4
S	208	2.4	0.2
UK (1)	1,250	23.6	0.4

(1) Excluding Northern Ireland.
Source: ERMCO

Table 7.8

Production of cement, lime and plaster in the EU, 1998 (thousand tonnes) (1)

	Sold production or production for sale	Total exports	Total imports	Apparent consumption
White Portland cement	3,618	936	158	2,841
Grey Portland cement (incl. blended cement)	145,546	8,264	6,944	144,227
Alumina cement	426	18	54	462
Other hydraulic cements	25,977	823	139	25,293
Quicklime	13,914	75	179	14,019
Slaked lime	3,585	58	29	3,557
Hydraulic lime	2,980	13	23	2,990
Plasters consisting of calcined gypsum or calcium sulphate (incl. for use in building, for use in dressing woven fabrics or surfacing paper, for use in dentistry)	8,231	431	56	7,855

(1) No data available for cement clinker (PRODCOM code 26.51.11.00).
Source: Eurostat, European production and market statistics (theme4/europrom)

LABOUR AND PRODUCTIVITY

There were 352 thousand persons employed in the EU's concrete, plaster and cement industries (NACE Groups 26.5 and 26.6) in 1999. This figure represented a net reduction of 67.2 thousand compared to 1990.

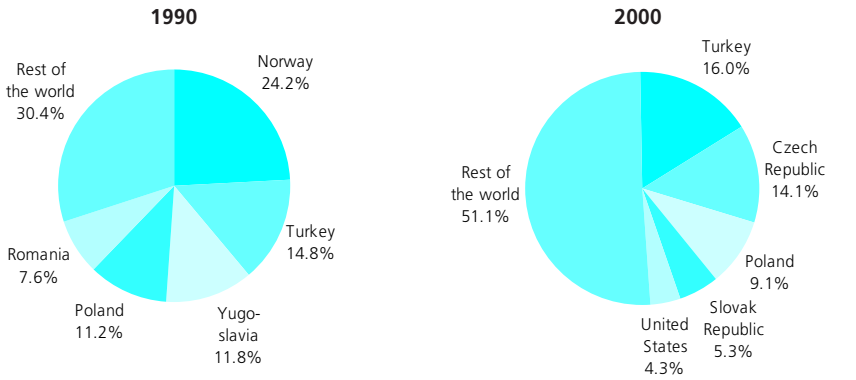
Apparent labour productivity for the manufacture of cement, lime and plaster was particularly high at 117.2 thousand EUR per person employed in the EU in 1999, possibly as a result of the high levels of investment in plant. This figure was more than double that recorded for the manufacture of articles of concrete, plaster and cement (53.0 thousand EUR), which lay close to the manufacturing average (51.9 thousand EUR).

EXTERNAL TRADE

As transportation costs for these products are high, there is a relatively low level of trade both within the EU and with non-Community countries. The majority of trade that does take place is with neighbouring countries. Concrete, plaster and cement (CPA Groups 26.5 and 26.6) accounted for 7.7% of the EU's exports of non-metallic mineral products to non-Community countries in 2000. The EU recorded a trade surplus for articles made of concrete, plaster and cement (409.2 million EUR), whilst a deficit of 111.3 million EUR was registered for cement, lime and plaster.

Figure 7.9

Cement, lime and plaster; articles of concrete, plaster and cement (CPA Groups 26.5 and 26.6)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 7.10

Manufacture of glass and glass products (NACE Group 26.1)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,863	423	8,024	58	2,802	6,472	418	4,135	:	851	885	617	540	456	3,217
Purchases of goods and services (million EUR)	1,409	321	5,291	36	1,873	4,159	217	2,419	:	560	443	397	330	300	1,820
Value added (million EUR)	710	182	3,369	32	1,086	2,504	249	1,583	:	349	522	265	235	196	1,510
Personnel costs (million EUR)	486	117	2,503	17	621	1,819	130	890	:	213	323	142	157	152	898
Number of persons employed (thousands)	11.4	4.1	64.4	0.9	24.4	48.3	3.8	28.5	:	:	8.3	9.6	4.7	4.4	32.1
Gross investment in tangible goods (million EUR)	116	:	579	:	107	:	19	:	:	:	:	:	45	:	:
Gross operating rate (%)	10.7	13.1	9.9	22.9	16.2	10.2	25.4	17.4	:	15.3	20.9	19.3	14.0	9.0	18.2
App. labour productivity (thous. EUR/pers. emp.)	62.2	44.7	52.3	35.2	44.6	51.8	64.7	55.6	:	:	63.1	27.6	49.9	44.7	47.1
Simple wage adjusted labour productivity (%)	146.3	156.6	134.6	188.8	174.7	137.6	191.8	178.0	:	164.3	161.8	186.1	150.2	128.8	168.1
Output price index (1995=100) (2)	106.7	:	93.5	116.6	104.8	95.9	:	105.0	:	87.6	:	101.3	107.7	111.5	96.3

(1) DK, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.11

Glass and glass products (CPA Group 26.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,434	2,467	2,473	2,738	3,137	3,366	3,661	4,239	4,148	4,223	5,028
Extra-EU imports (million EUR)	1,172	1,395	1,444	1,461	1,622	1,974	1,955	2,252	2,559	2,825	3,587
Trade balance (million EUR)	1,263	1,072	1,029	1,276	1,515	1,392	1,706	1,986	1,589	1,398	1,441
Cover ratio (%)	207.7	176.9	171.2	187.3	193.4	170.5	187.3	188.2	162.1	149.5	140.2

Source: Eurostat, Comext

Table 7.12

Manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products (NACE Group 26.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	10,476	10,879	10,600	11,608	11,965	12,245	11,624	:
Purchases of goods and services (million EUR)	:	:	:	:	:	5,995	6,956	7,319	7,682	7,448	:
Value added (million EUR)	:	:	:	4,921	5,252	5,198	5,646	5,691	5,889	5,692	:
Personnel costs (million EUR)	:	:	:	4,142	4,076	3,965	4,275	4,325	4,305	4,295	:
Number of persons employed (thousands)	:	:	:	185	178	150	:	172	171	164	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	7.0	10.1	10.7	10.9	10.5	11.7	10.6	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	26.6	29.6	34.6	:	33.2	34.5	34.8	:
Simple wage adjusted labour productivity (%)	:	:	:	118.8	128.9	131.1	132.1	131.6	136.8	132.5	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.5	104.2	105.7	106.4	107.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.13

Non-refractory ceramic goods other than for construction purposes; refractory ceramic products (CPA Group 26.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,854	1,873	1,931	2,366	2,691	2,839	2,794	3,234	3,067	3,090	3,314
Extra-EU imports (million EUR)	769	948	1,044	1,051	1,129	1,153	1,263	1,457	1,599	1,792	2,219
Trade balance (million EUR)	1,085	926	887	1,315	1,562	1,685	1,531	1,777	1,468	1,298	1,095
Cover ratio (%)	241.0	197.7	185.0	225.2	238.3	246.1	221.2	221.9	191.8	172.4	149.4

Source: Eurostat, Comext

Table 7.14

Manufacture of ceramic tiles and flags (NACE Group 26.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	7,280	7,659	7,913	:	8,735	9,065	9,241	:
Purchases of goods and services (million EUR)	:	:	:	:	:	5,401	:	5,952	6,274	6,581	:
Value added (million EUR)	:	:	:	3,159	3,316	3,342	:	3,515	3,603	3,784	:
Personnel costs (million EUR)	:	:	:	1,977	2,025	2,117	:	2,334	2,227	2,320	:
Number of persons employed (thousands)	:	:	:	74	75	72	:	78	75	78	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	15.1	15.7	14.4	:	12.5	14.1	14.2	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	42.7	44.5	46.5	:	45.0	47.8	48.3	:
Simple wage adjusted labour productivity (%)	:	:	:	159.8	163.8	157.9	:	150.6	161.8	163.1	:
Output price index (1995=100)	:	:	:	:	:	100.0	99.7	100.4	101.4	103.0	104.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt):

Table 7.15

Ceramic tiles and flags (CPA Group 26.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,093	1,065	1,153	1,369	1,654	1,743	1,958	2,273	2,385	2,449	2,966
Extra-EU imports (million EUR)	115	134	159	182	191	201	193	220	228	269	289
Trade balance (million EUR)	979	931	995	1,187	1,463	1,541	1,764	2,053	2,157	2,180	2,677
Cover ratio (%)	954.8	796.4	727.3	753.2	865.8	866.0	1,012.4	1,031.8	1,043.8	910.9	1,025.8

Source: Eurostat, Comext

Table 7.16

Manufacture of bricks, tiles and construction products (NACE Group 26.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	5,705	6,185	6,295	6,236	6,784	6,807	6,129	:	6,330	6,907	:
Purchases of goods and services (million EUR)	:	:	:	:	:	3,685	3,493	:	3,602	3,906	:
Value added (million EUR)	2,766	2,958	3,084	3,053	3,324	3,395	2,950	:	3,078	3,506	:
Personnel costs (million EUR)	1,692	1,822	1,838	1,777	1,830	1,869	1,762	:	1,732	1,828	:
Number of persons employed (thousands)	84	83	78	74	73	73	66	:	61	61	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	18.0	17.3	18.7	19.4	20.5	21.4	18.7	:	20.4	22.6	:
App. labour productivity (thous. EUR/pers. emp.)	32.8	35.7	39.5	41.2	45.3	46.5	45.0	:	50.1	57.1	:
Simple wage adjusted labour productivity (%)	163.5	162.3	167.8	171.8	181.6	181.6	167.4	:	177.7	191.8	:
Output price index (1995=100)	86.7	91.8	94.9	96.7	97.8	100.0	98.8	99.4	101.5	105.3	109.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.17

Manufacture of cement, lime and plaster (NACE Group 26.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	14,165	14,212	13,911	12,799	13,838	:	14,317	14,609	14,873	15,710	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	8,335	8,551	8,463	8,953	:
Value added (million EUR)	6,549	6,163	6,230	5,731	6,403	:	6,078	6,271	6,690	7,293	:
Personnel costs (million EUR)	2,569	2,686	2,701	2,603	2,589	:	2,776	2,683	2,709	2,825	:
Number of persons employed (thousands)	83	80	77	74	71	:	:	64	64	62	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	27.2	23.6	24.4	23.3	26.3	:	22.5	24.0	25.8	27.2	:
App. labour productivity (thous. EUR/pers. emp.)	79.1	76.7	80.7	77.8	89.9	:	:	98.2	104.4	117.2	:
Simple wage adjusted labour productivity (%)	254.9	229.4	230.7	220.2	247.3	:	218.9	233.7	247.0	258.2	:
Output price index (1995=100)	84.4	87.8	91.0	93.7	97.1	100.0	101.7	104.4	106.0	107.8	109.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.18

Manufacture of articles of concrete, plaster, cement (NACE Group 26.6)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	34,492	35,927	38,031	36,109	37,454	38,562	38,562	:	41,850	45,547	:
Purchases of goods and services (million EUR)	:	:	:	:	:	26,392	27,510	:	30,281	33,517	:
Value added (million EUR)	12,323	12,637	12,954	12,372	13,172	13,573	13,338	:	13,997	15,357	:
Personnel costs (million EUR)	8,004	8,554	8,995	8,491	8,460	8,659	8,692	:	8,915	9,349	:
Number of persons employed (thousands)	337	336	330	304	292	288	282	:	286	290	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	11.9	10.7	9.8	10.2	11.8	12.1	11.4	:	11.5	12.3	:
App. labour productivity (thous. EUR/pers. emp.)	36.6	37.6	39.2	40.7	45.1	47.2	47.2	:	49.0	53.0	:
Simple wage adjusted labour productivity (%)	154.0	147.7	144.0	145.7	155.7	156.8	153.5	:	157.0	164.3	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.8	102.1	103.4	104.9	106.9

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.19

Articles of concrete, plaster and cement (CPA Group 26.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	343	392	359	373	439	533	580	677	711	721	739
Extra-EU imports (million EUR)	140	146	156	165	188	212	212	238	236	278	330
Trade balance (million EUR)	203	246	203	208	250	321	368	439	475	443	409
Cover ratio (%)	245.1	268.4	230.1	226.1	233.0	251.2	273.9	284.6	300.8	259.8	224.0

Source: Eurostat, Comext

Table 7.20

Cutting, shaping and finishing of stone (NACE Group 26.7)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	504	22	608	121	2,510	400	70	1,690	5	64	109	600	138	40	143
Purchases of goods and services (million EUR)	382	14	384	79	1,731	268	43	1,230	2	43	67	415	79	23	73
Value added (million EUR)	152	11	271	55	886	155	28	461	3	25	56	207	60	17	76
Personnel costs (million EUR)	94	7	230	30	566	132	16	301	1	18	51	131	36	14	51
Number of persons employed (thousands)	4.1	0.3	7.1	2.3	34.9	4.7	0.8	12.0	0.1	:	1.6	13.9	1.4	0.4	2.3
Gross investment in tangible goods (million EUR)	39	:	26	:	107	:	5	:	:	:	:	:	13	:	:
Gross operating rate (%)	10.9	14.9	6.2	20.5	12.5	5.4	16.3	9.6	29.4	10.3	4.0	12.2	17.8	8.0	16.6
App. labour productivity (thous. EUR/pers. emp.)	37.2	42.6	38.2	24.5	25.4	33.1	34.9	38.3	41.4	:	35.6	14.8	42.8	40.9	33.0
Simple wage adjusted labour productivity (%)	161.7	148.6	117.7	181.8	156.7	117.9	170.4	153.3	227.3	138.3	109.4	157.2	166.9	121.8	148.2
Output price index (1995=100) (2)	119.8	:	110.3	128.8	107.0	102.6	:	113.3	:	103.4	:	101.7	:	109.3	110.3

(1) DK, 1998; L, 1997; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.21

Monumental or building stone and articles thereof (CPA Group 26.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,079	1,047	1,019	983	1,129	1,194	1,358	1,502	1,441	1,388	1,619
Extra-EU imports (million EUR)	69	85	108	119	145	168	191	235	275	349	469
Trade balance (million EUR)	1,010	962	911	865	984	1,026	1,167	1,268	1,166	1,039	1,150
Cover ratio (%)	1,558.0	1,229.8	944.6	829.4	781.1	711.1	712.0	640.3	524.4	397.5	345.4

Source: Eurostat, Comext

Table 7.22

Manufacture of other non-metallic mineral products (NACE Group 26.8)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	7,834	7,692	7,503	7,252	7,946	:	9,321	:	10,174	10,427	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	6,936	:	7,924	8,096	:
Value added (million EUR)	3,030	2,996	2,964	2,915	3,177	:	3,594	:	3,970	3,942	:
Personnel costs (million EUR)	2,116	2,141	2,139	2,016	2,073	:	2,493	:	2,599	2,676	:
Number of persons employed (thousands)	80	76	71	66	66	:	72	71	72	72	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.4	9.8	9.5	10.7	11.9	:	10.4	:	11.5	10.5	:
App. labour productivity (thous. EUR/pers. emp.)	38.1	39.5	41.5	44.3	48.4	:	49.9	:	55.2	55.1	:
Simple wage adjusted labour productivity (%)	143.2	139.9	138.6	144.6	153.3	:	144.2	:	152.8	147.3	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.9	102.8	102.2	101.8	106.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 7.23

Other non-metallic mineral products (CPA Group 26.8)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	877	910	906	1,104	1,158	1,304	1,406	1,651	1,687	1,673	1,924
Extra-EU imports (million EUR)	542	586	631	675	727	755	815	932	1,030	1,073	1,263
Trade balance (million EUR)	335	325	274	428	431	549	590	719	657	601	661
Cover ratio (%)	161.8	155.4	143.4	163.4	159.2	172.8	172.4	177.2	163.8	156.0	152.4

Source: Eurostat, Comext

Basic metals

With value added of 56.1 billion EUR in 2000, the EU's basic metals sector accounted for 4.2% of total manufacturing. The basic metals sector is a fairly mature sector which produces intermediate goods that are used in a wide variety of downstream activities. The sector faces competition from substitute materials such as plastics or technical ceramics. Some non-ferrous metals (such as aluminium, silicon, titanium, magnesium or iridium) have seen their use rapidly developing within the transport, electrical and electronic equipment sectors in recent years.

The EU basic metals sector relies on imports of metal ores, due to insufficient deposits within the EU. This may explain to some degree the importance of recycling waste and scrap metal in the EU[1]. According to the Recycling Forum of the European Commission[2], at least 50% of steel and 40% of non-ferrous metal produced in the EU at the end of the 1990s was produced from recycled material. As the quality of secondary metal is similar to that of the virgin material, savings in raw material costs determine the demand for secondary metal, with recycled metals traded globally in direct competition with the virgin raw material.

(1) Used products and residual materials from manufacturing.
(2) Recycling Forum 1999-2000, Final Report, 28 January 2000.

Table 8.1

Secondary production of metals recovered from scrap in the EU, 1999 (thousand tonnes)

	Production	Share of EU in world secondary production (%)
Aluminium	2,045	26.9
Copper	879	46.3
Lead	888	31.6
Tin	5	18.9
Zinc	98	31.7
Steel scrap	78,683	23.3

Source: USGS, Minerals Yearbook 1999; Eurostat, Iron and Steel (theme4/steel); IISI

STRUCTURAL PROFILE

A breakdown of value added shows that the ferrous metals sector (NACE Groups 27.1 to 27.3) accounted for more than half of basic metals activity in 1999 in most Member States[3], with only Greece, Ireland and Portugal below this threshold. Sweden and Luxembourg recorded particularly high shares, in excess of 75%. The manufacture of basic precious and non-ferrous metals (NACE Group 27.4) was the principal metals activity in Ireland (61.0% of metals value added) and Greece (60.9%, 1998), whilst the casting of metals (NACE Group 27.5) generated 33.1% of value added in Portugal in 1999, compared to shares in the five largest Member States of between 22.1% (Italy, 1998) and 19.9% (Spain).

(3) DK, EL and I, 1998; L, NL and UK, 1997.

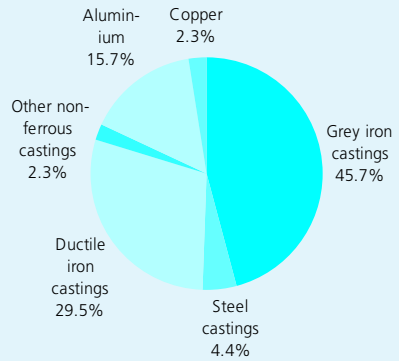
The manufacture of basic metals (NACE Division 27) includes all activities relating to the manufacture of ferrous and non-ferrous metals, as well as first processing to produce products such as tubes, bars, sheets, strips and wire. In addition, this chapter also looks at metal recycling (NACE Group 37.1). Fabricated metal products are covered in chapter 9.

NACE
27: manufacture of basic metals;
27.1: manufacture of basic iron and steel and of ferro-alloys (ECSC*);
27.2: manufacture of tubes;
27.3: other first processing of iron and steel and production of non-ECSC* ferro-alloys;
27.4: manufacture of basic precious and non-ferrous metals;
27.5: casting of metals;
37.1: recycling of metal waste and scrap.
(*) ECSC: European Coal and Steel Community.

Box 8.1: metal casting in the EU

Figure 8.1

Production in volume terms of metal casting in the EU, 2000 (1)



(1) Data covers only D, E, F, I and the UK, accounting for 91.8% of casting in the EU.
Source: CAEF

The German basic metals sector (NACE Division 27) was the largest in the EU[4] (30.4% of the total), generating 14.5 billion EUR of value added in 1999; Italy followed with 7.1 billion EUR (1998). However, in relative terms, as a share of total manufacturing value added, basic metals were particularly important in Luxembourg (20.3%, 1997), whilst this sector did not play a very prominent role in the manufacturing economies of Portugal, Denmark (1998) or Ireland, with respective shares of 2.0%, 1.9% and 0.4%.

EU value added for the basic metals sector grew on average by 1.4% per annum between 1995 and 2000 in constant price terms. However, this average hides considerable fluctuations from one year to the next, such as a 9.0% decline in 1996 or 7.2% growth in 2000.

(4) DK, EL, I and NL, 1998; L and UK, 1997.

Metals are traded on global markets and display highly volatile prices[5]. This should be kept in mind when looking at changes in activity over time in current price value terms. EU output prices for basic metals fell overall by 1.3% between 1995 and 2000, but behind this figure were annual decreases of 4.8% in 1996 and 5.6% in 1999, followed by an increase of 9.6% the following year.

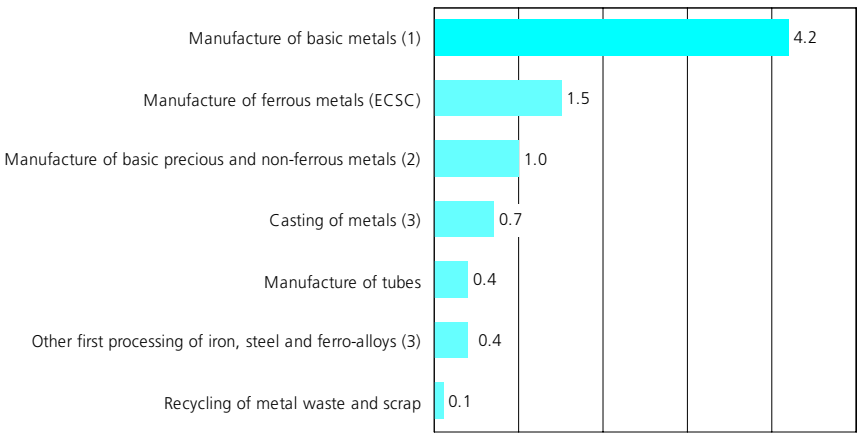
(5) For the price of selected non-ferrous metals please refer to figure 2.1 in chapter 2.

Compared to total manufacturing, the basic metals sector was dominated by large enterprises. This may be explained by high start-up costs and a relatively large minimum efficient scale of production.

Figure 8.2

Manufacture of basic metals (NACE Division 27) and recycling of metal waste and scrap (NACE Group 37.1)

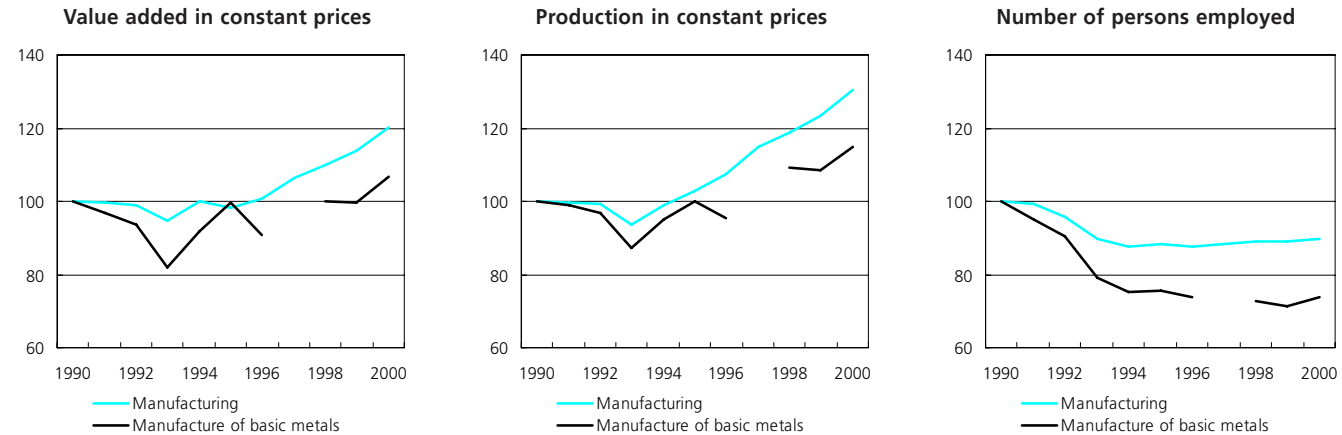
Share of manufacturing value added in the EU, 1999 (%)



(1) 2000.
(2) Estimate.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 8.3

Manufacture of basic metals (NACE Division 27)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

RESEARCH AND DEVELOPMENT

The EU basic metals sector has a fairly low degree of research intensity. It reported 1.1 billion EUR of intramural R&D expenditure in 1998[6], 1.4% of the manufacturing total. This is a reduction compared to ten years earlier (1.9%[7]) and also below the basic metal sector's share in total manufacturing value added (4.3% in 1998).

LABOUR AND PRODUCTIVITY

The EU basic metals sector employed 916.3 thousand persons in 2000, a net increase of 31.3 thousand persons compared to 1999. This was in contrast to the net reduction of 54.6 thousand persons between 1995 and 1999, which was a continuation of the rationalisation observed during the early 1990s when employment levels fell by 307.3 thousand between 1990 and 1994.

The EU basic metals sector recorded simple wage adjusted labour productivity of 155.6% in 2000, which was just below the manufacturing average (157.8%). Following closely the fluctuating character of the output of basic metals, this ratio fell quite rapidly between 1989 and 1993 to a low of 114.6%; since 1995 it has stayed between 135% and 160%.

(6) I, 1999; D, EL, IRL, P and S, 1997; L, and A, not available.
(7) D, FIN and S, 1989; L, NL and A, not available.

Box 8.2: production of basic non-ferrous metals

According to USGS, the EU produced 2.5 million tonnes of primary aluminium in 1999, which was 13% above its 1995 level. Among the eight producing Member States, Italy was the only one to report a decline in output (down by 5%). Primary copper production increased by 23% between 1995 and 1999 in the EU to reach 900 thousand tonnes, whilst lead and zinc both saw more moderate growth of 3%, such that output was equal to 667 thousand and 1.9 million tonnes respectively in 1999.

Table 8.2

Manufacture of basic metals (NACE Division 27)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15 (1)	61.2	:	:
B	66.4	50.6	131.0
DK (2)	46.4	34.0	136.4
D	57.1	44.0	129.9
EL (2)	47.3	24.8	190.6
E	56.3	31.5	178.4
F	48.7	39.0	124.9
IRL	38.6	32.6	118.5
I (2)	55.6	33.5	165.8
L (3)	63.5	46.9	135.2
NL	:	:	:
A	68.4	45.2	151.4
P	26.2	14.4	182.3
FIN	62.6	36.9	169.7
S	64.7	41.6	155.4
UK (3)	50.6	32.2	157.3

(1) 2000.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 8.3

Recycling of metal waste and scrap (NACE Group 37.1)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15	51.8	:	:
B	55.9	34.3	163.1
DK	:	:	:
D	46.8	38.3	122.0
EL (1)	14.8	12.9	116.9
E	30.4	24.7	123.0
F	42.0	32.9	127.6
IRL	36.2	25.3	142.9
I (1)	59.0	27.1	218.5
L	:	:	:
NL	:	:	:
A (2)	66.9	32.3	207.5
P	15.8	13.0	122.1
FIN	38.0	26.3	144.7
S	69.3	33.4	207.2
UK (2)	67.5	26.6	254.0

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

EU external trade with non-Community countries in basic metals (CPA Division 27) recorded a deficit of 17.7 billion EUR in 2000. The cover ratio was 67.7%, which was below the rates observed during the 1990's except in 1998. The sector's deficit mainly resulted from trade in basic precious and non-ferrous metals (CPA Group 27.4), where imports exceeded exports by 21.9 billion EUR in 2000, although other first processing of iron, steel and ferro-alloys (CPA Group 27.3) also had a relatively modest deficit of 455 million EUR.

Table 8.4

Basic metals (CPA Division 27)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	37,375	54,870	-17,495	68.1
B	14,190	10,840	3,350	130.9
DK	1,268	2,421	-1,153	52.4
D	30,428	29,852	576	101.9
EL	1,255	1,767	-513	71.0
E	6,202	8,971	-2,769	69.1
F	15,958	17,732	-1,773	90.0
IRL	619	1,003	-384	61.7
I	10,767	22,065	-11,298	48.8
L	2,342	1,472	870	159.1
NL	10,829	11,699	-870	92.6
A	5,198	4,121	1,076	126.1
P	704	2,428	-1,723	29.0
FIN	3,539	2,018	1,521	175.4
S	5,784	4,760	1,024	121.5
UK	13,289	17,209	-3,920	77.2

Source: Eurostat, Comext

8.1: FERROUS METALS

This sub-chapter provides information on those activities within NACE Division 27 that are related to the ferrous metals sector: namely, the manufacture of basic iron and steel and ferro-alloys, the manufacture of tubes and other first processing of iron, steel and ferro-alloys (NACE Groups 27.1 to 27.3), as well as the casting of iron and steel (NACE Classes 27.51 and 27.52).

The EU produced 163.3 million tonnes of crude steel in 2000, which was above production levels displayed throughout the 1990s. Downstream sectors of the ferrous metals sector include transport equipment, construction, machinery and energy. Manufacturers aim to supply more than one of these sectors in order to reduce the risk of fluctuating demand from over-reliance on a limited number of customers. Iron and steel are basic materials with little scope for product differentiation, however, EU manufacturers have increasingly concentrated on higher value product ranges.

Box 8.3: crude steel in the EU

Table 8.5

Crude steel production in the world, 2001 (million tonnes)

	2000	2001 (1)	2001/2000 (%)
Europe, of which	307.9	303.4	-1.4
EU	163.3	158.8	-2.8
CIS	98.1	98.2	0.1
North America	135.4	119.9	-11.4
South America	39.1	37.6	-3.9
Africa	13.8	15.1	9.5
Middle East	10.8	11.7	8.1
Asia, of which	331.9	344.5	3.8
China	127.2	143.3	12.6
Japan	106.4	102.9	-3.4
Oceania	7.8	7.7	-1.3
World	847.2	839.9	-0.9

(1) Provisional.
Source: IISI

Box 8.4: expiry of the ECSC

With the expiry of the European Coal and Steel Community (ECSC) Treaty on 23 July 2002, the regulatory framework under which this industry operates will change and be incorporated within the EU's enterprise policy. As regards statistics, a Council Regulation is in the decision-making process to extend the life of the current collection system to the end of 2002. At the same time, a new legal basis for the collection of steel statistics after 2002 is being built up in two ways: statistics on the production and sale of steel products will be taken over by PRODCOM; whilst another Council Regulation in the decision making process foresees the collection of a reduced list of variables on investment, capacity, and the use of scrap and energy for series that are not related to production or sales.

Box 8.5: the largest steel producing companies in the world

In 2002, the Aceralia (E), Arbed (L) and Usinor (F) groups merged to form Arcelor, the largest steel group in the EU. In Japan, Nippon Steel agreed an alliance with Kobe Steel and started negotiating a merger with Sumitomo Metal, which may be seen as a reaction to the planned merger of NKK and Kawasaki Steel (both JP). The US steel market was fragmented in comparison: the largest producer, US Steel, was 14th in the world ranking in 2000.

Table 8.6

Top ten largest steel producing companies in the world, 2000 (million tonnes)

	Crude steel production	Share in world production (%)
Nippon Steel (JP)	28.4	3.4
POSCO (KR)	27.7	3.3
Arbed (L)	24.1	2.8
Ispat International (NL)	22.4	2.6
Usinor (F)	21.0	2.5
Corus (UK)	20.0	2.4
Thyssen Krupp (D)	17.7	2.1
Shanghai Baosteel (CN)	17.7	2.1
NKK (JP)	16.0	1.9
Riva (I)	15.6	1.8

Source: IISI

STRUCTURAL PROFILE

Of the activities covered in this sub-chapter the largest in the EU was the manufacture of basic iron, steel and ferro-alloys (NACE Group 27.1) which generated 17.7 billion EUR of value added in 1999, equivalent to 37.1% of the basic metals total. The manufacture of tubes (NACE Group 27.2) accounted for a further 10.8% of basic metals output in the EU in 1999 (5.2 billion EUR), whilst other first processing of iron, steel and ferro-alloys (NACE Group 27.3) generated 4.3 billion EUR of value added in 1997.

Unlike the activity data used elsewhere in this sub-chapter, information on casting covers enterprises of all size classes, including those with less than 20 persons employed. The casting of iron (NACE Class 27.51) generated 2.3 billion EUR of value added in the EU in 1999[8], which was almost three times the amount generated by the casting of steel (NACE Class 27.52), some 837 million EUR[9].

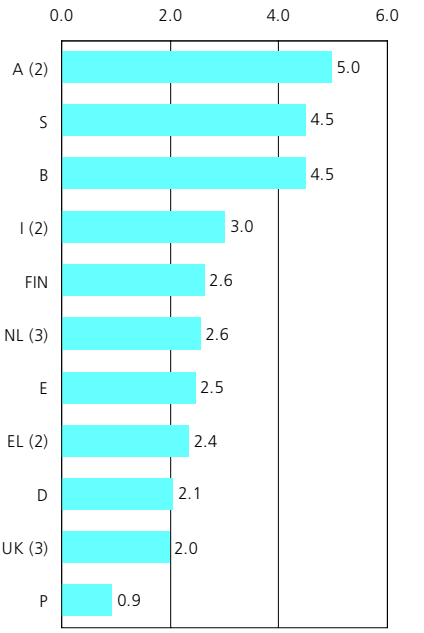
(8) I and E, 1998; D, EL, IRL, L and NL, no recent data available.
(9) I and E, 1998; D, EL, IRL and NL, no recent data available.

With 7.3 billion EUR of value added in 1999, the German ferrous metals sector (NACE Groups 27.1 to 27.3) contributed 2.1% to its domestic manufacturing total. In Italy the respective share was 3.0% in 1998 from 4.2 billion EUR of value added. Although smaller in absolute terms, this sector was relatively more important in Belgium, Sweden (both 4.5% of manufacturing value added, 1999), Austria (5.0%, 1998), and in particular in Luxembourg where basic iron, steel and ferro-alloys (NACE Group 27.1) alone accounted for 15.8% of manufacturing value added in 1997.

In constant price terms, the value added generated in the EU by the basic iron, steel and ferro-alloys sector (NACE Group 27.1) declined on average by 0.2% per annum in the five years to 1999, whilst the manufacture of tubes (NACE Group 27.2) grew at an annual average rate of 0.2%. Faster growth was recorded for other first processing of iron, steel and ferro-alloys (NACE Group 27.3), which increased by 2.8% per annum between 1994 and 1997.

Figure 8.4

Manufacture of ferrous metals (NACE Groups 27.1 to 27.3)
Share of value added in manufacturing, 1999 (%) (1)



(1) DK, F, IRL and L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 8.7

Steel production, 2000 (thousand tonnes)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Crude steel production	163,410	11,637	800	46,376	1,088	15,840	21,001	359	26,728	2,571	5,666	5,723	1,088	4,091	5,190	15,252
Prodn. of hot rolled steel products	146,894	13,689	559	38,974	1,646	14,554	17,474	342	24,095	3,019	4,956	5,034	910	3,890	4,689	13,063
Prodn. of coated flat steel products	34,399	3,745	-	8,362	210	2,643	6,845	-	3,877	896	1,379	1,271	261	921	755	3,234
Apparent steel consumption (1)	155,307	12,007	697	37,162	3,209	15,632	17,399	402	32,529	2,693	4,327	4,898	2,279	3,638	4,345	14,092

(1) Imports - exports + deliveries of non-alloy and alloy steels.
Source: Eurostat, Iron and Steel - Yearly Statistics 2001

Box 8.6: production of steel tubes

According to ESTA, the production of seamless steel tubes in the EU recovered in 2000 (in volume terms), after production had dropped in 1999 as a result of reduced demand for tubular goods for oil and gas-fields. The fall in output of wide welded tubes (OD^{10}>406.4 mm) in 1999 and 2000 resulted from the postponement of oil investment projects.

(10) Cross-section in outside diameter.

Table 8.8

Production of steel tubes in the EU (million tonnes)

	1998	1999	2000	2001 (1)
Seamless tubes	3.7	2.7	3.4	3.8
Small welded tubes (OD<=406.4mm)	7.3	7.6	7.6	7.3
Wide welded tubes (OD>406.4mm)	2.5	2.0	1.7	2.5

(1) ESTA estimates.
Source: ESTA

Box 8.7: first processing products of steel other than tubes and fittings

EU production in volume terms of the wire sector (CPA Class 27.34) increased each year between 1995 and 2000, whilst the output of cold rolled narrow strips (CPA Class 27.32) remained relatively stable between 1996 and 1999, followed by growth of 4.2% in 2000.

Table 8.9

First processing products of steel other than tubes and fittings in the EU (thousand tonnes)

	1993	1994	1995	1996	1997	1998	1999	2000
Cold drawn products (1)	2,885	3,104	3,153	3,024	3,179	3,201	3,005	3,080
Cold-rolled narrow strip (2)	6,229	6,263	6,800	6,403	7,100	7,151	7,146	7,445
Cold formed or folded sections	2,485	2,526	2,619	2,570	3,077	3,348	3,088	3,328
Wire (cold drawn) (3)	4,277	5,016	4,931	5,014	5,580	5,585	5,838	5,908

(1) Excluding IRL and FIN.
(2) Excluding NL and FIN.
(3) Excluding IRL, NL and FIN.
Source: Bernard Champin Consulting
(using National Statistical Institutes and professional trade associations data)

EMPLOYMENT

The manufacture of basic iron, steel and ferro-alloys and tubes (NACE Groups 27.1 and 27.2) employed 413.1 thousand persons in the EU in 1999. Other first processing of iron, steel and ferro-alloys (NACE Group 27.3) accounted for another 80.2 thousand persons in 1997.

EXTERNAL TRADE

The EU ran a trade surplus for ferrous metals (CPA Groups 27.1 to 27.3) throughout the 1990's; the surplus started to contract after 1994 and stood at 4.1 billion EUR in 2000. Basic iron, steel and ferro-alloys (CPA Group 27.1) faced a reduction in its trade surplus from 5.0 billion EUR in 1990 to 1.5 billion EUR by 2000 and in volume terms, the trade balance showed a deficit (2.0 million tonnes in 2000). When compared to the surplus in value terms, this implies that the EU on average exported higher value products and imported lower value ones. Russia, South Africa and Turkey all increased significantly their shares of EU imports of ferrous metals between 1990 and 2000.

Table 8.10

Basic iron and steel and ferro-alloys (ECSC); tubes; other iron and steel and non-ECSC ferro-alloys (CPA Groups 27.1 to 27.3)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	20,278	15,992	4,286	126.8
B	9,163	6,055	3,108	151.3
DK	761	1,494	-733	51.0
D	16,312	13,281	3,032	122.8
EL	235	934	-699	25.2
E	3,958	5,725	-1,768	69.1
F	10,389	9,600	789	108.2
IRL	141	575	-434	24.5
I	7,504	9,584	-2,080	78.3
L	1,907	1,133	775	168.4
NL	4,385	4,388	-3	99.9
A	3,074	1,986	1,088	154.8
P	394	1,356	-962	29.0
FIN	2,161	1,270	890	170.1
S	4,150	2,891	1,258	143.5
UK	5,214	4,792	423	108.8

Source: Eurostat, Comext

Table 8.11

Manufacture of basic iron and steel and of ferro-alloys (ECSC) (NACE Group 27.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	79,832	71,222	65,992	59,144	70,169	82,591	71,410	:	80,357	72,266	:
Purchases of goods and services (million EUR)	:	:	:	:	:	55,744	51,271	:	60,046	53,839	:
Value added (million EUR)	24,453	20,641	18,383	15,730	19,573	25,266	18,987	:	20,354	17,739	:
Personnel costs (million EUR)	16,255	15,787	15,709	13,483	13,288	13,705	13,272	:	13,463	12,951	:
Number of persons employed (thousands)	514	474	452	373	352	330	:	:	317	308	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.0	6.7	4.0	3.7	8.8	14.4	8.0	:	8.6	6.6	:
App. labour productivity (thous. EUR/pers. emp.)	47.6	43.6	40.7	42.2	55.7	76.5	:	:	64.2	57.5	:
Simple wage adjusted labour productivity (%)	150.4	130.7	117.0	116.7	147.3	184.4	143.1	:	151.2	137.0	:
Output price index (1995=100)	:	:	:	:	:	100.0	94.3	92.7	93.8	84.5	94.2

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 8.12

Basic iron and steel and ferro-alloys (ECSC) (CPA Group 27.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	8,652	8,639	8,195	11,404	10,987	10,980	11,307	11,279	9,564	8,608	11,863
Extra-EU imports (million EUR)	3,698	3,075	3,333	2,722	4,084	6,608	5,025	5,942	8,453	6,608	10,181
Trade balance (million EUR)	4,954	5,564	4,862	8,682	6,903	4,372	6,283	5,337	1,111	2,000	1,682
Cover ratio (%)	233.9	280.9	245.9	418.9	269.0	166.2	225.0	189.8	113.1	130.3	116.5

Source: Eurostat, Comext

Table 8.13

Manufacture of tubes (NACE Group 27.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	15,433	15,915	15,440	13,934	16,572	18,382	:	:	18,193	16,770	:
Purchases of goods and services (million EUR)	:	:	:	:	:	13,941	:	:	13,809	11,745	:
Value added (million EUR)	4,545	4,652	4,533	3,979	4,983	5,511	:	:	5,324	5,153	:
Personnel costs (million EUR)	4,139	4,387	4,451	4,258	4,041	4,075	:	:	3,824	3,939	:
Number of persons employed (thousands)	149	147	139	129	120	114	:	:	106	105	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	2.6	1.6	0.5	-1.9	5.4	7.4	:	:	7.8	7.1	:
App. labour productivity (thous. EUR/pers. emp.)	30.6	31.6	32.5	30.9	41.5	48.4	:	:	50.4	49.2	:
Simple wage adjusted labour productivity (%)	109.8	106.0	101.8	93.4	123.3	135.2	:	:	139.2	130.8	:
Output price index (1995=100)	:	:	:	:	:	100.0	96.8	93.8	95.5	91.9	97.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 8.14

Tubes (CPA Group 27.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,428	3,927	3,341	3,396	3,847	3,737	4,385	5,516	5,604	4,060	4,897
Extra-EU imports (million EUR)	988	1,073	1,058	891	1,058	1,331	1,371	1,452	1,772	1,563	1,842
Trade balance (million EUR)	2,440	2,854	2,283	2,505	2,789	2,406	3,014	4,063	3,832	2,497	3,056
Cover ratio (%)	346.9	365.9	315.9	381.1	363.5	280.8	319.9	379.8	316.2	259.8	265.9

Source: Eurostat, Comext

Table 8.15

Other first processing of iron and steel and production of non-ECSC ferro-alloys (NACE Group 27.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	12,868	12,367	12,388	11,223	13,465	:	15,505	15,811	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	11,215	11,751	:	:	:
Value added (million EUR)	3,291	3,251	3,327	3,041	3,506	:	4,221	4,292	:	:	:
Personnel costs (million EUR)	2,407	2,508	2,610	2,384	2,416	:	2,912	2,858	:	:	:
Number of persons employed (thousands)	90	88	87	78	74	:	:	80	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	6.7	5.9	5.7	5.6	7.8	:	8.1	8.8	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	36.5	37.0	38.5	38.9	47.1	:	:	53.5	:	:	:
Simple wage adjusted labour productivity (%)	136.7	129.6	127.5	127.6	145.1	:	145.0	150.2	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	96.6	92.7	94.7	90.9	94.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 8.16

Other iron and steel and non-ECSC ferro-alloys (CPA Group 27.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,911	1,754	1,690	2,042	2,297	2,425	2,415	2,771	2,958	2,740	3,517
Extra-EU imports (million EUR)	1,772	1,686	1,698	1,700	2,220	3,121	2,814	3,091	3,320	3,006	3,969
Trade balance (million EUR)	139	67	-7	342	77	-696	-399	-320	-362	-267	-452
Cover ratio (%)	107.8	104.0	99.6	120.1	103.5	77.7	85.8	89.7	89.1	91.1	88.6

Source: Eurostat, Comext

Table 8.17

Manufacture of basic precious and non-ferrous metals (NACE Group 27.4)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	3,947	345	15,377	1,119	4,643	7,038	189	6,748	245	1,819	1,657	277	1,344	1,520	6,521
Purchases of goods and services (million EUR)	3,288	252	12,314	865	3,922	6,734	139	6,326	187	1,421	1,370	226	1,152	1,206	5,536
Value added (million EUR)	695	94	4,277	295	953	1,392	61	1,276	59	462	365	77	294	397	1,515
Personnel costs (million EUR)	475	69	2,851	128	464	967	41	735	32	264	243	39	145	234	798
Number of persons employed (thousands)	9.3	1.9	59.0	5.0	13.8	22.7	1.2	21.9	0.7	:	5.9	2.8	3.8	5.6	25.9
Gross investment in tangible goods (million EUR)	99	:	629	:	107	:	13	:	:	:	:	:	40	:	:
Gross operating rate (%)	5.4	7.0	8.6	15.4	10.3	5.3	10.2	7.2	11.2	10.7	7.1	13.1	11.3	10.4	10.0
App. labour productivity (thous. EUR/pers. emp.)	75.1	50.0	72.5	58.9	69.1	61.2	53.0	58.3	80.9	:	61.7	27.5	77.9	71.3	58.4
Simple wage adjusted labour productivity (%)	146.2	135.0	150.0	230.4	205.4	144.0	148.2	173.5	186.7	175.1	150.4	198.7	202.6	170.0	190.0
Output price index (1995=100) (2)	126.7	:	109.3	104.2	114.0	107.9	:	96.3	:	110.2	:	106.5	96.0	95.2	102.0

(1) DK, 1998; L, 1997; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 8.18

Basic precious metals and metals clad with precious metals (CPA Group 27.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	6,555	6,771	6,272	7,376	8,292	9,188	9,980	11,954	11,479	12,049	16,975
Extra-EU imports (million EUR)	20,578	20,475	20,291	20,403	23,116	26,885	23,945	28,113	31,752	28,084	38,822
Trade balance (million EUR)	-14,024	-13,704	-14,019	-13,026	-14,824	-17,697	-13,965	-16,159	-20,273	-16,034	-21,847
Cover ratio (%)	31.9	33.1	30.9	36.2	35.9	34.2	41.7	42.5	36.2	42.9	43.7

Source: Eurostat, Comext

Table 8.19

Casting of metals (NACE Group 27.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	17,548	16,564	16,244	13,917	16,028	18,752	:	:	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	11,668	:	:	:	:	:
Value added (million EUR)	7,403	7,251	7,132	6,009	6,621	7,517	:	8,403	:	:	:
Personnel costs (million EUR)	6,000	6,017	5,923	5,278	5,404	6,010	:	6,352	:	:	:
Number of persons employed (thousands)	248	235	224	196	192	203	:	205	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.8	7.2	7.2	5.1	7.4	7.8	:	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	29.8	30.9	31.9	30.6	34.5	37.0	:	41.0	:	:	:
Simple wage adjusted labour productivity (%)	123.4	120.5	120.4	113.8	122.5	125.1	:	132.3	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.3	102.3	101.5	100.2	102.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Fabricated metal products

Demand for fabricated metal products is strongly linked to the performance of other business sectors as most products are intermediate or capital goods. Fabricated metal products manufacturers supplying transport equipment and construction sectors are particularly vulnerable to cyclical fluctuations in demand, whilst the demand for containers and packaging from the food and drink industry remains fairly stable over time.

EU manufacturers face competition from two areas: substitute materials (such as plastics, glass and ceramics) and low cost imports originating from non-Community countries, in particular Asia and Eastern Europe in the form of standardised products.

Box 9.1: Pressure Equipment Directive

This Directive (97/23/EC) was adopted by the European Parliament and the European Council on 29 May 1997[1]. It initially came into force on 29 November 1999, although manufacturers were able to continue the application of the existing national legislation through until the end of May 2002, when the Directive became obligatory throughout the EU.

The purpose of the Directive is to harmonise laws regarding the design, manufacture, testing and conformity assessment of pressure equipment. It concerns manufacturers of items such as vessels, pressurised storage containers, heat exchangers, steam generators, boilers, industrial piping, safety devices and pressure accessories. This equipment is widely used in the energy, chemicals, rubber and plastics, food and beverages, glass, paper and board and transportation sectors.

The Directive ensures that products must be safe; meet essential safety requirements covering design, manufacture and testing; satisfy appropriate conformity assessment procedures; and carry the CE marking and other information.

(1) Directive 97/23/EC of the European Parliament and of the Council, OJ N° L 181, 9 July 1997.

The manufacture of fabricated metal products is divided for the purpose of this publication into three sub-chapters: structural metal products (NACE Group 28.1) that are mainly used in the building sector; boilers, metal containers and steam generators (NACE Groups 28.2 and 28.3); and a miscellaneous grouping of other metal products (which encompass NACE Groups 28.4 to 28.7).

NACE

28: manufacture of fabricated metal products, except machinery and equipment;
28.1: manufacture of structural metal products;
28.2: manufacture of tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers;
28.3: manufacture of steam generators, except central heating hot water boilers;
28.4: forging, pressing, stamping and roll forming of metal; powder metallurgy;
28.5: treatment and coating of metals; general mechanical engineering;
28.6: manufacture of cutlery, tools and general hardware;
28.7: manufacture of other fabricated metal products.

STRUCTURAL PROFILE

Fabricated metal products accounted for 9.3% of all the persons employed in the EU's manufacturing sector in 2000, equivalent to 2.2 million persons; the fabricated metal products sector has in recent years been one of the main employment creators within manufacturing. The EU's value added in this sector was 99.9 billion EUR in 2000, or 7.6% of the manufacturing total, indicating that apparent labour productivity was below the manufacturing average.

Production value in the fabricated metal products sector expanded on average by 3.0% per annum (in constant price terms) between 1990 and 2000, more or less in line with the growth displayed for the whole of manufacturing (2.7%). A more significant difference was observed for value added in constant prices, which grew by 2.8% per annum in the fabricated metal products sector, compared to a manufacturing average of 1.9%.

When looking at the fabricated metal products sub-sectors (as presented in the following sub-chapters), by far the largest in the EU was the manufacture of miscellaneous metal products (NACE Groups 28.4 to 28.7) which accounted for about two-thirds of value added in 1999, or some 61.4 billion EUR[2]. The manufacture of structural metal products (NACE Group 28.1) was the second largest sub-sector with 20.2 billion EUR of value added, equivalent to 21.7% of the total. The manufacture of boilers, metal containers and steam generators (NACE Groups 28.2 and 28.3) contributed 10.7% to the total, or 9.9 billion EUR[3].

(2) DK, I and NL, 1998 for NACE Groups 28.4 to 28.6; UK, 1997 for NACE Groups 28.4 to 28.6; EL, 1998 for NACE Groups 28.5 and 28.6; EL, not available for NACE Group 28.4; L, not available for NACE Groups 28.4 to 28.6.
(3) DK, I and NL, 1998 for NACE Group 28.3; L and UK, 1997 for NACE Group 28.3; EL and IRL, not available for NACE Group 28.3.

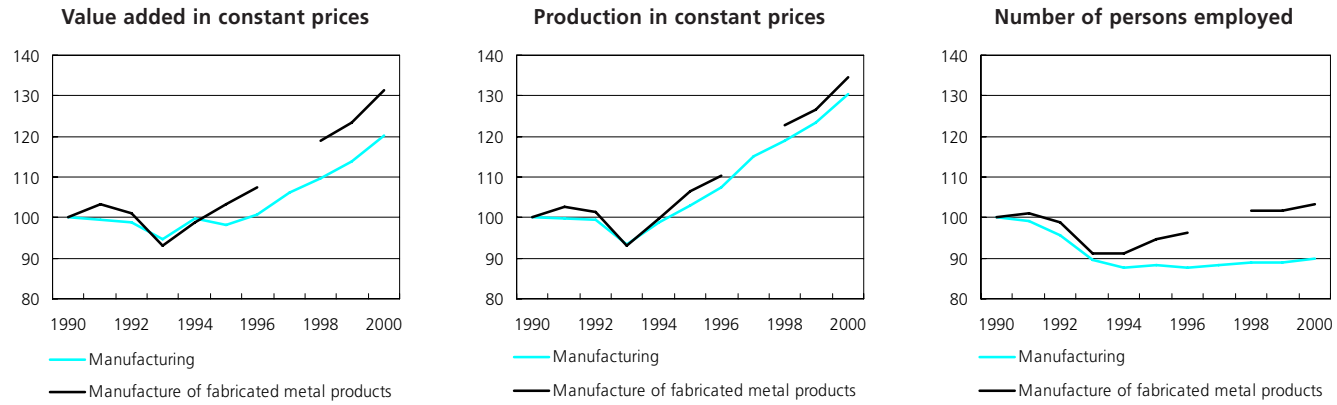
Germany was the largest producer of fabricated metal products in the EU, generating 28.7 billion EUR of value added, or 30.9% of the EU total in 1999. France, Italy (1998) and the United Kingdom (1997) all accounted for between 12% and 15% of the total. The German share of EU value added fell by 3.1 percentage points between 1990 and 1999, whilst Italy gained 1.7 percentage points between 1990 and 1998. Fabricated metal products were an important sector in Luxembourg (1997) and Spain, where they accounted for 10.5% and 9.7% of manufacturing value added in 1999. Their importance was relatively low in Greece (1998) and Ireland, with shares of less than 5% of manufacturing value added.

Small enterprises dominated output in this sector between 1995 and 1999; as the shares of very small (1-9 persons employed) and small enterprises (10-49 persons employed) in fabricated metal products value added were consistently higher than the corresponding shares for manufacturing, often by a factor of more than two[4].

(4) Latest year available: B, DK, E and I, 1998; F and UK, 1997; IRL, 1996; D, EL, L and NL, not available.

Figure 9.1

Manufacture of fabricated metal products (NACE Division 28)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

RESEARCH AND DEVELOPMENT

The fabricated metal products sector is not very research intensive, accounting for 1.7% of intramural R&D expenditure in the EU's manufacturing sector in 1998[5], whilst its corresponding share of value added was 7.7% in the same year. Germany registered the highest level of expenditure (430.7 million EUR, 1997), followed by Italy (260.3 million EUR, 1999). German R&D expenditure within the fabricated metal products sector was equivalent to 1.6% of the manufacturing total, whilst the Italian share was as high as 4.9%.

EMPLOYMENT

The number of persons employed in the EU's fabricated metal products sector rose by 67.3 thousand persons between 1990 and 2000, equivalent to an overall gain of 3.2%, in contrast to a 10.1% reduction recorded for manufacturing as a whole. The number of persons employed in the fabricated metal products sector peaked in 1991 at 2.2 million, before falling to a low of 1.9 million in 1994. Between 1994 and 2000 employment in the EU grew on average by 2.1% per annum.

Amongst the Member States, the largest net gains in employment between 1994 and 1999 were recorded in Spain and Italy (1994 to 1998), with increases of 79 and 51 thousand persons respectively[6]. The fabricated metal products workforce grew overall by more than 30% in Denmark (to 1998), Greece (to 1998), Spain, Finland and Sweden between 1994 and 1999, whilst Germany, Luxembourg (to 1997) and the United Kingdom (to 1997) were the only Member States to report a decline in the number of persons employed.

(5) I, 1999; D, EL, IRL, P and S, 1997;
DK, L, NL and A, not available.
(6) DK, EL and I, 1994-1998;
L and UK, 1994-1997; NL, not available.

The fabricated metal products sector is characterised by a male-dominated workforce; in every Member State the share of men employed in this sector in 2000 was higher than the manufacturing average. In keeping with a traditional, manufacturing sector, there was also a high propensity to employ on a full-time basis, with only the Netherlands and Sweden reporting that more than 10% of their labour force was working on a part-time basis. Furthermore, Sweden was the only country where there was a higher share of persons working part-time in the fabricated metal products sector than in manufacturing as a whole. The number of self-employed persons was somewhat higher than average (8.2% of the fabricated metal products workforce compared to 7.3% for manufacturing as a whole); larger disparities were recorded in Denmark, Greece and Portugal.

Table 9.1

Manufacture of fabricated metal products (NACE Division 28)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000 (1)	1995	2000	1995	2000 (2)	1995	2000 (3)
EU-15	17.1	16.6	5.0	5.3	9.6	8.2	11.2	11.4
B	8.2	8.6	:	4.8	6.3	8.0	11.9	12.7
DK	11.3	17.3	7.2	:	7.9	11.6	:	13.3
D	18.9	18.9	5.4	6.7	4.4	4.4	16.8	16.9
EL	6.8	7.2	:	:	43.6	32.6	:	7.0
E	9.9	10.7	2.3	1.8	22.3	14.0	17.3	18.1
F	17.0	15.4	3.4	3.1	6.1	2.9	9.6	11.4
IRL	:	13.0	:	:	:	14.5	:	:
I	18.5	18.9	3.5	4.3	14.5	15.1	2.4	2.8
L	:	:	:	:	:	:	:	:
NL	7.4	9.2	6.1	12.2	7.5	5.8	:	9.4
A	20.8	20.5	6.4	4.4	4.1	3.7	4.0	14.4
P	12.9	12.2	:	:	22.2	17.5	:	:
FIN	16.7	13.7	:	:	15.3	9.5	14.0	20.2
S	21.2	21.9	:	12.3	:	10.8	:	13.7
UK	18.7	17.2	8.5	7.6	8.8	6.7	12.0	16.6

(1) EL, 1999.
(2) NL and S, 1999.
(3) EL, 1999; EU-15 and S, 1997.
Source: Eurostat, Labour Force Survey

EXTERNAL TRADE

Fabricated metal products accounted for 2.8% of the EU's manufactured exports to non-Community countries in 2000 and 2.2% of its imports. Whilst this did not represent a particularly high share of external trade, these products did register a relatively large trade surplus of 5.9 billion EUR. The EU's trade position was dominated by the performance of German and Italian producers who reported trade surpluses with the rest of the world (intra-EU and extra-EU trade) equal to 7.2 billion EUR and 6.1 billion EUR in 2000. The United Kingdom was the only Member State to report a trade deficit of more than one billion EUR.

Between 1990 and 2000 the EU's exports of fabricated metal products generally grew by a factor of between 2.2 and 2.4, except for structural metal products (CPA Group 28.1), where exports increased 1.6 fold. Imports grew at a faster pace and were multiplied more than 5 times for steam generators (CPA Group 28.3), whilst rising by a factor of between 2.7 and 4.0 for the remaining CPA Groups.

China recorded the most rapid growth in EU imports originating from non-Community countries, its share of EU fabricated metal imports rising from 6.0% in 1990 to 16.1% by 2000. The Czech Republic (8.6% in 2000) and Poland (7.5%) also made noticeable gains within the EU market.

Table 9.2

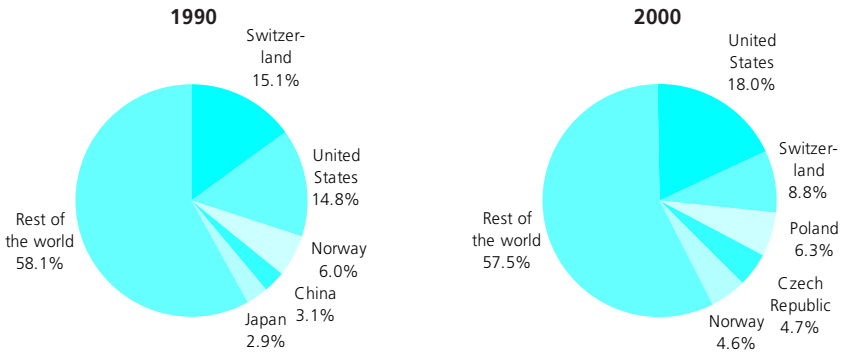
Fabricated metal products (CPA Division 28)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	23,748	17,837	5,910	133.1
B	3,855	3,943	-89	97.7
DK	1,519	1,543	-24	98.4
D	19,664	12,456	7,208	157.9
EL	230	762	-532	30.2
E	3,646	3,716	-70	98.1
F	7,461	7,660	-199	97.4
IRL	412	960	-548	42.9
I	10,066	3,960	6,105	254.2
L	273	330	-57	82.6
NL	4,292	4,492	-200	95.6
A	3,021	3,183	-162	94.9
P	728	1,013	-285	71.9
FIN	783	805	-22	97.3
S	2,625	2,005	620	130.9
UK	5,922	7,090	-1,168	83.5

Source: Eurostat, Comext

Figure 9.2

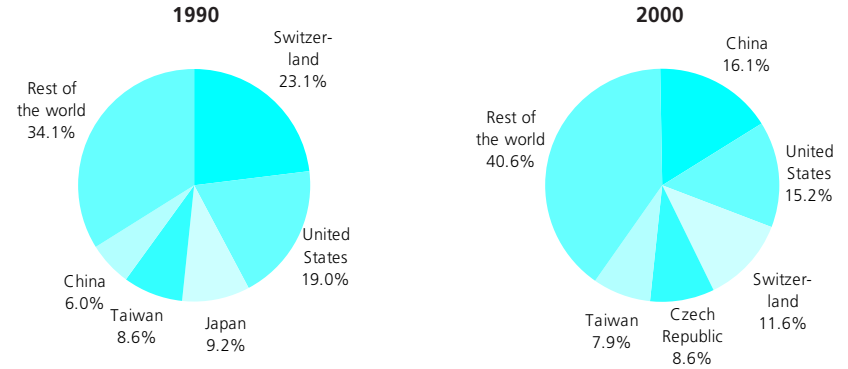
Fabricated metal products (CPA Division 28)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 9.3

Fabricated metal products (CPA Division 28)
Origin of extra-EU imports



Source: Eurostat, Comext

9.1: STRUCTURAL METAL PRODUCTS

Structural metal products (NACE Group 28.1) encompass constructional steelwork and metal products that are used in the building sector, such as doors, windows and gates.

The structural metal products sector is one of the main downstream steel transforming activities, making supporting structures that are used in the construction of buildings, bridges and civil engineering projects.

STRUCTURAL PROFILE

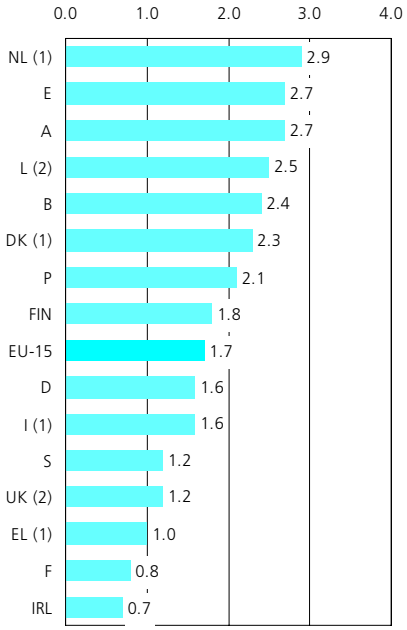
The value added generated in the EU's structural metal products sector reached 20.2 billion EUR in 1999, equivalent to 1.7% of the manufacturing total or 21.7% of the fabricated metal products sector. Value added in constant price terms grew on average by 5.0% per annum in between 1994 and 1999 (compared to a manufacturing average of 2.6%).

Germany produced 28.5% of the EU's value added in the structural metal products sector in 1999, some 2.4 percentage points below its share of fabricated metal products in general. Austria and Luxembourg both reported relative production specialisation ratios above 200% during the early 1990s, although these diminished somewhat in the second half of the decade. Nevertheless, the Austrian figure rebounded in 1999 to 188.8%, the highest value in the EU[7]. Spain and the Netherlands displayed relatively high and increasing production specialisation ratios during the 1990s. Spain accounted for 12.2% of the EU's value added in 1999, which was higher than either France or Italy (1998).

(7) DK, EL, I and NL, 1998; L and UK, 1997.

Figure 9.4

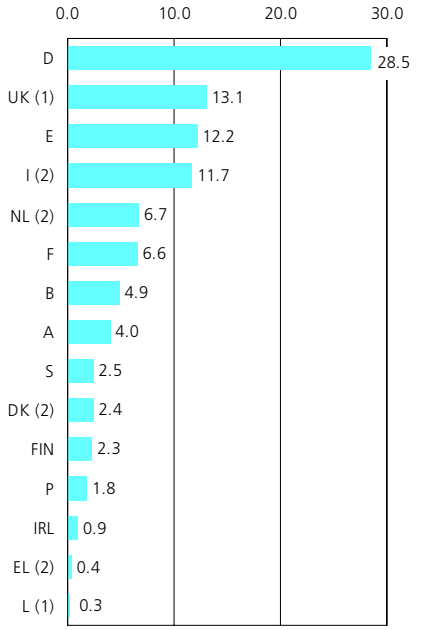
Manufacture of structural metal products (NACE Group 28.1)
Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 9.5

Manufacture of structural metal products (NACE Group 28.1)
Share of value added in the EU, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EMPLOYMENT

More than half a million people (519.8 thousand) were working in the structural metal products sector in 1999. They accounted for a 2.2% share of EU manufacturing employment, a share that rose above 4% in some Member States, for example, Spain and Luxembourg (1997)[8].

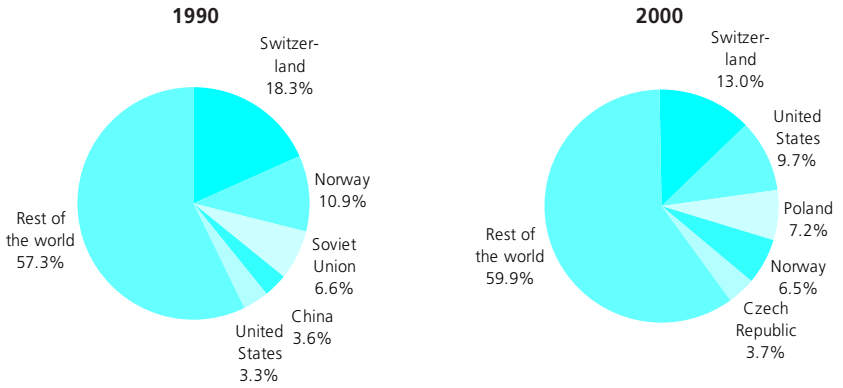
EXTERNAL TRADE

The EU has a long established trade surplus in structural metal products. However, in recent years there has been a shift in trading patterns as exports to non-Community countries fell for the second consecutive year in 2000. At the same time, the growth rate of imports accelerated and when combined these factors led to a 26.1% decline in the EU's trade balance between 1999 and 2000, falling to 1.4 billion EUR in 2000. The EU's cover ratio for structural metal products declined to 181.1%, after having recorded rates between 250% and 300% for most of the 1990s.

(8) DK, EL and I, 1998; L and UK, 1997; NL, not available.

Figure 9.6

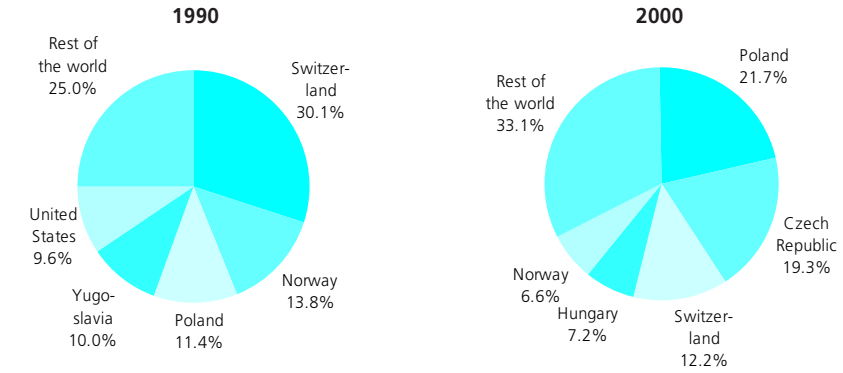
Structural metal products (CPA Group 28.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 9.7

Structural metal products (CPA Group 28.1)
Origin of extra-EU imports



Source: Eurostat, Comext

9.2: BOILERS, METAL CONTAINERS AND STEAM GENERATORS

This sub-chapter covers the manufacture of tanks, reservoirs and containers of metal; central heating radiators and boilers (NACE Group 28.2), as well as the manufacture of steam generators (NACE Group 28.3).

The boilers, metal containers and steam generators sector provides intermediate goods and capital goods to a wide range of downstream industries, most notably the energy, chemicals, petroleum refining, food and drink and construction sectors.

STRUCTURAL PROFILE

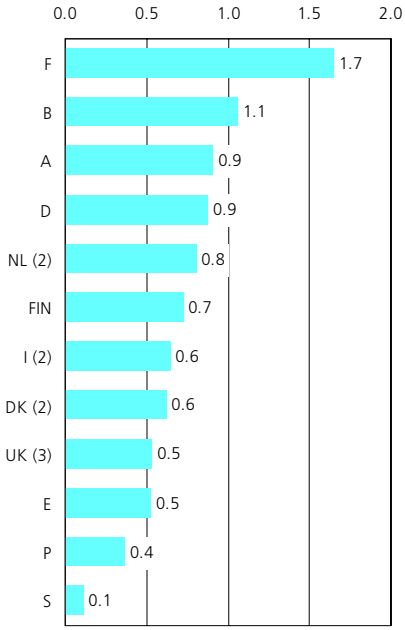
The two NACE Groups covered by this sub-chapter each account for between 5% and 6% of the EU's value added in the fabricated metal products sector. France was particularly specialised in the production of steam generators (NACE Group 28.3), generating 2.3 billion EUR of value added in 1999 (which was 650 million EUR more than in Germany). The highest relative production specialisation ratios for boilers and metal containers (NACE Group 28.2) were reported in the Netherlands (183.8%, 1998), Belgium (159.1%), Austria (154.6%) and Italy (152.6%, 1998)[9].

The value added generated by the EU's boilers and metal containers sector (NACE Group 28.2) grew on average by 2.5% per annum in constant price terms between 1994 and 1999. This growth rate was in line with that for manufacturing as a whole (2.6%), but considerably lower than the average for all fabricated metal products (4.5%). For NACE Group 28.3 there are no recent EU constant price value added figures available. The two largest Member States in this sector, France and Germany, dominate the sector and they showed contrasting fortunes between 1994 and 1999: Germany's sector contracted on average by 7.0% per annum while France's grew by 2.4%.

(9) DK, EL, I and NL, 1998; L and UK, not available.

Figure 9.8

Boilers, metal containers and steam generators (NACE Groups 28.2 and 28.3) Share of value added in manufacturing, 1999 (%) (1)



(1) EL, IRL and L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

The manufacture of boilers, metal containers and steam generators employed 219.5 thousand persons in the EU in 1999[10]. Between 1991 and 1994 the employment level in the boilers and metal containers sector fell by 15.8 thousand. The number of persons employed rose in 1995, but has remained stable since, at around 10 thousand persons below its 1991 peak. EU employment in the steam generators sector recorded losses between 1991 and 1996 totalling 33.8 thousand; more recent data for Germany and France, who together employed more than 80% of the EU's workforce in 1996, shows that by 1999 employment had fallen by a further 7.7 thousand.

Within the boilers and metal containers sector, each person employed generated an average of 45.7 thousand EUR of value added (compared to 51.9 thousand EUR for total manufacturing). Apparent labour productivity in this sub-sector grew on average by 1.4% per annum in constant price terms during the five years to 1999 (one percentage point below the manufacturing average).

Contrasting value added with personnel costs, the simple wage adjusted labour productivity ratio of the EU's boilers and metal containers sector was 138.3% in 1999 (lower than the manufacturing average of 151.0%). Whilst no recent EU figure is available for simple wage adjusted labour productivity in the steam generators sector, Germany (the second largest employer) recorded a ratio of 98.5% in 1999 and France (the largest employer) a ratio of 117.2%.

(10) For NACE Group 28.3: DK and I, 1998; L and UK, 1997; EL, IRL and NL, not available.

EXTERNAL TRADE

The EU ran a trade surplus with non-Community countries of 2.0 billion EUR for boilers, metal containers and steam generators in 2000. The EU's cover ratio for steam generators reached 735.4% in 2000, whilst for boilers and metal containers it was 191.2%, also considerably above the fabricated metal products average of 133.1%. There were two consecutive years of declining EU exports of steam generators in 1999 and 2000, mainly reflected in less exports to China, which nevertheless remained the EU's top export market for these products.

Table 9.3

Boilers, metal containers and steam generators (CPA Groups 28.2 and 28.3)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	2,910	876	2,034	332.3
B	401	272	129	147.3
DK	110	60	50	182.3
D	2,347	834	1,512	281.3
EL	11	165	-154	6.9
E	351	330	21	106.3
F	749	573	176	130.8
IRL	47	76	-29	62.0
I	1,230	290	939	423.8
L	6	32	-27	17.7
NL	366	268	98	136.6
A	172	206	-34	83.5
P	106	76	30	139.7
FIN	120	36	85	338.2
S	83	85	-2	97.4
UK	401	641	-239	62.7

Source: Eurostat, Comext

9.3: MISCELLANEOUS METAL PRODUCTS

This sub-chapter covers a number of miscellaneous industrial metal processing techniques (such as forging, pressing, stamping, roll forming and the treatment of metal), as well as the manufacture of metal products, including cutlery, tools, hardware, wire and fasteners, all of which are found within NACE Groups 28.4 to 28.7.

Miscellaneous metal products together accounted for roughly two-thirds of the value added generated in the EU's fabricated metal products sector. These activities produce a variety of intermediate and consumer goods with considerable variation in demand patterns between sub-sectors; one important market segment is light metal packaging, which is mainly used within the food and beverages sector in the form of cans, bottles and other containers.

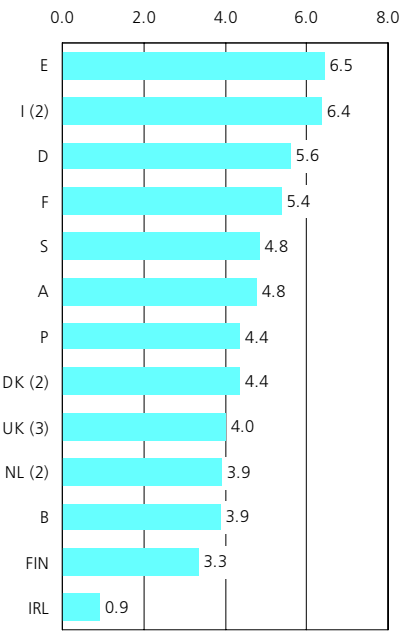
STRUCTURAL PROFILE

In 1999, miscellaneous metal products generated 61.1 billion EUR of value added in the EU[11], equivalent to 5.0% of the EU's manufacturing total. The manufacture of other fabricated metal products (NACE Group 28.7) was the largest sub-sector, contributing one-third (33.9%) of the value added generated in the miscellaneous metal products sector in 1999[12]. It was followed by the treatment and coating of metals and general mechanical engineering (NACE Group 28.5), whose share was 27.8%, whilst the manufacture of cutlery, tools and general hardware (NACE Group 28.6) and the forging, pressing, stamping and roll forming of metal (NACE Group 28.4) contributed slightly lower shares of 21.6% and 16.8% respectively.

(11) DK, EL, I and NL, 1998; L and UK, 1997; EL, not available for NACE Group 28.4; L, only available for NACE Group 28.7.
(12) For the whole paragraph: DK, EL, I and NL, 1998; L and UK, 1997; EL, not available for NACE Group 28.4; L, only available for NACE Group 28.7.

Figure 9.9

Miscellaneous metal products (NACE Groups 28.4 to 28.7)
Share of value added in manufacturing, 1999 (%) (1)



(1) EL and L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Luxembourg displayed a high degree of specialisation in the treatment and coating of metals and general mechanical engineering, whilst the Member States with the highest production specialisation ratios in 1999 for other fabricated metal products were Denmark (156.5%, 1998), Spain (150.3%) and Sweden (139.9%)[13].

LABOUR AND PRODUCTIVITY

Some 1.4 million persons were employed in the miscellaneous metal products sector in the EU in 1999[14]. Between 1993 and 1999, the number of persons employed in the treatment and coating of metals and general mechanical engineering rose by more than 60% in the EU to reach 444 thousand persons[15]. However, the largest employer remained other fabricated metal products, with 467 thousand persons in 1999.

EU apparent labour productivity in the miscellaneous metal products sector reached 42.2 thousand EUR in 1999[16], nearly 20% below the manufacturing average of 51.9 thousand EUR.

EXTERNAL TRADE

External trade data is only available for CPA Groups 28.6 and 28.7. The EU's trade surplus with non-Community countries for cutlery, tools and general hardware (1.2 billion EUR) was comparable to that for other fabricated metal products (1.1 billion EUR). Their respective cover ratios were below the fabricated metal products average of 133.1% in 2000, at 120.3% for cutlery, tools and general hardware and 112.5% for other fabricated metal products.

(13) DK, EL, I and NL, 1998: L and UK, 1997.
(14) DK, EL and I, 1998; UK, 1997; L and NL, not available; EL, not available for NACE Group 28.4.
(15) DK, EL and I, 1998; UK, 1997; L and NL, not available.
(16) DK and I, 1998; UK, 1997; EL, L and NL, not available.

Table 9.4

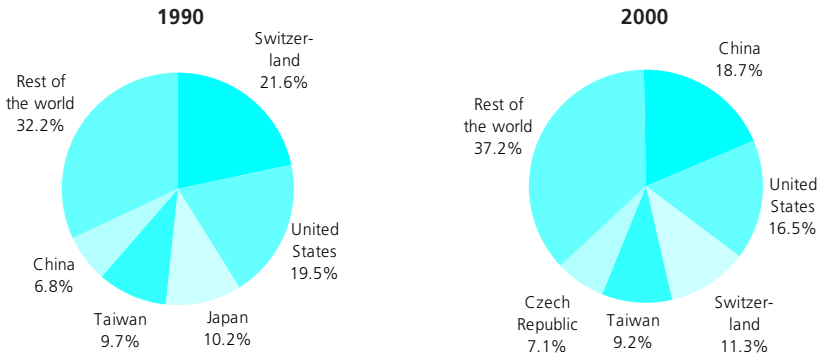
Miscellaneous metal products (NACE Groups 28.4 to 28.7)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
B	47.6	34.6	137.4
DK (1)	39.9	29.6	135.2
D	49.6	37.9	130.9
EL	:	:	:
E	34.1	23.5	145.1
F	42.2	32.0	131.8
IRL	38.3	24.6	155.2
I (1)	43.8	26.9	163.0
L	:	:	:
NL	:	:	:
A	53.0	36.8	144.0
P	14.2	10.6	133.6
FIN	44.1	28.5	154.8
S	39.4	32.4	121.5
UK (2)	38.5	26.0	148.0

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 9.10

Miscellaneous metal products (CPA Groups 28.4 to 28.7)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 9.5

Manufacture of structural metal products (NACE Group 28.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	40,408	43,321	43,461	39,441	41,093	45,033	47,446	49,853	55,371	58,465	:
Purchases of goods and services (million EUR)	:	:	:	:	:	30,513	32,047	34,031	37,716	39,671	:
Value added (million EUR)	14,340	15,618	15,508	14,062	14,476	15,472	16,560	17,124	18,967	20,201	:
Personnel costs (million EUR)	10,547	11,838	12,130	11,650	11,756	12,162	12,954	13,317	14,057	14,853	:
Number of persons employed (thousands)	491	510	504	468	460	462	488	497	514	520	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.3	8.7	7.6	6.0	6.5	7.3	7.4	7.4	8.7	9.0	:
App. labour productivity (thous. EUR/pers. emp.)	29.2	30.6	30.7	30.1	31.5	33.5	33.9	34.4	36.9	38.9	:
Simple wage adjusted labour productivity (%)	136.0	131.9	127.8	120.7	123.1	127.2	127.8	128.6	134.9	136.0	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.6	102.3	104.7	105.8	108.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.6

Structural metal products (CPA Group 28.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,024	2,190	2,006	2,218	2,251	2,841	2,827	3,253	3,463	3,376	3,213
Extra-EU imports (million EUR)	444	560	715	724	779	961	1,052	1,146	1,259	1,429	1,774
Trade balance (million EUR)	1,580	1,631	1,290	1,493	1,472	1,880	1,775	2,107	2,204	1,947	1,439
Cover ratio (%)	455.9	391.4	280.3	306.2	289.1	295.7	268.7	283.9	275.1	236.2	181.1

Source: Eurostat, Comext

Table 9.7

Manufacture of tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers (NACE Group 28.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	9,870	11,096	11,544	10,460	10,693	12,197	:	:	13,309	14,215	:
Purchases of goods and services (million EUR)	:	:	:	:	:	8,494	:	:	9,286	9,577	:
Value added (million EUR)	3,805	4,255	4,458	4,045	4,159	4,558	:	:	4,923	5,073	:
Personnel costs (million EUR)	2,843	3,165	3,310	3,034	3,044	3,423	:	:	3,560	3,668	:
Number of persons employed (thousands)	117	121	121	107	105	110	:	:	110	111	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.1	9.2	9.3	8.9	9.7	8.8	:	:	9.5	9.6	:
App. labour productivity (thous. EUR/pers. emp.)	32.5	35.2	37.0	37.9	39.6	41.4	:	:	44.9	45.7	:
Simple wage adjusted labour productivity (%)	133.8	134.4	134.7	133.3	136.6	133.2	:	:	138.3	138.3	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.4	103.4	104.5	104.3	105.2

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.8

Tanks, reservoirs and containers of metal; central heating radiators and boilers (CPA Group 28.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	523	546	589	731	892	943	1,149	1,259	1,318	1,218	1,241
Extra-EU imports (million EUR)	195	261	314	316	352	388	425	473	501	568	649
Trade balance (million EUR)	328	284	275	415	540	554	724	787	816	650	592
Cover ratio (%)	268.6	208.6	187.6	231.6	253.3	242.7	270.6	266.5	262.9	214.3	191.2

Source: Eurostat, Comext

Table 9.9

Manufacture of steam generators, except central heating hot water boilers (NACE Group 28.3)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	314	218	4,772	:	239	6,020	:	194	0	237	161	10	422	11	864
Purchases of goods and services (million EUR)	197	165	3,146	:	134	3,611	:	116	0	197	97	6	326	6	556
Value added (million EUR)	120	55	1,655	:	109	2,308	:	81	0	40	75	4	96	5	325
Personnel costs (million EUR)	100	57	1,680	:	91	1,970	:	52	1	37	68	3	78	3	306
Number of persons employed (thousands)	2.9	1.2	32.8	:	3.5	55.4	:	1.6	0.1	:	1.8	0.2	2.0	0.1	7.1
Gross investment in tangible goods (million EUR)	13	:	137	:	6	:	:	:	:	:	:	:	2	:	:
Gross operating rate (%)	6.4	-0.8	-0.5	:	7.0	5.4	:	16.3	:	1.6	4.1	11.4	4.1	11.1	2.1
App. labour productivity (thous. EUR/pers. emp.)	41.9	46.6	50.5	:	31.2	41.7	:	50.4	0.0	:	41.6	18.3	48.0	49.3	46.0
Simple wage adjusted labour productivity (%)	120.1	96.9	98.5	:	119.3	117.2	:	156.7	0.0	108.3	110.0	137.5	122.5	132.4	106.3
Output price index (1995=100) (2)	102.1	:	103.3	109.4	107.4	102.0	:	103.1	:	96.3	:	:	:	:	102.1

(1) DK, 1998; L, 1997; I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for F (1998).
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.10

Steam generators, except central heating hot water boilers (CPA Group 28.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	701	563	645	1,789	2,267	2,261	2,325	2,420	2,548	2,195	1,669
Extra-EU imports (million EUR)	44	95	72	85	86	145	111	105	103	156	227
Trade balance (million EUR)	657	468	573	1,704	2,181	2,115	2,213	2,315	2,445	2,039	1,442
Cover ratio (%)	1,582.6	590.9	898.8	2,097.6	2,629.9	1,553.9	2,093.4	2,294.6	2,463.5	1,410.2	735.4

Source: Eurostat, Comext

Table 9.11

Forging, pressing, stamping and roll forming of metal; powder metallurgy (NACE Group 28.4)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	232	0	8,979	:	2,683	5,738	39	5,434	:	952	548	71	22	94	2,839
Purchases of goods and services (million EUR)	159	0	5,237	:	1,791	3,941	23	3,778	:	642	423	50	12	56	1,655
Value added (million EUR)	90	0	3,831	:	945	1,767	15	1,756	:	337	197	26	10	39	1,221
Personnel costs (million EUR)	51	0	3,092	:	579	1,316	11	989	:	224	127	17	6	31	861
Number of persons employed (thousands)	2.1	0.0	77.8	:	24.9	44.2	0.4	34.7	:	:	3.5	2.2	0.2	0.9	34.2
Gross investment in tangible goods (million EUR)	30	:	573	:	145	:	1	:	:	:	:	:	3	:	:
Gross operating rate (%)	15.6	:	8.1	:	13.5	7.8	9.7	14.1	:	11.8	11.4	12.7	18.0	8.5	12.5
App. labour productivity (thous. EUR/pers. emp.)	43.3	:	49.3	:	37.9	40.0	34.9	50.7	:	:	55.8	12.1	41.0	43.2	35.7
Simple wage adjusted labour productivity (%)	177.4	:	123.9	:	163.2	134.2	132.5	177.6	:	150.9	154.4	155.7	161.3	125.3	141.8
Output price index (1995=100) (2)	96.4	:	103.9	:	:	:	:	104.1	:	106.4	:	:	:	:	100.3

(1) DK, 1998; I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.12

Treatment and coating of metals; general mechanical engineering (NACE Group 28.5)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	2,282	312	6,906	34	4,391	8,256	64	6,535	:	1,061	617	746	825	1,215	4,197
Purchases of goods and services (million EUR)	1,423	141	3,591	19	2,533	4,626	31	3,928	:	604	391	515	421	711	2,003
Value added (million EUR)	910	176	3,424	16	1,970	3,580	33	2,669	:	471	268	267	411	532	2,220
Personnel costs (million EUR)	570	136	2,458	10	1,379	2,892	25	1,681	:	308	183	180	268	425	1,546
Number of persons employed (thousands)	19.5	4.6	74.2	0.7	67.1	90.1	1.2	72.8	:	:	5.3	21.6	9.9	12.8	64.5
Gross investment in tangible goods (million EUR)	238	:	582	:	207	:	8	:	:	:	:	:	98	:	:
Gross operating rate (%)	14.5	12.5	13.7	16.0	13.3	8.2	12.9	15.3	:	15.3	13.0	11.6	17.6	8.7	15.8
App. labour productivity (thous. EUR/pers. emp.)	46.7	38.0	46.1	22.1	29.3	39.7	28.7	36.6	:	:	50.4	12.3	41.4	41.6	34.4
Simple wage adjusted labour productivity (%)	159.7	128.9	139.3	151.9	142.8	123.8	132.5	158.7	:	152.8	145.9	147.8	153.2	125.1	143.6
Output price index (1995=100) (2)	:	:	102.4	:	:	:	:	102.9	:	110.6	:	:	:	:	96.5

(1) DK and EL, 1998; I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.13

Manufacture of cutlery, tools and general hardware (NACE Group 28.6)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	470	349	12,392	101	2,321	3,085	134	3,528	:	507	1,122	391	330	864	2,543
Purchases of goods and services (million EUR)	296	224	7,209	63	1,433	1,975	74	2,185	:	292	589	240	151	487	1,376
Value added (million EUR)	194	156	5,865	44	1,017	1,391	58	1,482	:	252	608	166	187	466	1,284
Personnel costs (million EUR)	126	106	4,460	27	660	1,055	41	857	:	169	403	107	100	280	804
Number of persons employed (thousands)	4.0	3.5	111.8	1.6	29.4	32.4	1.6	31.1	:	:	10.6	12.0	3.7	7.3	31.5
Gross investment in tangible goods (million EUR)	57	:	796	:	95	:	9	:	:	:	:	:	26	:	:
Gross operating rate (%)	14.0	13.4	10.7	18.5	14.7	9.8	11.9	17.4	:	15.8	17.1	14.7	26.1	19.9	18.1
App. labour productivity (thous. EUR/pers. emp.)	48.7	44.9	52.5	27.5	34.6	43.0	36.6	47.7	:	:	57.2	13.8	51.0	64.1	40.8
Simple wage adjusted labour productivity (%)	154.7	147.3	131.5	162.3	154.1	131.8	140.2	173.0	:	149.7	150.7	154.9	186.7	166.8	159.8
Output price index (1995=100) (2)	:	:	103.8	120.9	115.5	101.7	:	109.2	:	106.8	:	105.5	104.4	102.2	113.8

(1) DK, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.14

Cutlery, tools and general hardware (CPA Group 28.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,256	3,287	3,269	3,564	4,021	4,535	5,009	5,658	5,767	6,144	7,207
Extra-EU imports (million EUR)	2,220	2,591	2,647	2,769	3,188	3,439	3,520	4,001	4,467	4,810	5,993
Trade balance (million EUR)	1,036	695	623	795	833	1,096	1,489	1,658	1,301	1,334	1,214
Cover ratio (%)	146.7	126.8	123.5	128.7	126.1	131.9	142.3	141.4	129.1	127.7	120.3

Source: Eurostat, Comext

Table 9.15

Manufacture of other fabricated metal products (NACE Group 28.7)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	43,502	46,333	47,890	:	51,675	53,630	54,880	:
Purchases of goods and services (million EUR)	:	:	:	:	:	32,278	:	35,040	36,807	38,162	:
Value added (million EUR)	:	:	:	17,218	18,078	17,905	:	19,416	20,222	21,003	:
Personnel costs (million EUR)	:	:	:	13,188	13,171	12,825	:	13,663	14,299	14,267	:
Number of persons employed (thousands)	:	:	:	490	476	448	:	463	471	467	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	8.7	10.0	10.1	:	10.6	10.4	11.4	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	35.1	38.0	40.0	:	41.9	43.0	45.0	:
Simple wage adjusted labour productivity (%)	:	:	:	130.6	137.3	139.6	:	142.1	141.4	147.2	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.7	102.0	102.1	101.8	103.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 9.16

Other fabricated metal products (CPA Group 28.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,690	4,803	4,965	5,354	6,028	6,736	7,586	8,330	8,862	8,808	10,315
Extra-EU imports (million EUR)	3,062	3,440	3,507	3,751	4,340	5,199	5,461	6,357	7,219	7,736	9,167
Trade balance (million EUR)	1,628	1,364	1,458	1,603	1,688	1,537	2,125	1,973	1,643	1,072	1,149
Cover ratio (%)	153.2	139.7	141.6	142.7	138.9	129.6	138.9	131.0	122.8	113.9	112.5

Source: Eurostat, Comext

Machinery and equipment

The machinery and equipment sector in the EU provides components like gears and valves, through to complex machinery systems for manufacturing plants. The sector supplies much of the equipment on which the competitiveness of the mining, manufacturing, energy and construction sectors as a whole reside, both in terms of productivity and final product quality.

As a supplier of capital goods and parts or components for capital goods manufactured by other sectors, the machinery and equipment sector is sensitive to overall economic conditions and more particularly to business confidence. Individual sub-sectors that produce for a narrow range of downstream sectors are more susceptible to experience fluctuations in activity than many other manufacturing activities, as their business cycles represent an amplified version of the sectors they supply. This can be contrasted with the power machinery sub-sector which has a smoother evolution. However, as machinery and equipment is manufactured for a wide range of specialised sectors, overall it has followed very closely the development of manufacturing activity throughout the 1990s, albeit with a slightly lower rate of growth.

The machinery and equipment sector (including domestic appliances) accounted for 10.5% of manufacturing value added in 2000. Its share of manufacturing value added has fallen steadily since its most recent peak of 11.5% in 1996. This sector's share of manufacturing employment was 11.2% in 2000, half a percentage point down from its peak in 1990.

Box 10.1: Machinery Directive

The Machinery Directive 98/37/EC[1] consolidated four existing legal texts, the original Machinery Directive of 1989 and its three amendments[2]. The Directive covers machinery and safety components; although a small number of products manufactured by the machinery and equipment sector, notably agricultural tractors, firearms or lifts (covered under a separate Directive) are not covered.

The Directive defines the essential health and safety requirements to be considered in the design and production of machines with the aim of risk prevention. The list of requirements laid down in an annex to the Directive relates to general requirements (the use of materials, safety from hazards, protective devices and maintenance), sector-specific issues and concerns related to mobile machinery, lifting machinery and machinery for underground work.

(1) Directive 98/37/EC of 22 June 1998 (OJ n° L 207 of 23.07.98, p.1).
(2) Directive 89/392/CEE of 14 June 1989 (OJ No L 183, 29.06.89, p. 9) as amended by Directives 91/368/EEC (OJ No L 198, 22 July 1991, p. 16), 93/44/CEE (OJ No L 175, 19 July 1993, p. 12) and 93/68/EEC (OJ No L 220, 31 August 1993, p. 1).

This chapter covers NACE Groups 29.1 to 29.6, in other words all machinery and equipment except for domestic appliances (NACE Group 29.7), the latter being covered in subchapter 11.7.

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.

STRUCTURAL PROFILE

Value added of the EU's machinery and equipment sector (excluding domestic appliances) in 1999 was 120.4 billion EUR[3]. Power machinery (NACE Group 29.1) and industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5) were by far the most important sub-sectors, whilst the two remaining sub-sectors (agricultural machinery and weapons and ammunition) each represented less than 5% of total value added in the machinery and equipment sector.

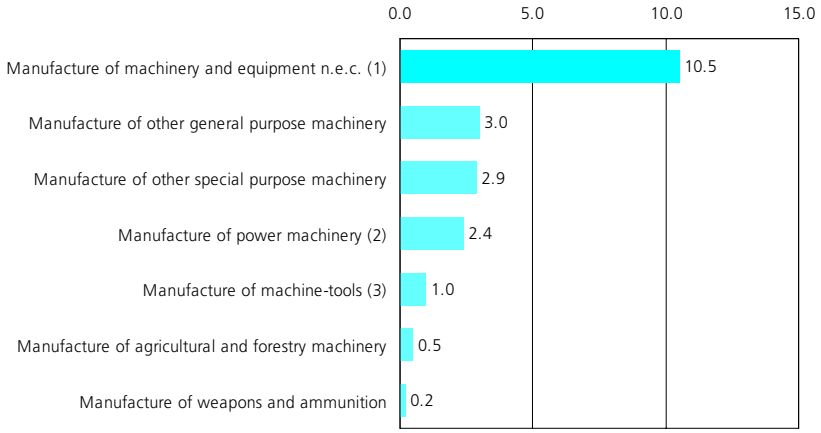
Manufacturing of machinery and equipment (excluding domestic appliances) was particularly concentrated in Germany, where value added in 1999 reached 49.0 billion EUR, far ahead of Italy (17.8 billion EUR, 1998) which had the next highest level of activity. In 1999 Germany recorded the same level of value added in constant prices as it had ten years earlier and there was a similar situation in Italy (1998 compared to 1988). The other two large Member States recorded growth: on average French value added increased by 2.5% per annum between 1989 and 1999 and value added in the United Kingdom rose by 1.0% per annum between 1987 and 1997. Time series in constant prices for a recent ten-year period are only available for a few of the other Member States and these indicate growth in Denmark and Spain and a contraction in Finland.

The ratio of value added to production value for the machinery and equipment sector (including domestic appliances) in 2000 was 35.0%, compared to the manufacturing average of 29.6%. This ratio has fallen each year since its most recent high in 1993 of 39.0%, one cause of which may be an increased use of out-sourcing for components and standardised industrial services in the face of increased competition.

(3) DK, EL, I and NL, 1998; UK, 1997; L not available.

Figure 10.1

Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Share of manufacturing value added in the EU, 1999 (%)



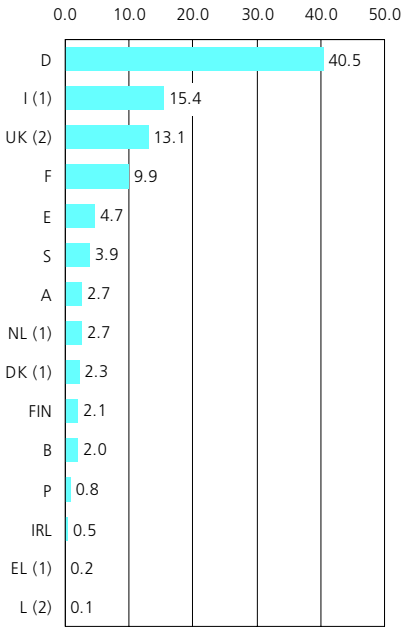
(1) 2000.
(2) Estimate.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

An analysis of the value added generated by enterprises of different size classes shows that the EU's machinery and equipment sector (including domestic appliances)was more dependent on medium and small enterprises than the manufacturing average (see table 10.1). Medium-sized enterprises with between 50 and 249 persons employed accounted for 28.4% of the sector's value added in 1999[4] compared to a manufacturing average of 22.5% and small enterprises with 10 to 49 persons employed accounted for 21.4% compared to a manufacturing average of 17.9%. This distribution supports the view that custom-made products provide opportunities for specialised small or medium-sized enterprises with the appropriate technical knowledge and flexibility in their operations.

(4) B, DK, E, I and NL, 1998, IRL and UK, 1997; D, EL and L, incomplete or no recent data.

Figure 10.2

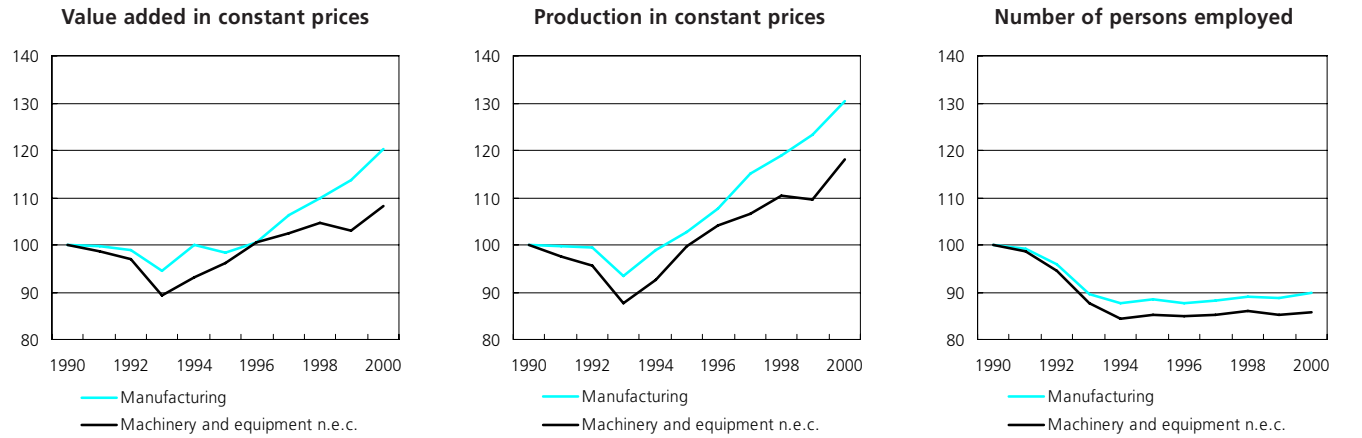
Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Share of value added in the EU, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 10.3

Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 10.1

Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Proportion of value added generated by each size class, 1999 (%)

	Micro (0-9)	Small (10-49)	Medium (50-249)	Large (250+)
B (1)	5.4	16.7	25.5	52.4
DK (1)	5.6	17.9	27.7	48.8
D	:	:	:	:
EL	:	:	:	:
E (1)	9.6	32.7	28.0	29.8
F	8.0	19.0	26.4	46.7
IRL (2)	3.6	20.1	32.0	44.3
I (1)	10.4	26.0	30.9	32.6
L	:	:	:	:
NL (1)	11.2	26.3	34.8	27.8
A	3.7	13.4	31.1	51.8
P	15.1	30.7	32.6	21.6
FIN	7.3	14.1	24.6	53.9
S	5.4	13.0	22.3	59.2
UK (2)	7.0	18.5	27.5	46.9

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs)

INTANGIBLES

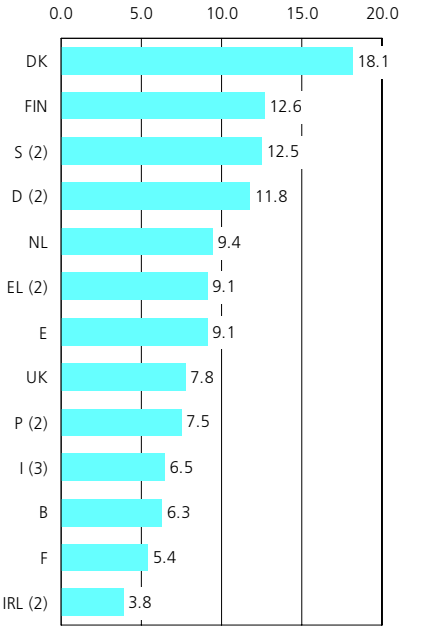
The machinery and equipment sector (including domestic appliances) accounted for 9.3% of intramural manufacturing R&D expenditure in the EU in 1998[5], slightly less than the sector's share of manufacturing value added. Only in Denmark (18.1%), Finland (12.6%), Sweden (12.5%) and Germany (11.8%) did this sector account for more than 10% of intramural manufacturing R&D expenditure.

The 1996 CIS indicates that this sector (again including also domestic appliances) was relatively innovative. All Member States reported a higher proportion of innovating enterprises than in manufacturing as a whole[6]. Ireland reported that 89% of enterprises had undertaken innovations, making it the most innovative Member States in this sector. In all Member States (except Luxembourg) product innovation was more widespread than process innovation and this sector recorded a higher proportion of enterprises with product innovations than the manufacturing average in every Member State. The above average proportion of innovating enterprises may to some extent reflect the importance of products made to customer's specific requirements and a lower reliance on standardised products.

(5) I, 1999; D, IRL, P, and S, 1997; L and A, not available.
(6) EL, not available.

Figure 10.4

Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Share in manufacturing R&D, 1998 (%) (1)



(1) L and A, not available.
(2) 1997.
(3) 1999.
Source: Basic Science and Technology Statistics (BSTS), OECD

LABOUR AND PRODUCTIVITY

This sector has seen an increase in the use of electronic components and high-technology instruments within its products to increase the efficiency and/or flexibility of the processes in which they will be used. This growing complexity of systems, along with the higher levels of technical services offered for customised products, requires a high skill level amongst the workforce, both among engineers and production workers. However, in the market for standardised products there is competition from low labour cost countries and the extent to which EU Member States can remain competitive is determined principally by their ability to maintain and develop technological advantages.

In 1999 the number of persons employed in the EU's machinery and equipment sector (excluding domestic appliances) was 2.3 million[7]. Between 1989 and 1999 the level of employment fell notably in Germany, the largest EU manufacturer, from 1.2 million persons employed to 910.6 thousand; most of this contraction occurred between 1992 and 1994. Amongst the other large Member States employment also fell sharply in the United Kingdom, where a net reduction of 86.1 thousand persons was recorded between 1989 and 1997. France and Italy (1989 to 1998) however saw an expansion in their employment levels, with increases of 5.2 thousand and 28.5 thousand persons employed respectively. Employment data from 1989 onwards is available for five other Member States[8] and they all show a net increase in the number of persons employed by the late 1990s; with particularly strong growth in Ireland (35.5% to 1999) and Denmark (21.3% to 1998); the majority of growth in both of these countries was achieved between 1993 and 1997.

(7) DK, EL and I, 1998; UK, 1997; L and NL, not available.
(8) DK, EL, E, IRL and FIN.

The profile of the workforce in the manufacture of machinery and equipment (including domestic appliances) is quite distinct from the manufacturing average, according to the results of the LFS. The dependence on part-time employment is lower, as is the share of women in employment. The education profile of the workforce is also different, reflecting the need for higher skills to support increased technical services and more complex machine systems: 22.7% of the EU's workforce in 2000 had completed higher education and 52.5% had completed upper secondary education[9], compared to 18.7% and 48.9% for manufacturing as a whole.

A time series of SBS data shows that in the late 1990s only Italy and Portugal recorded higher apparent labour productivity for the manufacture of machinery and equipment than for manufacturing[10].

(9) EL, IRL, L and P, incomplete or no recent data available.
(10) L and NL, not available.

Average personnel costs in this sector were relatively high, reflecting the high proportion of the workforce with upper secondary or higher education levels. Only Ireland recorded average personnel costs significantly lower in this sector than in manufacturing in 1999[11]. All other Member States recorded average personnel costs between 1.0 thousand EUR and 3.5 thousand EUR higher than the manufacturing average.

(11) DK, EL and I, 1998; UK, 1997; L and NL, not available.

Table 10.2

Manufacture of machinery and equipment n.e.c. (NACE Division 29)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000	1995	2000 (1)	1995	2000 (2)
EU-15	17.5	16.8	4.7	5.1	5.5	5.5	19.7	21.3
B	12.9	14.2	:	:	:	:	24.5	21.6
DK	24.5	20.6	3.0	7.2	3.0	4.6	21.8	21.9
D	19.2	16.2	5.7	5.5	3.4	3.3	27.5	30.4
EL	11.2	11.2	:	:	27.4	26.5	13.9	12.3
E	9.0	13.9	:	2.2	13.4	11.9	22.6	31.9
F	18.4	19.3	3.3	4.9	3.9	3.7	15.1	18.9
IRL	23.4	19.0	:	:	:	:	:	24.3
I	15.6	17.3	2.2	3.8	10.1	10.2	5.7	6.7
L	:	:	:	:	:	:	:	26.5
NL	10.3	13.4	10.0	10.2	:	:	:	15.9
A	14.8	19.0	4.0	6.9	:	3.9	4.4	16.4
P	19.8	20.9	:	:	:	:	:	:
FIN	11.9	10.9	:	:	6.6	6.6	27.8	32.2
S	20.5	13.9	:	:	:	:	20.4	25.7
UK	18.0	17.7	6.2	6.5	4.4	3.1	18.6	25.4

(1) DK and A, 1999.
(2) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

EXTERNAL TRADE

The EU has traditionally recorded a large trade surplus in machinery and equipment (excluding domestic appliances). In 2000 the surplus was 57.1 billion EUR from exports of 118.0 billion EUR. Exports to non-Community countries grew by close to or above 10% each year from 1993 to 1997, stabilised in 1998, contracted by 5.2% in 1999 and then bounced back in 2000, growing by 16.2%. Germany and Italy both recorded large trade surpluses (extra-EU and intra-EU trade combined) in 2000, 46.2 billion EUR and 24.7 billion EUR respectively. These surpluses were built on relatively high levels of exports, as these products accounted for 17.4% of Italy's manufacturing exports and 14.8% of Germany's manufacturing exports, compared to an average across all EU countries of 10.5%.

The two Groups covering general purpose machinery, CPA 29.1 and CPA 29.2, each accounted for just under one-quarter of the EU's exports of machinery and equipment in 2000, whilst special purpose machinery (CPA Group 29.5) accounted for the largest single share, 37.7%. Higher exports in current prices were recorded for each of the CPA Groups in 2000 than in 1990. The two general purpose machinery CPA Groups experienced the biggest increase in their level of EU exports over this period. All of the machinery and equipment CPA Groups recorded at least a doubling in current price terms of EU imports between 1990 and 2000, except for weapons and ammunition, where imports nearly halved. Despite the increased imports, the EU recorded a trade surplus for each of the CPA Groups in 2000, just as it had done in every year throughout the 1990s.

Comparing 2000 with 1990, there have not been many changes in the destination of the EU's exports of machinery and equipment (excluding domestic appliances) apart from a shift from the Soviet Union's 6.4% share in 1990 to Russia's 2.4% share in 2000, whilst the EU's dependence on its number one export market, the US, increased from 18.2% to 23.3%. The share of EU imports from both Switzerland and Japan fell considerably between 1990 and 2000, as China, South Korea, the Czech Republic, Poland and Hungary all increased their shares.

Table 10.3

Machinery and equipment (CPA Groups 29.1 to 29.6)
Extra-EU exports

	1990 (million EUR)	1990 (%)	2000 (million EUR)	2000 (%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Machinery and equipment	61,599.0	100.0	118,071.6	100.0	91.7	-
Machinery for the production & use of mechanical power	12,144.5	19.7	28,537.3	24.2	135.0	4.5
Other general purpose machinery	13,620.2	22.1	28,047.0	23.8	105.9	1.6
Agricultural and forestry machinery	2,790.5	4.5	4,203.5	3.6	50.6	-1.0
Machine-tools	7,618.9	12.4	12,101.5	10.2	58.8	-2.1
Other special purpose machinery	24,803.8	40.3	44,496.0	37.7	79.4	-2.6
Weapons and ammunition	621.1	1.0	686.3	0.6	10.5	-0.4

Source: Eurostat, Comext

Table 10.4

Machinery and equipment (CPA Groups 29.1 to 29.6)
Extra-EU imports

	1990 (million EUR)	1990 (%)	2000 (million EUR)	2000 (%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Machinery and equipment	25,509.5	100.0	60,913.9	100.0	138.8	-
Machinery for the production & use of mechanical power	6,512.9	25.5	17,976.0	29.5	176.0	4.0
Other general purpose machinery	4,974.4	19.5	14,433.6	23.7	190.2	4.2
Agricultural and forestry machinery	967.4	3.8	2,021.4	3.3	108.9	-0.5
Machine-tools	4,846.5	19.0	10,236.2	16.8	111.2	-2.2
Other special purpose machinery	7,722.6	30.3	15,979.4	26.2	106.9	-4.0
Weapons and ammunition	485.7	1.9	267.2	0.4	-45.0	-1.5

Source: Eurostat, Comext

10.1: 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.

The manufacture of machinery for the use of mechanical power accounts for around four-fifths of the activity of the power machinery sector. The output is used as capital goods or as components for integration into other machinery. Most products are sold directly or via other capital goods manufacturers to many sectors, notably energy and water distribution, sewerage treatment, chemicals, petroleum refining, food and drink processing, as well as construction; a small part is sold through retail networks to households. The customers for mechanical power transmission equipment are mainly in the machinery, electrical and transport equipment sectors. The focal points for innovation are increased performance and safety, and reduced maintenance, energy consumption, noise and leakage.

Industrial engines have a broad range of uses, while turbines and marine and railway engines are destined for particular downstream sectors. Product innovation for machinery for the production of mechanical power is centred on efficiency and emissions.

STRUCTURAL PROFILE

In 1999 the value added generated by the power machinery sector in the EU was 28.9 billion EUR[12]. Although contributing only a small proportion to the EU total, the Danish power machinery sector generated 5.5% of Danish manufacturing value added in 1998. In comparison, power machinery accounted for only 3.4% of the manufacturing total in Germany in 1999, where the largest power machinery sector in the EU was found. This sector accounted for less than 1% of manufacturing value added in 1999 in Spain, Ireland, Greece (1998) and Portugal.

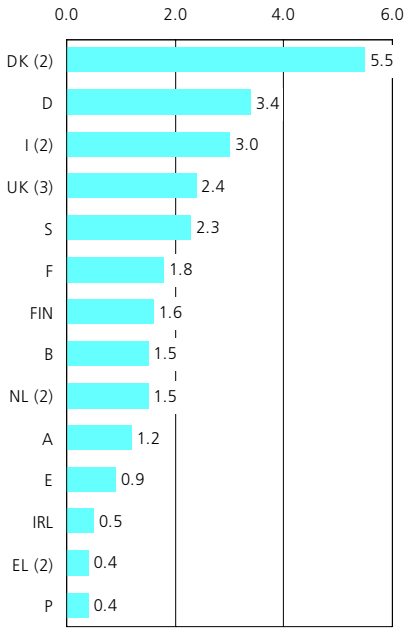
Output prices for power machinery in the EU stood 7.7% higher in 2000 than in 1995. The output prices of engines and turbines (NACE Class 29.11) rose the most, up 10.2%. Seven Member States reported output prices for power machinery between 6% and 12% higher in 2000 than in 1995, with France (2.5%) below this range and Finland (15.1%) above it[13].

LABOUR AND PRODUCTIVITY

The power machinery sector employed 547.5 thousand persons in the EU in 1999[14], just less than one in four of those employed in the whole machinery and equipment sector. The employment situation in the German power machinery sector showed an overall contraction of 30.0% between 1990 and 1999, a net reduction of 94.2 thousand persons employed. Among the other large Member States, employment levels were also considerably lower in the United Kingdom, down 25.2% between 1990 and 1997.

(12) DK, EL, I and NL, 1998; UK, 1997; L not available.
(13) B, EL, IRL, L, A and P, not available.
(14) DK, EL and I, 1998; UK, 1997; L and NL, not available.

Figure 10.5
Power machinery (NACE Group 29.1) Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Apparent labour productivity levels for the power machinery sector are generally close to those for the machinery and equipment sector in general. The notable exception to this was Belgium, where apparent labour productivity for the power machinery sector was 24.3 thousand EUR per person higher in 1999; a differential that had more than doubled since 1995.

Average personnel costs for the power machinery sector were also generally in line with the averages for machinery and equipment; although Belgium again reported the largest differential, with the higher level of apparent labour productivity being reflected in higher average personnel costs.

EXTERNAL TRADE

The EU's exports of power machinery were valued at 28.5 billion EUR in 2000, 1.6 times higher than imports, resulting in a trade surplus of 10.6 billion EUR. The EU's exports of power machinery grew every year in value terms between 1990 and 2000, reaching double digit year on year growth in 1993, 1996, 1997 and 2000. Imports also grew throughout the same period.

Italy, though not the largest exporter (intra-EU and extra-EU trade combined) of power machinery in absolute terms, was the most export specialised, as these products represented 4.2% of all Italian manufacturing exports compared to an average of 2.7% across all Member States.

The share of imports entering the EU from Switzerland fell from 15.3% in 1990 to 8.9% in 2000, although Switzerland remained the third most important origin of power machinery imports into the EU after the US and Japan. Over the same ten-year period, China moved from being the tenth most important supplier of these products to become the fourth ranked country, increasing its share from 1.1% to 3.5%.

Table 10.5

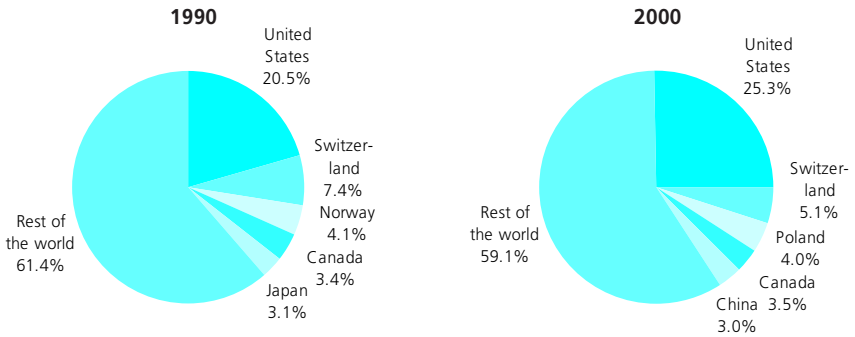
Power machinery (CPA Group 29.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	28,537	17,976	10,561	158.8
B	3,501	3,084	417	113.5
DK	1,243	1,112	131	111.8
D	20,660	11,271	9,389	183.3
EL	35	392	-357	8.9
E	1,805	3,171	-1,366	56.9
F	7,611	7,208	403	105.6
IRL	336	534	-197	63.0
I	10,490	5,750	4,740	182.4
L	145	152	-8	94.9
NL	2,103	2,483	-380	84.7
A	1,644	1,972	-328	83.4
P	273	517	-243	52.9
FIN	874	802	71	108.9
S	2,225	2,075	151	107.3
UK	7,955	7,176	779	110.9

Source: Eurostat, Comext

Figure 10.6

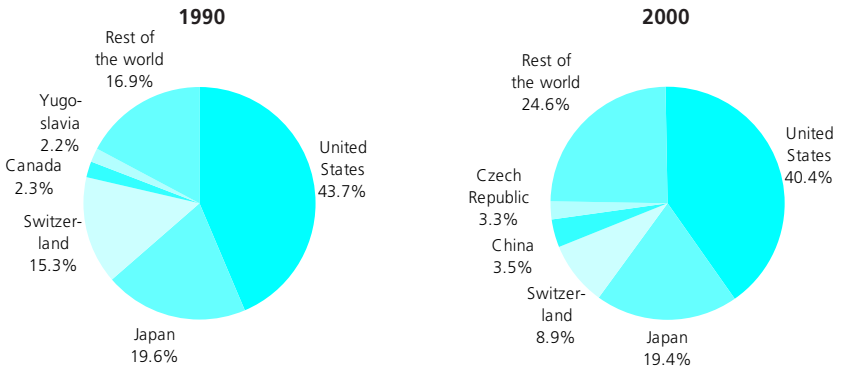
Power machinery (CPA Group 29.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 10.7

Power machinery (CPA Group 29.1)
Origin of extra-EU imports



Source: Eurostat, Comext

10.2: INDUSTRIAL PROCESSING MACHINERY

The manufacture of industrial processing machinery is made up of general purpose machinery, machine tools and special purpose machinery, covering NACE Groups 29.2, 29.4 and 29.5.

General purpose machinery, such as burners, lifting, handling and cooling equipment are used as capital goods by a broad range of sectors within manufacturing, energy, construction, distribution and transport services, as well as for waste disposal. In contrast, special purpose machinery is focused on providing equipment for individual sectors of the economy, mainly within manufacturing, mining and construction.

The special category of machine tools are used for cutting and forming metals and other materials such as wood and stone. These tools are based essentially on traditional mechanical processes, although some are based on newer technologies such as laser cutting. A large part of machine tool production is destined for the machinery and equipment sector itself, along with the electrical, electronic and transport equipment sectors. Wood processing machines are destined mainly for the forestry, wood and furniture sectors.

In common with the power and agricultural machinery sectors, demand for industrial processing machinery is dependent on the business cycles of downstream sectors and business confidence. Development of new products aims to increase the efficiency of the machinery produced, so that downstream sectors can make better use of raw materials, use fewer operatives, require less maintenance and reduce energy consumption. Other environmental concerns are important for many activities, such as reducing emissions from the use of finished products for burners and cooling equipment. Safety is also a major issue as is ergonomics in some activities.

STRUCTURAL PROFILE

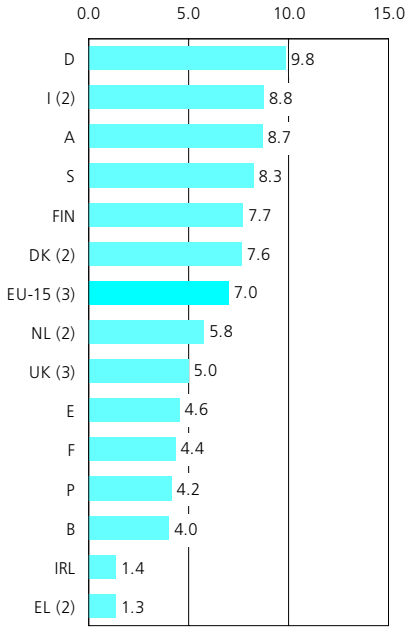
The manufacture of industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5) generated 79.4 billion EUR of value added in 1997, equivalent to 7.0% of manufacturing value added. The two largest NACE Groups in this sector were general purpose machinery and special purpose machinery which each accounted for about 40% to 45% of the sector's value added in 1997. The manufacture of machine tools, the smallest of the three NACE Groups covered in this sub-chapter, accounted for 14.7%.

Industrial processing machinery is particularly concentrated in Germany, which alone generated 42.6% of the EU's value added in 1997, far ahead of its share of total manufacturing. In 1999, this sector accounted for 9.8% of German manufacturing value added, the highest proportion for any Member State in the late 1990s. Germany's dominance of this sector peaked in the manufacture of machine tools where from 1985 to 1997 it regularly generated more than half of the EU's total value added[15].

(15) First and last years for which data are available.

Figure 10.8

Industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5) Share of value added in manufacturing, 1999 (%) (1)



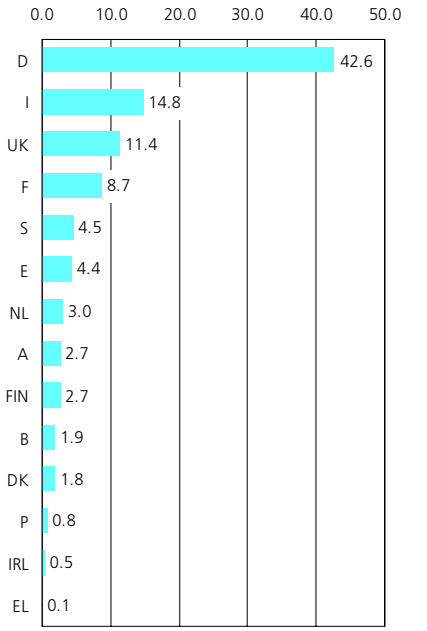
(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Measured in constant price terms, value added generated by the EU's industrial processing machinery sector fell in the early years of the 1990s to a low in 1993. The sector then recorded four consecutive years of growth in constant price terms and by 1997 value added was 18.9% higher than in 1993. Renewed activity since 1993 was particularly strong in the manufacture of general purpose machinery where value added increased by 25.9% in constant price terms between 1993 and 1997 and continued to grow in 1998 and 1999. The special purpose machinery sector grew by 13.6% between 1993 and 1997, whilst its output rose further in 1998 before contracting in 1999.

Output prices for the three NACE Groups that make up the industrial processing machinery sector followed a quite similar trend, increasing each year from 1995 to 2000. Output prices in 2000 were 7.1% higher than 1995 for general purpose machinery, 7.9% higher for machine tools and 8.3% higher for special purpose machinery.

Figure 10.9

Industrial processing machinery (NACE Groups 29.2, 29.4 and 29.5) Share of value added in the EU, 1997 (%) (1)



(1) L, not available.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

After peaking at 1.88 million persons in 1990, EU employment in this sector contracted throughout most of the first half of the 1990s, declining to 1.59 million by 1994, a larger fall in relative terms than experienced by manufacturing as a whole. Employment then increased faster than the manufacturing average to its 1998 level of 1.67 million persons, where it remained relatively unchanged in 1999. Industrial processing machinery is still one of the major manufacturing employers and despite employment levels in 1999 being more than 200 thousand lower than their 1990 peak, the sector accounted for a similar share of total manufacturing employment in 1999 (7.1%) as it had in 1990 (7.2%). This position has been achieved in large part due to employment growth in the general purpose machinery sector since 1994, where employment climbed to 735.3 thousand persons in 1999. Employment in the machine tools sector was harder hit through the 1990s as employment levels continued to fall through to 1995, and the one year of growth in 1996 was cancelled out by further reductions between 1997 and 1999.

Throughout the first half of the 1990s apparent labour productivity in each of the three NACE Groups that make up the industrial processing machinery sector was slightly below the manufacturing average. In 1996 the situation changed and EU apparent labour productivity was higher than the manufacturing average in all three parts of this sector - although this was short lived. By 1999 productivity was back below the manufacturing average in both the general and special purpose machinery sectors. Due to higher average personnel costs, the simple wage adjusted labour productivity ratio for all three parts of this sector was considerably below the manufacturing average throughout the 1990s. In 1999 the general and special purpose machinery sectors both recorded ratios more than 20 percentage points below the manufacturing average.

EXTERNAL TRADE

The EU's trade surplus in industrial processing equipment was equal to 44.0 billion EUR in 2000. All product groups contributed to this total, most notably special purpose machinery (CPA Group 29.5) whose trade balance was 28.5 billion EUR. The contribution of machine tools to the surplus fell on a regular basis from 1993 onwards, as the growth rate of imports exceeded that for exports in six years out of seven.

Overall, exports of industrial processing equipment enjoyed year on year growth rates around 10% throughout the mid-1990s, but this expansion was followed by two years of exports falling in current price terms before rebounding in 2000. The value of imports recorded uninterrupted growth from 1994 and the cover ratio subsequently fell to 208.2% by 2000.

In 2000 China overtook Switzerland as the second most important destination for EU exports of industrial processing equipment, behind only the US. Turkey moved into the top five export destinations between 1999 and 2000 overtaking both Brazil and Mexico. Switzerland also lost its place as the second most important origin of EU imports, this time to Japan. Again China moved up the ranking, supplying 5.0% of imports in 2000. The US extended its position as the most important origin of imports, gaining 1.1 percentage points to take a 28.6% share in 2000.

Table 10.6

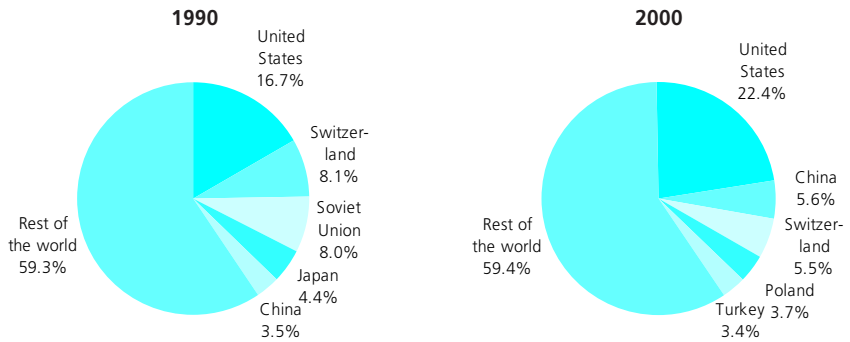
Other general purpose machinery; machine-tools; other special purpose machinery (CPA Groups 29.2, 29.4 and 29.5)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	84,645	40,649	43,995	208.2
B	8,782	8,468	314	103.7
DK	3,996	2,596	1,400	154.0
D	57,185	21,895	35,290	261.2
EL	207	1,693	-1,486	12.2
E	4,991	9,291	-4,299	53.7
F	15,987	16,766	-779	95.4
IRL	1,074	2,055	-982	52.2
I	30,335	12,411	17,924	244.4
L	545	540	4	100.8
NL	7,852	6,659	1,193	117.9
A	6,423	5,017	1,406	128.0
P	752	2,549	-1,797	29.5
FIN	3,602	2,126	1,476	169.4
S	7,458	4,141	3,317	180.1
UK	15,215	14,673	542	103.7

Source: Eurostat, Comext

Figure 10.10

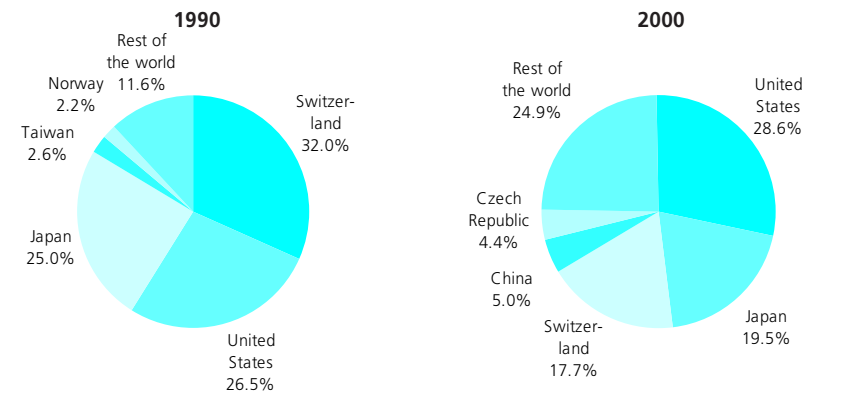
Other general purpose machinery; machine-tools; other special purpose machinery (CPA Groups 29.2, 29.4 and 29.5)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 10.11

Other general purpose machinery; machine-tools; other special purpose machinery (CPA Groups 29.2, 29.4 and 29.5)
Origin of extra-EU imports



Source: Eurostat, Comext

10.3: AGRICULTURAL MACHINES AND TRACTORS

NACE Group 29.3 covers agricultural tractors and other agricultural and forestry machinery, the latter including, for example, combine harvesters. This NACE Group does not cover agricultural hand-tools.

The demand for agricultural equipment is dependent almost entirely on the agricultural sector with other sectors of the economy accounting for only a very small proportion of the market. The intensity with which equipment is used affects demand and this tends to be related to the average size of agricultural holdings and the extent to which equipment is shared (see table 10.7 for information on the stock of selected agricultural equipment). Improvements in the performance of equipment also influence demand.

STRUCTURAL PROFILE

The manufacture of agricultural machines and tractors generated 5.5 billion EUR of value added in 1999, just 0.5% of manufacturing value added. The EU Member States where this sector accounted for more than 0.5% of manufacturing value added in 1999 were Denmark (1998), Austria, Italy (1998), the Netherlands (1998) and Finland. In constant price terms the value added of this sector fell sharply between 1990 and 1991 but since then has remained within a range of 4.8 billion EUR to 5.5 billion EUR (at 1995 constant prices).

Output prices grew between 1995 and 2000, but the rate of increase has declined each year: in 2000 prices were just 0.8% higher than in 1999 and 8.8% higher than 1995.

Table 10.7

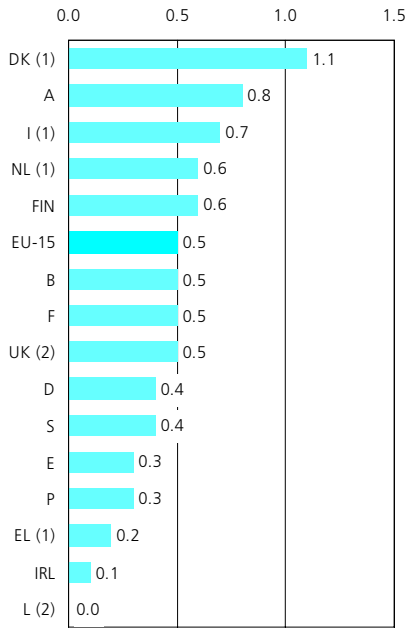
Main indicators for agricultural machinery use, 1997

	Proportion of tractor using agricultural holdings that exclusively own tractors (%)	Number of combine harvesters belonging exclusively to a farm holding	Number of tractors belonging exclusively to a farm holding	Average size of farm holdings (hectares) (1)
B	98.7	4,520	94,470	20.6
DK	100.0	26,010	141,390	45.7
D	:	:	:	32.1
EL	40.3	5,510	252,920	4.3
E	:	:	:	21.2
F	:	:	:	41.7
IRL	89.5	4,590	176,920	29.4
I	68.9	47,510	1,557,370	6.4
L	100.0	810	7,430	45.4
NL	:	:	:	18.6
A	100.0	17,030	333,200	16.3
P	100.0	3,420	154,390	9.2
FIN	97.1	38,870	186,910	23.7
S	:	:	:	34.7
UK	:	:	:	69.3

(1) DK and L, 2000.
Source: Eurostat, Structure of agricultural holdings (theme5/eurofarm)

Figure 10.12

Manufacture of agricultural and forestry machinery (NACE Group 29.3) Share of value added in manufacturing, 1999 (%)



(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EMPLOYMENT

Employment in this sector fell by more than 5% each year in the early 1990s and by 1995 the number of persons employed had contracted by 28.5% compared to 1990, equal to a net reduction of 45.9 thousand persons. Since 1995 employment in the EU has remained relatively stable, at between 115 thousand and 121 thousand persons employed.

EXTERNAL TRADE

The trade surplus in agricultural machinery and tractors remained between 1.4 billion EUR and 2.5 billion EUR throughout the 1990s and into 2000. In 2000 EU exports were valued at 4.2 billion EUR, 0.5% of all manufacturing exports, whilst EU imports were valued at 2.0 billion EUR, 0.3% of the manufacturing total.

Although only the fourth most important destination of EU exports in 2000, Australia's 4.5% share was far greater than its 1.9% share of all machinery and equipment exports. The EU's dependence on the US for imports of agricultural capital equipment was very high and increased over the last decade. In 1990 some 48.3% of EU's imports came from the US and by 2000 this had risen to 56.8%.

Table 10.8

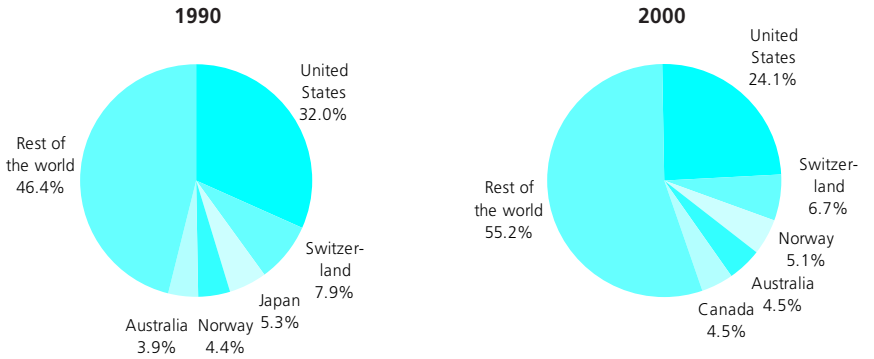
Agricultural and forestry machinery (CPA Group 29.3)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	4,204	2,021	2,182	207.9
B	695	525	171	132.5
DK	355	459	-105	77.2
D	3,169	1,412	1,757	224.5
EL	13	105	-91	12.8
E	219	786	-566	27.9
F	1,080	2,286	-1,205	47.3
IRL	54	253	-198	21.4
I	2,360	540	1,820	437.1
L	4	31	-28	11.5
NL	591	459	132	128.9
A	429	329	100	130.5
P	11	216	-205	4.9
FIN	438	219	219	200.2
S	291	388	-97	75.1
UK	1,740	912	827	190.7

Source: Eurostat, Comext

Figure 10.13

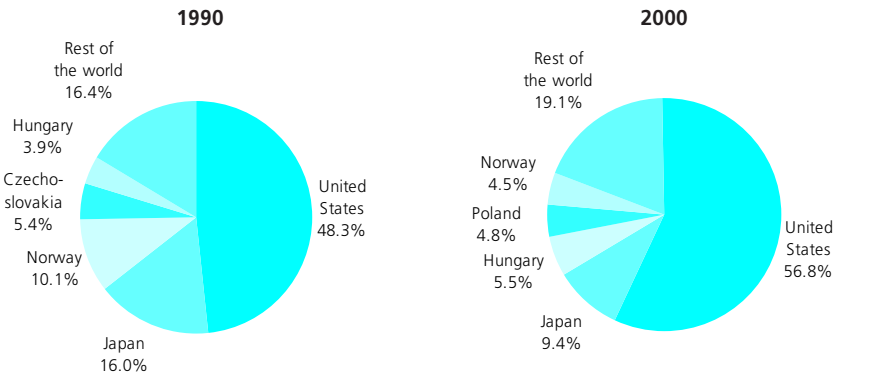
Agricultural and forestry machinery (CPA Group 29.3)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 10.14

Agricultural and forestry machinery (CPA Group 29.3)
Origin of extra-EU imports



Source: Eurostat, Comext

10.4: WEAPONS AND AMMUNITIONS

Weapons and ammunitions are covered by Group 29.6 of the NACE classification. The manufacturing activities covered in this sub-chapter include firearms whether for military or sporting uses, artillery material, missiles, bombs, mines and other ammunition. This Group also covers military vehicles such as tanks, but not military aircraft or warships which are classified under the manufacture of transport equipment.

The enterprises active in this sector supply regulated markets with a high proportion of demand coming from the public sector. The market structure of the weapons and ammunitions sector differs from the rest of the machinery and equipment sector as it is characterised by very large enterprises, often with near monopoly positions.

Like other EU sectors producing defence related equipment this sector has been undergoing restructuring in recent years, driven by reviews of defence needs, falling defence spending, competition and co-operation. Security of supply plays a greater role in public policies towards this sector than in most other sectors. In some cases the public sector is not only the main customer of weapons and ammunitions manufacturers but may have a direct interest in their ownership and also regulate activity and external trade. Apart from questions of ownership and procurement policy, the level of publicly financed R&D funding is an important issue for this sector (see table 10.9 concerning government spending on defence related R&D).

STRUCTURAL PROFILE AND EMPLOYMENT

The manufacture of weapons and ammunitions is the smallest of the EU's machinery and equipment sectors. Value added reached 2.9 billion EUR in 1999, just 0.2% of the manufacturing total. Only in Greece (0.7%, 1998), Sweden (0.6%, 1999) and the United Kingdom (0.6%, 1997) did this sector account for more than 0.5% of manufacturing value added. Comparing the level of value added in constant prices between 1999 and five years earlier the weapons and ammunition sector recorded average growth of 5.2% per annum, almost double the manufacturing average. EU employment in this sector was 57.2 thousand in 1999[16].

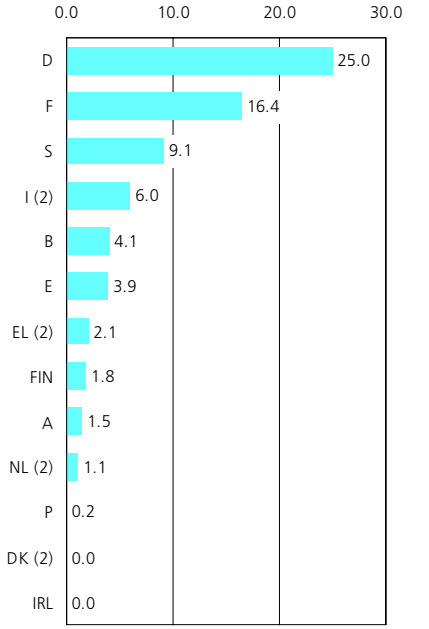
EXTERNAL TRADE

Weapons and ammunitions are characterised by very low levels of external trade. In 2000 exports represented 0.07% of manufacturing exports and just 0.03% of manufacturing imports, reflecting the regulated nature of trade in these products and countries unwillingness to depend on non-domestic sources.

(16) DK, EL and I, 1998; UK, 1997; L and NL, not available.

Figure 10.15

Manufacture of weapons and ammunition (NACE Group 29.6) Share of value added in the EU, 1999 (%) (1)



(1) L and UK, not available.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 10.9

Proportion of all government R&D appropriations for defence, 1999 (%) (1)

EU-15 (2)	15.3
B	0.4
DK	0.6
D	8.3
EL	0.9
E	25.7
F	22.7
I	1.3
NL	2.4
A	0.0
P	1.6
FIN	1.4
S (3)	7.4
UK	38.0

(1) IRL and L, not available.
(2) Excluding IRL and L.
(3) Provisional.
Source: Eurostat, Research and Development - Government budget appropriations or outlays on R&D (theme9/gbaord)

Table 10.10

Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (NACE Group 29.1)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,756	2,333	28,118	58	2,277	9,307	300	14,545	:	2,128	812	206	1,669	2,441	9,588
Purchases of goods and services (million EUR)	1,327	1,421	18,908	32	1,739	6,991	161	10,651	:	1,641	538	137	1,329	1,988	5,923
Value added (million EUR)	612	1,079	11,955	30	788	3,084	146	4,268	:	658	371	75	427	931	4,427
Personnel costs (million EUR)	353	761	9,929	23	514	2,529	78	2,823	:	473	289	50	334	724	2,611
Number of persons employed (thousands)	7.3	22.8	219.3	1.5	19.6	65.8	2.7	86.6	:	:	7.0	3.9	9.0	17.3	84.5
Gross investment in tangible goods (million EUR)	41	:	1,240	:	85	:	20	:	:	:	:	:	62	:	:
Gross operating rate (%)	13.1	13.1	6.5	12.7	11.0	5.4	22.1	10.1	:	8.5	9.0	12.2	5.3	7.3	17.5
App. labour productivity (thous. EUR/pers. emp.)	84.1	47.3	54.5	20.6	40.1	46.9	53.2	49.3	:	:	52.8	19.1	47.6	53.7	52.4
Simple wage adjusted labour productivity (%)	173.5	141.7	120.4	134.7	153.4	121.9	187.0	151.2	:	139.2	128.4	151.5	127.8	128.7	169.5
Output price index (1995=100) (2)	:	107.6	106.8	132.9	111.8	102.5	:	110.6	:	106.3	:	:	115.1	109.2	109.3

(1) DK, EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.11

Machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines (CPA Group 29.1)

External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	12,145	13,019	13,177	15,710	16,803	18,270	20,352	22,825	24,023	24,121	28,537
Extra-EU imports (million EUR)	6,513	6,700	7,114	7,322	8,462	9,407	10,210	11,676	13,499	14,400	17,976
Trade balance (million EUR)	5,632	6,319	6,063	8,388	8,341	8,864	10,142	11,148	10,524	9,721	10,561
Cover ratio (%)	186.5	194.3	185.2	214.6	198.6	194.2	199.3	195.5	178.0	167.5	158.8

Source: Eurostat, Comext

Table 10.12

Manufacture of other general purpose machinery (NACE Group 29.2)

Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	67,080	69,577	69,696	66,005	71,709	80,061	90,424	92,007	98,392	101,113	:
Purchases of goods and services (million EUR)	:	:	:	:	:	52,906	59,967	61,471	67,956	70,535	:
Value added (million EUR)	25,657	26,788	27,045	25,822	27,945	29,966	34,336	34,333	35,752	36,553	:
Personnel costs (million EUR)	20,627	22,007	22,824	22,448	22,721	23,902	26,064	25,990	26,973	28,311	:
Number of persons employed (thousands)	752	745	730	694	682	682	726	730	732	735	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.2	6.6	5.8	4.8	6.9	7.3	8.8	8.8	8.5	7.7	:
App. labour productivity (thous. EUR/pers. emp.)	34.1	36.0	37.0	37.2	41.0	43.9	47.3	47.0	48.8	49.7	:
Simple wage adjusted labour productivity (%)	124.4	121.7	118.5	115.0	123.0	125.4	131.7	132.1	132.5	129.1	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.4	103.6	104.7	105.9	107.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.13

Other general purpose machinery (CPA Group 29.2)

External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	13,620	13,860	14,441	15,977	18,131	20,496	23,338	25,898	26,338	24,852	28,047
Extra-EU imports (million EUR)	4,974	5,587	5,746	5,520	5,999	6,945	7,955	8,742	10,063	11,534	14,434
Trade balance (million EUR)	8,646	8,274	8,696	10,457	12,132	13,550	15,384	17,156	16,275	13,318	13,613
Cover ratio (%)	273.8	248.1	251.3	289.4	302.2	295.1	293.4	296.3	261.7	215.5	194.3

Source: Eurostat, Comext

Table 10.14

Manufacture of agricultural and forestry machinery (NACE Group 29.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	17,387	14,805	14,871	13,543	15,152	16,508	17,914	19,740	20,211	19,785	:
Purchases of goods and services (million EUR)	:	:	:	:	:	13,039	14,844	16,184	17,427	17,072	:
Value added (million EUR)	5,648	4,732	4,947	4,530	4,858	4,828	5,500	5,773	5,665	5,479	:
Personnel costs (million EUR)	3,883	3,782	3,751	3,483	3,553	3,477	3,718	3,803	3,905	3,849	:
Number of persons employed (thousands)	161	150	139	123	120	115	118	120	121	118	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.6	5.9	7.3	6.7	7.7	7.5	8.8	9.1	7.6	7.2	:
App. labour productivity (thous. EUR/pers. emp.)	35.1	31.5	35.5	36.8	40.6	41.9	46.6	48.2	46.9	46.5	:
Simple wage adjusted labour productivity (%)	145.5	125.1	131.9	130.1	136.7	138.9	147.9	151.8	145.1	142.3	:
Output price index (1995=100)	:	:	:	:	:	100.0	103.3	104.9	106.5	107.9	108.8

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.15

Agricultural and forestry machinery (CPA Group 29.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,791	2,807	2,556	2,776	3,061	3,147	3,633	4,136	4,160	3,518	4,204
Extra-EU imports (million EUR)	967	1,053	1,093	1,106	1,179	1,376	1,504	1,648	1,694	1,845	2,021
Trade balance (million EUR)	1,823	1,755	1,463	1,670	1,882	1,772	2,129	2,488	2,466	1,673	2,182
Cover ratio (%)	288.4	266.7	233.8	251.0	259.7	228.8	241.6	251.0	245.5	190.7	207.9

Source: Eurostat, Comext

Table 10.16

Manufacture of machine-tools (NACE Group 29.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	31,718	30,451	27,409	23,041	26,223	26,198	29,161	29,707	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	17,192	19,302	19,438	:	:	:
Value added (million EUR)	12,607	12,319	11,079	9,306	10,328	10,237	11,536	11,651	:	:	:
Personnel costs (million EUR)	9,996	10,460	9,888	8,851	8,912	8,399	8,996	8,795	:	:	:
Number of persons employed (thousands)	351	342	312	269	259	235	242	236	235	235	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	8.1	5.9	4.1	1.8	5.1	6.7	8.4	9.2	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	35.9	36.1	35.6	34.6	39.9	43.6	47.8	49.5	:	:	:
Simple wage adjusted labour productivity (%)	126.1	117.8	112.0	105.1	115.9	121.9	128.2	132.5	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.8	104.1	105.4	106.4	107.9

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.17

Machine-tools (CPA Group 29.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	7,619	7,554	6,958	7,710	8,591	9,645	10,657	10,856	10,785	10,467	12,102
Extra-EU imports (million EUR)	4,847	4,875	4,244	3,869	4,549	5,610	6,105	6,883	8,017	8,250	10,236
Trade balance (million EUR)	2,772	2,678	2,713	3,841	4,042	4,035	4,552	3,973	2,768	2,218	1,865
Cover ratio (%)	157.2	154.9	163.9	199.3	188.9	171.9	174.6	157.7	134.5	126.9	118.2

Source: Eurostat, Comext

Table 10.18

Manufacture of other special purpose machinery (NACE Group 29.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	74,229	72,198	70,938	67,241	70,875	86,799	87,923	92,574	97,799	95,543	:
Purchases of goods and services (million EUR)	:	:	:	:	:	59,569	60,279	62,828	66,617	65,617	:
Value added (million EUR)	28,348	28,127	27,667	26,622	27,121	31,404	31,694	33,426	35,459	34,593	:
Personnel costs (million EUR)	21,738	22,512	22,935	22,122	22,088	25,296	25,286	25,428	26,527	26,593	:
Number of persons employed (thousands)	781	756	725	680	650	693	674	677	700	692	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	8.6	7.4	6.3	6.3	6.7	6.9	7.1	8.3	8.7	8.0	:
App. labour productivity (thous. EUR/pers. emp.)	36.3	37.2	38.1	39.1	41.7	45.4	47.0	49.4	50.6	50.0	:
Simple wage adjusted labour productivity (%)	130.4	124.9	120.6	120.3	122.8	124.1	125.3	131.5	133.7	130.1	:
Output price index (1995=100)	86.6	90.1	92.9	94.9	96.6	100.0	103.0	104.9	106.4	107.1	108.3

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.19

Other special purpose machinery (CPA Group 29.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	24,804	24,301	25,489	30,199	32,566	34,961	38,211	42,676	41,304	38,111	44,496
Extra-EU imports (million EUR)	7,723	7,803	7,502	7,210	8,103	9,125	9,311	10,848	12,175	13,129	15,979
Trade balance (million EUR)	17,081	16,499	17,987	22,989	24,463	25,835	28,900	31,828	29,129	24,982	28,517
Cover ratio (%)	321.2	311.4	339.8	418.8	401.9	383.1	410.4	393.4	339.3	290.3	278.5

Source: Eurostat, Comext

Table 10.20

Manufacture of weapons and ammunition (NACE Group 29.6)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	274	0	1,767	127	337	1,798	0	432	:	84	160	44	135	819	2,699
Purchases of goods and services (million EUR)	195	0	1,120	84	270	1,322	0	284	:	61	144	43	89	556	1,686
Value added (million EUR)	118	0	720	55	112	473	0	156	:	28	44	5	51	263	1,023
Personnel costs (million EUR)	65	0	635	71	113	457	0	97	:	26	53	12	44	210	743
Number of persons employed (thousands)	1.4	0.0	12.2	3.1	2.8	8.1	0.0	3.1	:	:	1.2	0.9	1.3	4.4	18.9
Gross investment in tangible goods (million EUR)	8	:	56	:	12	:	0	:	:	:	:	:	8	:	:
Gross operating rate (%)	17.0	:	4.8	-18.3	-0.4	1.0	:	13.6	:	1.8	-4.4	-14.2	4.8	6.1	10.1
App. labour productivity (thous. EUR/pers. emp.)	82.7	:	59.1	18.1	40.2	58.5	:	50.6	:	:	37.6	5.5	39.2	59.9	54.1
Simple wage adjusted labour productivity (%)	182.3	:	113.4	78.3	98.7	103.4	:	160.9	:	106.5	82.5	39.5	115.8	125.2	137.7
Output price index (1995=100) (2)	:	:	:	:	115.7	:	:	105.3	:	106.0	:	:	:	:	112.0

(1) DK and EL, 1998; I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 10.21

Weapons and ammunition (CPA Group 29.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	621	623	611	615	656	502	1,269	462	518	495	686
Extra-EU imports (million EUR)	486	420	535	475	449	240	477	360	267	238	267
Trade balance (million EUR)	135	203	77	140	207	263	792	102	251	256	419
Cover ratio (%)	127.9	148.4	114.3	129.4	146.0	209.6	266.0	128.4	194.1	207.6	256.8

Source: Eurostat, Comext

Electrical machinery and optical equipment

These industries provide the infrastructure and other hardware for the information society for the business community and also for consumers. Together the manufacture of electrical machinery and optical equipment (excluding domestic appliances) generated 13.7% of the EU's manufacturing value added and employed 12.0% of those working in the manufacturing sector. Compared to 5 years earlier the share of manufacturing employment was unchanged, but the share of value added had grown by 1.2 percentage points.

STRUCTURAL PROFILE

The manufacture of electrical machinery and optical equipment represented 13.7% of manufacturing value added in 2000, a total of 181.5 billion EUR. Germany stood out as the leading producer of electrical machinery and optical equipment in the EU with 32.6% of value added in 1999, more than double the share of the United Kingdom (16.0%, 1997) and France (15.4%, 1999). However, in relative terms the manufacture of electrical machinery and optical equipment is more important in Finland and Ireland where it accounted for nearly one quarter of all manufacturing in 1999, 23.4% and 23.0% respectively. This sector accounted for a relatively small part of manufacturing in Belgium (8.4%), Portugal (7.3%), Spain (7.1%), Greece (4.9%, 1998) and Luxembourg (3.4%, 1997).

This chapter covers four Divisions of NACE, 30 to 33, collectively referred to as the manufacture of electrical machinery and optical equipment. These activities together include the manufacture of computers, office machinery, electrical machinery and equipment, electronic components, audio-visual and communication equipment and medical, precision and optical equipment. The chapter also covers NACE Group 29.7 concerning the manufacture of domestic appliances, both electric and non-electric. Several of the activities are described in more detail in sub-chapters 11.1 to 11.7, whilst NACE Groups 33.1, 33.4 and 33.5 are only covered briefly in this overview which concentrates on Divisions 30 to 33.

NACE

29.7: manufacture of domestic appliances n.e.c.;
30: manufacture of office machinery and computers;
31: manufacture of electrical machinery and apparatus n.e.c.;
31.1: manufacture of electric motors, generators and transformers;
31.2: manufacture of electricity distribution and control apparatus;
31.3: manufacture of insulated wire and cable;
31.4: manufacture of accumulators, primary cells and primary batteries;
31.5: manufacture of lighting equipment and electric lamps;
31.6: manufacture of electrical equipment n.e.c.;
32: manufacture of radio, television and communication equipment and apparatus;
32.1: manufacture of electronic valves and tubes and other electronic components;
32.2: manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy;
32.3: manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods;
33: manufacture of medical, precision and optical instruments, watches and clocks;
33.1: manufacture of medical and surgical equipment and orthopaedic appliances;
33.2: manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment;
33.3: manufacture of industrial process control equipment;
33.4: manufacture of optical instruments, photographic equipement;
33.5: manufacture of watches and clocks.

Box 11.1: design of electrical and electronic equipment

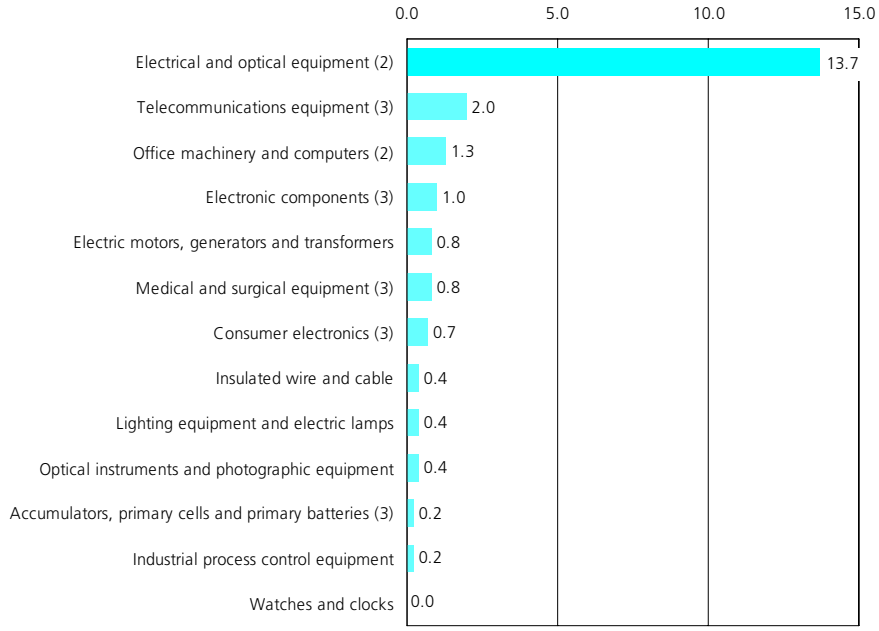
During 2001 the European Commission launched a consultation process on a draft text for a Directive to harmonise requirements concerning the design of electrical and electronic equipment. The aims laid out in the draft were to ensure the free movement of these products within the Internal Market and to improve their overall impact on the environment and thus to provide an efficient use of resources and a high level of environmental protection compatible with sustainable development. This draft is based on the application of the new approach to legislation; more information on the new approach can be found at http://www.europa.eu.int/comm/enterprise/regulation/index.htm.

Box 11.2: waste electrical and electronic equipment

The environmental impact of electrical and electronic equipment is not limited to features concerning their regular use, but also to their end-of life disposal. The European Commission has adopted a proposal for a European Parliament and Council Directive on waste electrical and electronic equipment. The proposal addresses the increasing volume of waste equipment. It aims to increase recycling and so to limit the amount of waste incinerated or discarded in landfill. The proposal foresees that producers will be responsible for taking back and recycling equipment with the intention that this will encourage producers to consider the end of life treatment of equipment at its design stage.

Figure 11.1

Manufacture of electrical and optical equipment (NACE Subsection DL)
Share of manufacturing value added in the EU, 1999 (%) (1)



(1) NACE Groups 31.2, 31.6 and 33.2, not available.
(2) 2000.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EU value added at constant prices generated by the manufacture of electrical machinery and optical equipment sector recorded an average growth rate of 8.0% per annum during the 5 years to 2000, close to double the rate of manufacturing. This high growth rate was achieved in the main by large year on year growth in 1997, 1999 (10.2% and 9.9%) and 2000 (14.9%). Amongst the Member States, the trend of rising output has not been evenly spread, with Finland (29.7%, 1999), Sweden (14.6%, 1998) and Ireland (11.4%, 1996) all recording very high 5-year annual average growth rates in the late 1990s, whilst Italy (-2.2%, 1998) and the Netherlands (-0.3%, 1998) saw value added contract in constant price terms[1].

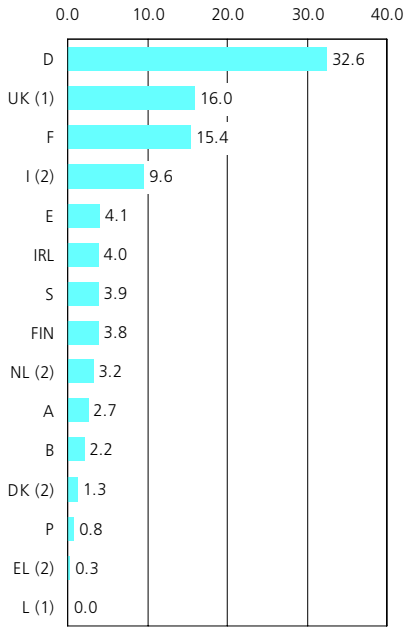
(1) B and P, no recent data available.

The index of output prices for the manufacture of electrical machinery and optical equipment in the EU fell 4.9% between 1995 and 2000. This was the only reduction recorded over this period amongst the fourteen manufacturing Subsections of NACE. Falling output prices were particularly pronounced in the United Kingdom (-21.4%), Finland (-16.1%) and Sweden (-9.8%)[2].

(2) B, F, IRL and P, no recent data available.

Figure 11.2

Manufacture of electrical and optical equipment (NACE Subsection DL)
Share of value added in the EU, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

The manufacture of electrical machinery and optical equipment is a sector with a predominance of large enterprises; enterprises with 250 persons employed or more provided 52.3% of total employment in the EU in this sector in 1999[3], compared to a manufacturing average of 37.4%.

Although data is not complete at the time of writing, the largest Groups in terms of value added appear to be the manufacture of electricity distribution and control apparatus (Group 31.2; see sub-chapter 11.1), telecommunications equipment (Group 32.2; see sub-chapter 11.5), office machinery and computer equipment (Group 30.0; see sub-chapter 11.4) and measuring and precision equipment (Group 33.2; see sub-chapter 11.2).

(3) B, DK, E, I and A, 1998, UK, 1997; D, EL, IRL, L and NL, not available or incomplete data.

Table 11.1

Manufacture of electrical and optical equipment (NACE Subsection DL)
Main indicators in the EU, growth rates (%) (1)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	5-year AAGR	10-year AAGR
Value added in constant prices												
Manufacturing	-0.4	-0.7	-4.3	5.5	-1.6	2.4	5.6	3.3	3.7	5.8	4.1	1.9
Manufacture of electrical and optical equipment	:	:	:	6.4	3.1	4.5	10.2	0.9	9.9	14.9	8.0	:
Production in constant prices												
Manufacturing	-0.3	-0.4	-5.9	5.7	4.0	4.6	6.9	3.3	3.8	5.7	4.9	2.7
Manufacture of electrical and optical equipment	:	:	:	8.7	10.1	8.2	12.9	5.7	10.0	14.4	10.2	:
Number of persons employed												
Manufacturing	-0.9	-3.4	-6.4	-2.3	0.9	-0.9	0.8	0.7	0.0	1.2	0.3	-1.1
Manufacture of electrical and optical equipment	:	:	:	-3.3	-1.5	-1.6	0.4	0.7	0.2	1.3	0.2	:

(1) AAGR (average annual growth rates) are given with respect to the latest published year for each activity.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Amongst the activities that are not treated in a specific sub-chapter, the largest is medical and surgical equipment (NACE Group 33.1), representing 5.9% of the value added generated in the EU's electrical machinery and optical equipment sector in 1997. Medical and surgical equipment was dominated by Germany (39.8% of EU value added in 1997), although it accounted for a larger share of the electrical machinery and optical equipment sector in Denmark (18.3% of the sector, 1998), Ireland (12.9%, 1999) and Luxembourg (11.6%, 1997). In constant price value added terms this sector grew at a rapid pace in Finland and Ireland, where annual average growth rates in the five years to 1999 were 16.2% and 13.9% respectively.

Optical instruments and photographic equipment (NACE Group 33.4) is also dominated by Germany (32.8% of the EU value added in 1999). This sector accounted for a relatively high share (6.5%) of total electrical machinery and optical equipment value added in Denmark (1998), more than double the 2.7% share recorded in the EU (1999). In the first half of the 1990's value added in constant price terms remained relatively stable in the EU, but has increased since.

The manufacture of watches and clocks (NACE Group 33.5) is one of the smallest EU manufacturing sectors at the Group level of NACE, contributing just 0.3% to total electrical machinery and optical equipment value added in 1999. Germany and France were dominant, together contributing 76.3% of EU value added in 1999. This sector has steadily contracted over the last 10 years.

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

In 1999 the EU's stock of FDI in the manufacture of office machinery, computers and radio, television and communication equipment (NACE Divisions 30 and 32) in non-Community countries was 41.6 billion EUR, 2.8 times higher than in 1995. The stock of inward FDI from non-Community countries was half this level in 1999.

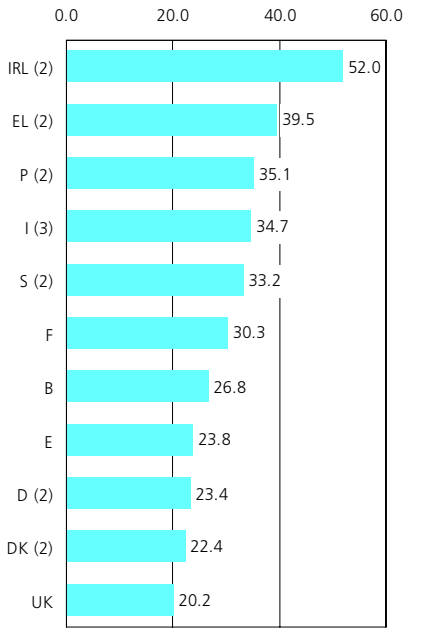
Intramural R&D expenditure by manufacturers of electrical machinery and optical equipment reached 18.4 billion EUR in 1998[4], approximately 27% of the manufacturing total. The manufacturers of radio, television and communication equipment (NACE Division 32) were the biggest R&D spenders in the sector, with 51.7% of the total. In Ireland intramural R&D expenditure in the electrical machinery and optical equipment sector accounted for over half (52.0%) of Irish manufacturing R&D in 1997.

The Community Innovation Survey from 1996 provides information on enterprises' product and process innovations. For the EU[5] as a whole, 69.3% of electrical machinery and optical equipment enterprises were described as innovating, many more than the 51.5% average for manufacturing. Some 64.3% of enterprises in the EU reported having made product innovations and 50.5% process innovations. Denmark, Ireland (both 88%) and Austria (87%) all reported particularly high proportions of innovative enterprises.

(4) I, 1999; DK, D, EL, IRL, P and S, 1997; L, NL, A and FIN, no recent data available.
(5) EL, no recent data available.

Figure 11.3

Manufacture of electrical and optical equipment (NACE Subsection DL)
Share in manufacturing R&D, 1998 (%) (1)



(1) L, NL, A and FIN, not available.
(2) 1997.
(3) 1999.
Source: Basic Science and Technology Statistics (BSTS), OECD

Table 11.2

Office machinery, computers, consumer electronics and communications equipment (NACE Divisions 30 and 32)
Foreign direct investment, 1999 (million EUR)

	In the reporting economy	(% of investment abroad)				
		Abroad	Intra	Extra	JP	US
EU-15	20,882	41,587	:	100.0	1.4	42.5
B	:	:	:	:	:	:
DK	176	84	22.6	77.4	:	:
D	6,496	3,166	32.2	67.8	6.2	26.2
EL	:	:	:	:	:	:
E	1,324	177	:	:	:	:
F	3,057	3,422	24.0	76.0	-0.1	42.0
IRL	:	:	:	:	:	:
I	:	:	:	:	:	:
L	:	:	:	:	:	:
NL	8,924	21,489	47.3	52.6	1.0	20.5
A	834	358	80.7	19.3	:	:
P	477	1	100.0	0.0	0.0	0.0
FIN	1,396	5,068	54.7	45.3	-1.0	35.5
S	21,255	42,628	:	:	:	:
UK	9,910	2,159	44.8	55.2	0.0	5.3

Source: Eurostat, European Union Direct Investments (theme2/bop/fdi)

Table 11.3

Manufacture of electrical and optical equipment (NACE Subsection DL)
Main indicators for innovation, 1996 (% of all enterprises)

	Innovating enterprises	Innovating enterprises with product innovators	Innovating enterprises with process innovators	Innovating enterprises having applied for a patent
B	51.0	51.0	22.0	25.0
DK	88.0	78.0	59.0	33.0
D	78.0	76.0	62.0	53.0
EL	:	:	:	:
E	55.0	49.0	47.0	:
F	61.0	57.0	49.0	43.0
IRL	88.0	85.0	65.0	26.0
I	56.0	48.0	43.0	32.0
L	50.0	41.0	25.0	19.0
NL	74.0	72.0	47.0	30.0
A	87.0	87.0	59.0	40.0
P	80.0	42.0	69.0	4.0
FIN	51.0	43.0	34.0	52.0
S	75.0	72.0	46.0	30.0
UK	76.0	71.0	44.0	23.0

Source: Eurostat, Survey on Innovation in EU enterprises (theme9/innovat)

LABOUR AND PRODUCTIVITY

Over 2.8 million persons were employed in the manufacture of electrical machinery and optical equipment in 2000, equivalent to 12.0% of the manufacturing total. Between 1995 and 1996, the sector lost 45.6 thousand jobs in the EU but since 1996 employment has risen gently, resulting in a net increase of 72.5 thousand persons employed by 2000. The largest job losses in the sector between 1995 and 1999 were in Germany (-97.5 thousand persons)[6]. Several Member States recorded large percentage increases in employment levels between 1995 and 1999, notably Ireland (41.8%) and Finland (28.9%).

EU apparent labour productivity in the electrical machinery and optical equipment sector was equal to 64.2 thousand EUR per person employed in 2000, which was 14.8% higher than the manufacturing average. This differential has increased over a number of years as growth in apparent labour productivity has been faster in the electrical machinery and optical equipment sector than in manufacturing as a whole. However, when labour productivity is measured in terms of the value added of output divided by personnel expenditure, the productivity of this sector falls below the manufacturing average, largely as a result of both Germany and France recording ratios below 125%.

LFS data on the characteristics of the labour force shows that this sector stands out from the rest of manufacturing in terms of its education profile. Data for the EU[7] for 2000 indicate that the proportion of persons in employment aged 25 to 59 having completed a higher level of education was 28.6% (1997), compared to 19.3% for manufacturing. In Finland this proportion reached its highest level, 50.4% in 2000[8].

(6) NL, not available; DK, EL, I, L and UK, incomplete data.
(7) IRL, L and P, not available or incomplete data.
(8) L and P, not available.

Table 11.4

Manufacture of electrical and optical equipment (NACE Sub-section DL)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15 (1)	64.2	:	:
B	64.2	46.8	137.2
DK (2)	48.5	32.9	147.2
D	58.0	46.8	124.0
EL (2)	40.7	19.6	207.9
E	42.0	28.3	148.5
F	55.3	44.5	124.3
IRL	96.7	27.6	350.7
I (2)	47.1	32.5	144.6
L (3)	35.0	27.8	125.7
NL	:	:	:
A	63.7	45.3	140.6
P	22.4	15.1	148.6
FIN	93.7	35.5	264.1
S	67.1	45.2	148.6
UK (3)	48.5	29.7	163.6

(1) 2000.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 11.5

Manufacture of electrical and optical equipment (NACE Subsection DL)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000 (1)	1995	2000 (2)	1995	2000 (3)
EU-15	32.1	32.3	6.2	7.4	5.0	5.5	27.4	28.6
B	32.4	27.0	5.5	6.6	4.2	4.4	32.1	34.3
DK	36.0	39.4	:	6.1	:	5.9	26.8	30.3
D	31.8	33.8	7.6	10.6	3.9	4.0	33.8	33.7
EL	23.4	27.1	:	:	21.8	23.6	:	30.3
E	23.0	30.2	3.2	3.4	9.1	8.3	35.4	40.7
F	35.5	34.3	6.1	5.9	3.3	3.3	27.4	27.6
IRL	47.6	45.8	:	4.9	:	:	34.1	38.1
I	33.0	30.9	3.6	5.2	12.2	17.0	6.2	8.9
L	:	:	:	:	:	:	:	:
NL	21.0	22.7	13.6	16.0	:	:	:	30.3
A	33.8	30.0	5.3	8.8	2.6	3.4	9.0	18.9
P	42.9	48.7	:	:	:	:	:	:
FIN	42.5	35.0	:	4.4	:	:	36.9	50.4
S	31.0	35.1	:	:	:	:	32.7	30.1
UK	30.0	28.2	6.4	5.9	3.3	3.6	30.6	33.2

(1) FIN, 1999.
(2) B and DK, 1999.
(3) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

EXTERNAL TRADE

Electrical machinery and optical equipment accounted for more than one-fifth (21.4%) of the EU's exports of manufactured goods to non-Community countries in 2000 (valued at 183 billion EUR). Their share of EU imports was closer to one-third (31.3%). Throughout the period 1990 to 2000 the value of extra-EU exports and imports have grown every year with the growth rate of exports exceeding the growth rate of imports by a few percentage points up until 1997. In 1998 and 1999 the year on year growth rate of exports fell below 10% for the first time since 1992. Despite growth in exports recovering in 2000, the growth rate of imports also rose dramatically. Having remained stable for many years the EU's trade deficit more than tripled in three years from 1997.

Only four of the Member States reported trade surpluses (intra-EU and extra-EU external trade combined) in 2000: the highest in Ireland (10.5 billion EUR), followed by Finland (5.9 billion EUR), Sweden (4.5 billion EUR) and Netherlands (0.7 billion EUR). The Irish and Finnish figures reflect their positions as the Member States with the highest levels of export specialisation in these goods. The largest exporters in 2000 were Germany (107.4 billion EUR), the United Kingdom (78.6 billion EUR) and the Netherlands (66.1 billion EUR) and these three countries were also the largest importers.

Nearly half of the extra-EU exports of electrical machinery and optical equipment in 2000 concerned computers and office equipment (CPA Group 30, 17.0%), telecommunications equipment (CPA Group 32.2, 16.9%) and electronic components (CPA Group 32.1, 15.7%). The six CPA Groups that make up Division 31 (electrical machinery and equipment) together accounted for a further 23.0% of the EU's exports. Computers and office equipment recorded the EU's largest trade deficit among electrical machinery and optical equipment products (-40.2 billion EUR). The largest surplus at the CPA Group level of this sector was 6.1 billion EUR for telecommunications equipment. The considerable increase in the trade deficit for electrical machinery and optical equipment between 1997 and 2000 has come from a large increase in the deficit for computers and office equipment, electronic components and other electrical equipment (CPA Group 31.6), whilst nearly all of the CPA Groups in this sector have seen their respective trade surpluses fall or deficits increase in the three years to 2000.

Table 11.6

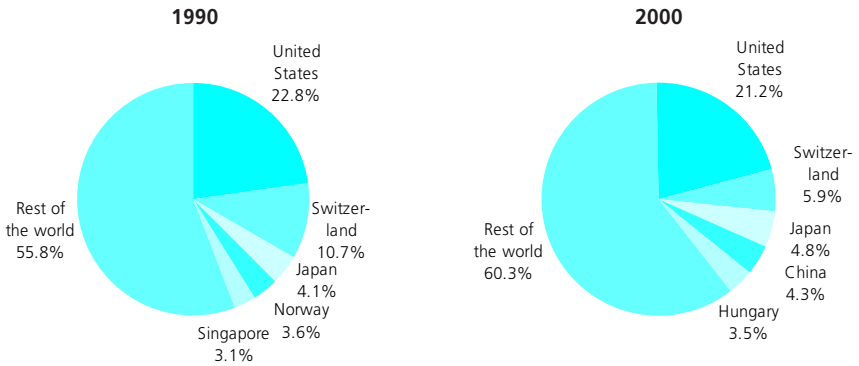
Electrical and optical equipment (CPA Sub-section DL)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	183,472	248,261	-64,789	73.9
B	19,456	21,409	-1,952	90.9
DK	8,901	9,437	-536	94.3
D	107,424	108,916	-1,492	98.6
EL	762	3,832	-3,070	19.9
E	11,834	24,353	-12,519	48.6
F	59,269	63,580	-4,311	93.2
IRL	33,229	22,411	10,818	148.3
I	26,067	37,829	-11,763	68.9
L	2,089	2,431	-342	85.9
NL	66,170	65,444	726	101.1
A	11,038	14,432	-3,395	76.5
P	3,883	5,927	-2,043	65.5
FIN	15,557	9,608	5,949	161.9
S	23,199	18,653	4,546	124.4
UK	78,643	92,578	-13,935	84.9

Source: Eurostat, Comext

Figure 11.4

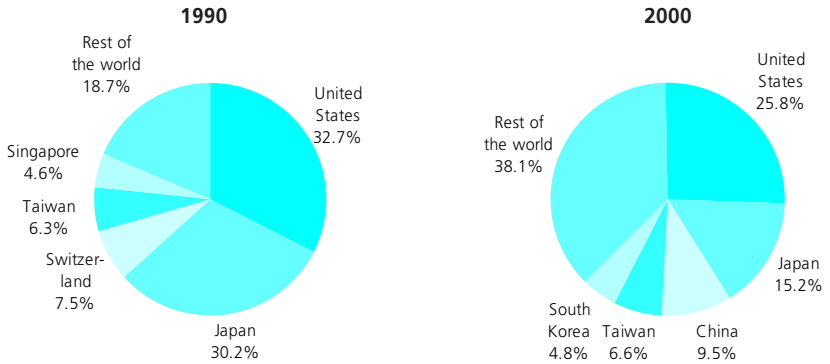
Electrical and optical equipment (CPA Sub-section DL)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.5

Electrical and optical equipment (CPA Sub-section DL)
Origin of extra-EU imports



Source: Eurostat, Comext

11.1: MANUFACTURE OF ELECTRICAL MACHINERY AND EQUIPMENT

This sub-chapter covers NACE Division 31 which includes the manufacture of electric motors, generators, transformers, electricity distribution equipment, insulated wires and cables, optical fibres for coded data transmission, batteries, lighting equipment and other electrical equipment. The manufacture of metal cables not being used as a conductor of electricity is not included in this Division (see sub-chapter 9.2).

The output of these activities is a mixture of intermediate products, capital goods and consumer semi-durables. NACE Groups 31.1 and 31.2 (machinery for the production, conversion and distribution of electrical energy) provide machinery for the power generation and distribution industries, as well as mechanical and transport engineering sectors. Demand for products from Group 31.3 comes from power distribution (high voltage), construction (low voltage), telecommunications (information cabling) and electrical engineering sectors (winding wires). Investment in fibre networks had grown greatly in anticipation of increased demand for new applications using communications. However, the bursting of the dot.com bubble and general economic slowdown means that in many cases there has been over investment and there are signs that demand for new fibre cables has subsequently fallen. The main users of accumulators and batteries (Group 31.4) are OEMs in transport (and other) engineering for starting and traction purposes (materials lifting and handling equipment) and for secure power supplies (stationery batteries). Group 31.5 provides lighting and lamps which are used by many segments of the economy, including households, industry and construction. Demand for bulbs/tubes is determined essentially by replacement and by energy-saving devices, while the demand for lights is more dependent on new construction and renovation work and is therefore heavily linked to the business cycle of the construction industry (see chapter 14).

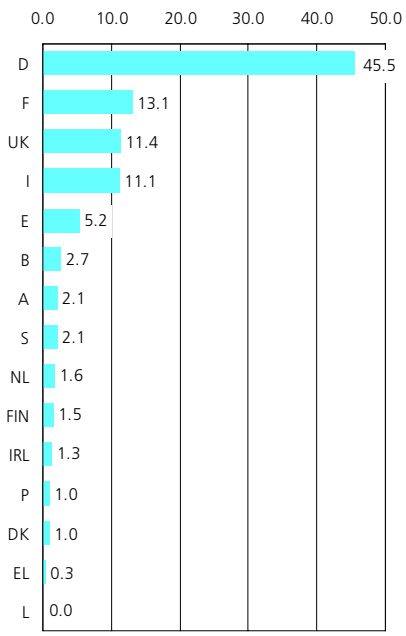
STRUCTURAL PROFILE

The manufacture of electrical machinery and equipment generated 57.9 billion EUR of value added in 1997, the latest year for which EU-wide data is available. This sector is dominated by Germany, which accounted for 45.5% of the EU's total value added in 1997. Germany was also the country where this sector accounted for the largest share of national manufacturing (7.9% in 1999). In constant price terms, EU value added in this sector recorded annual average growth of 1.3% in the five years to 1997, slower than for electrical machinery and optical equipment manufacture as a whole and fractionally slower than the manufacturing average. Value added in constant prices fell in Germany by between 1.0% and 2.0% per annum in the period 1996 and 1998, whilst growth of 7.0% was recorded between 1998 and 1999.

Output price indices in this sector recovered in 2000 (+1.7%) after three years of falling prices (around one-quarter of one per cent each year).

Figure 11.7

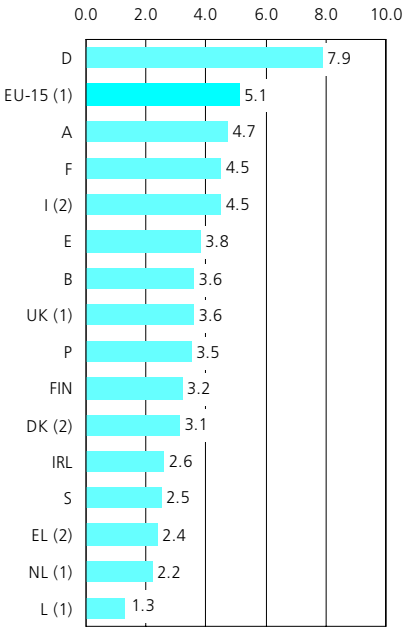
Manufacture of electrical machinery and apparatus n.e.c. (NACE Division 31)
Share of value added in the EU, 1997 (%)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.6

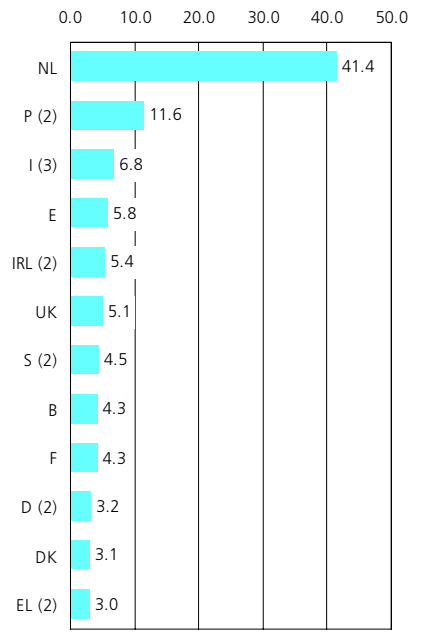
Manufacture of electrical machinery and apparatus n.e.c. (NACE Division 31)
Share of value added in manufacturing, 1999 (%)



(1) 1997. (2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.8

Manufacture of electrical machinery and apparatus n.e.c. (NACE Division 31)
Share in manufacturing R&D, 1998 (%) (1)



(1) L, A and FIN, not available. (2) 1997. (3) 1999.
Source: Basic Science and Technology Statistics (BSTS), OECD

LABOUR AND PRODUCTIVITY

In 1997 there were 1.2 million persons employed in the manufacture of electrical machinery and equipment in the EU, equal to 5.2% of the manufacturing total (similar to its value added share). German employment dipped just under 480 thousand in 1999, continuing the steady contraction that has taken place since peaking in 1991 at 706 thousand.

Relative to other manufacturing activities and to electrical machinery and optical equipment in general, the manufacture of electrical machinery and equipment typically records low levels of apparent labour productivity and simple wage adjusted labour productivity.

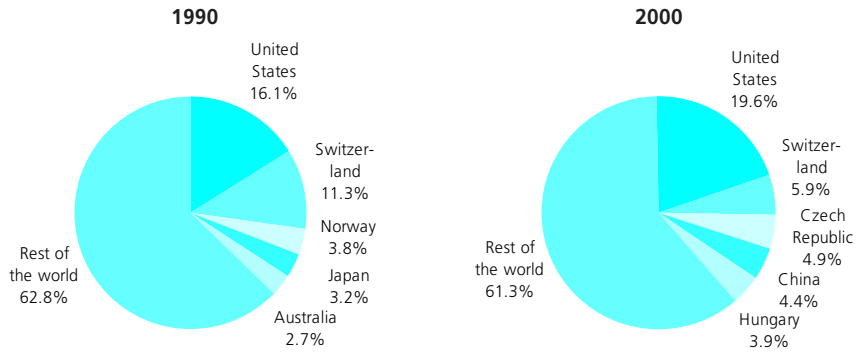
EXTERNAL TRADE

In 2000, the EU's exports of electrical machinery and equipment (42.1 billion EUR) to non-Community countries was lower than the value of imports (42.8 billion EUR), leading to the only trade deficit to be recorded between 1990 and 2000. The cover ratio (exports as a percentage of imports) fell between 1997 and 2000 from 126.2% to 99.7%.

The destinations of the EU's exports of electrical machinery and equipment are quite typical for electrical machinery and optical equipment products in general. However, the share of exports destined for Japan in 2000 was relatively low (2.9%) and the shares of the Czech Republic (4.9%) and Poland (3.6%) were relatively high. The origin of imports shows a greater proportion of electrical machinery and equipment coming from candidate countries (Hungary, Czech Republic and Poland), Switzerland and China than is typical for electrical machinery and optical equipment in general, and this is balanced by a lower share for other Asian producers, notably Taiwan, South Korea, Singapore and Malaysia.

Figure 11.9

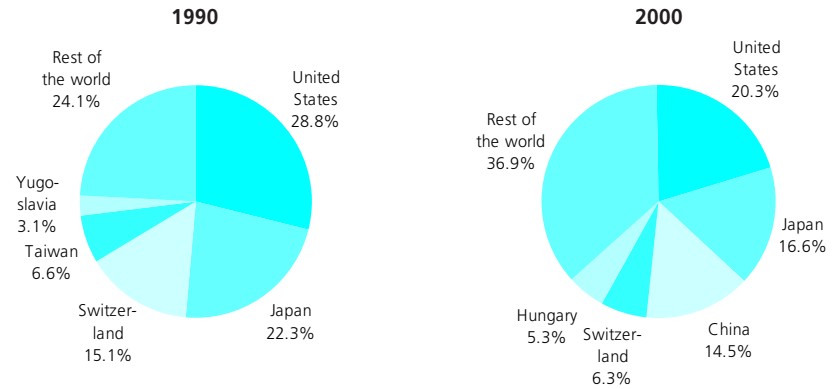
Electrical machinery and apparatus n.e.c. (CPA Division 31)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.10

Electrical machinery and apparatus n.e.c. (CPA Division 31)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 11.7

Electrical machinery and apparatus n.e.c. (CPA Division 31)
Extra-EU exports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Electrical machinery and apparatus n.e.c.	14,107.6	100.0	42,160.4	100.0	198.8	-
Electric motors, generators and transformers	3,833.5	27.2	11,265.9	26.7	193.9	-0.5
Electricity distribution and control apparatus	4,539.4	32.2	13,584.9	32.2	199.3	0.0
Insulated wire and cable	1,438.8	10.2	4,027.1	9.6	179.9	-0.6
Accumulators, primary cells and primary batteries	449.0	3.2	1,486.9	3.5	231.2	0.3
Lighting equipment and electric lamps	1,190.1	8.4	2,981.3	7.1	150.5	-1.4
Electrical equipment n.e.c.	2,656.9	18.8	8,814.4	20.9	231.8	2.1

Source: Eurostat, Comext

Table 11.8

Electrical machinery and apparatus n.e.c. (CPA Division 31)
Extra-EU imports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Electrical machinery and apparatus n.e.c.	10,406.4	100.0	42,280.0	100.0	306.3	-
Electric motors, generators and transformers	2,440.6	23.5	9,633.2	22.8	294.7	-0.7
Electricity distribution and control apparatus	2,748.3	26.4	8,895.9	21.0	223.7	-5.4
Insulated wire and cable	964.1	9.3	3,844.9	9.1	298.8	-0.2
Accumulators, primary cells and primary batteries	604.3	5.8	2,895.5	6.8	379.2	1.0
Lighting equipment and electric lamps	791.3	7.6	3,552.6	8.4	348.9	0.8
Electrical equipment n.e.c.	2,857.7	27.5	13,457.9	31.8	370.9	4.4

Source: Eurostat, Comext

11.2: MEASURING, PRECISION AND PROCESS CONTROL EQUIPMENT

The manufacture of measuring and precision equipment (NACE Group 33.2) and the manufacture of industrial process control equipment (NACE Group 33.3) are both covered in this sub-chapter.

This sector makes intermediate products that are integrated into machinery, as well as specialist capital goods that are mainly used in other industries. Only a small part of production is destined for household use. A large proportion of the products made by this sector are highly specialised with demand originating from a broad range of manufacturing activities (for example, food and drink processing and engineering) and distribution (both wholesaling and retailing). Over a number of years there has been a shift in emphasis away from mechanical devices towards electronic components and devices.

STRUCTURAL PROFILE

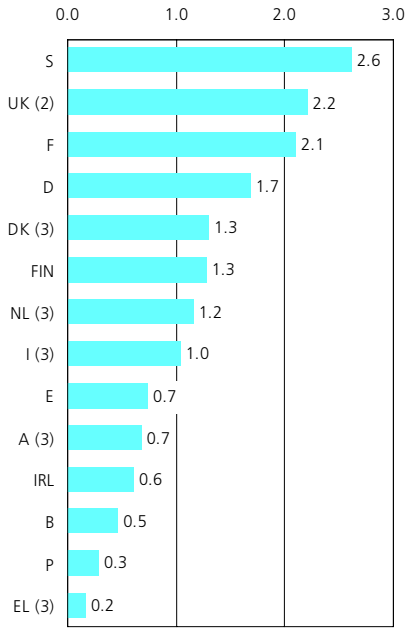
The manufacture of measuring and precision instruments (NACE Group 33.2) generated 15.9 billion EUR of value added in 1999 in the EU[9], approximately one-tenth of the total for electrical machinery and optical equipment. Germany accounted for approximately one-third of the sector's value added and the United-Kingdom and France one-fifth each. A similar structure is shown by the employment data.

Industrial process control equipment (NACE Group 33.3) is one of the smallest manufacturing Groups in the EU, generating 3.0 billion EUR of value added in 1999, 0.2% of the manufacturing total. France (23.1% of the EU total), Germany (18.9%) and Italy (15.8%, 1998) were the largest producers. The sector employed 53 thousand persons in the EU in 1999.

(9) DK, EL, I and NL, 1998; UK, 1997; L, no recent data available.

Figure 11.11

Measuring, precision and process control equipment (NACE Groups 33.2 and 33.3) Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)Source:

Table 11.9

EU production value of selected products from CPA Group 33.2, 1998 (million EUR)

	PRODCOM code	Value
Instruments and appliances for aeronautical or space navigation (excluding compasses)	33.20.11.55	1,822.9
Instruments and apparatus, for telecommunications	33.20.44.00	1,258.1
Instruments and apparatus using optical radiations, n.e.c.	33.20.53.50	509.2
Electricity supply or production meters (including. calibrated) (excluding voltmeters, ammeters, wattmeters and the like)	33.20.63.70	522.4
Test benches	33.20.65.20	555.9
Electronic instruments, appliances and machines for measuring or checking geometrical quantities (including comparators, coordinate measuring machines (CMMs))	33.20.55.50	658.2
Non-electronic thermostats	33.20.70.19	635.1
Parts and accessories for direction finding compasses and other navigational instruments and appliances	33.20.81.10	590.6
Parts and accessories for automatic regulating or controlling instruments and apparatus	33.20.84.00	611.2
Repair and maintenance of instruments and apparatus for measuring, checking, testing, navigating and other purposes (excluding industrial process control equipment)	33.20.92.00	1,047.9

Source: Eurostat, European production and market statistics (theme4/europrom)

EXTERNAL TRADE

The EU has run a trade surplus with non-Community countries for measuring and precision equipment (CPA Group 33.2) since 1992. This peaked at just under 3 billion EUR in 1997 and by 2000 had fallen back to 1.5 billion EUR. In 2000 Germany recorded the highest value of total exports for these products (11.8 billion EUR) accounting for one-third (34.6%) of the exports made by EU Member States. The United Kingdom accounted for 20.9% of total exports and also recorded the highest level of export specialisation (183%).

The US was the main destination for EU exports (30.3%) and origin of EU imports (53.5%) of measuring and precision equipment in 2000.

Table 11.10

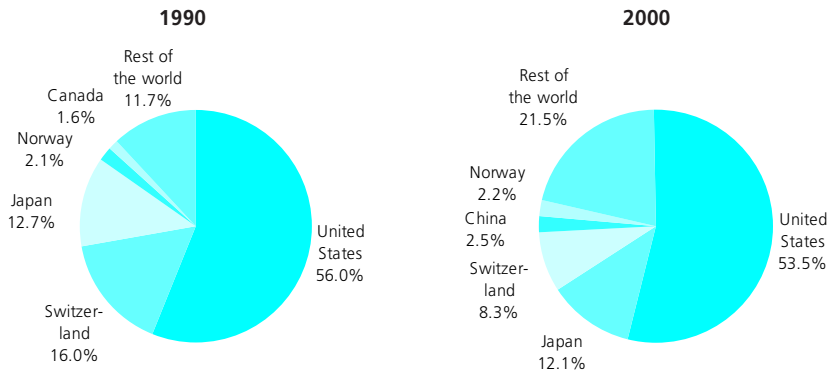
Instruments and appliances for measuring, checking, testing, navigating and other purposes (CPA Group 33.2)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	17,376	15,909	1,467	109.2
B	758	1,343	-585	56.4
DK	854	523	332	163.5
D	11,894	6,958	4,937	171.0
EL	47	250	-204	18.7
E	758	1,639	-880	46.3
F	5,040	5,119	-78	98.5
IRL	344	531	-187	64.8
I	2,050	2,999	-949	68.4
L	110	82	28	134.5
NL	2,551	2,394	157	106.5
A	767	985	-218	77.9
P	94	423	-330	22.1
FIN	661	498	163	132.7
S	1,270	1,281	-11	99.2
UK	7,207	5,766	1,441	125.0

Source: Eurostat, Comext

Figure 11.12

Instruments and appliances for measuring, checking, testing, navigating and other purposes (CPA Group 33.2)
Origin of extra-EU imports



Source: Eurostat, Comext

11.3: ELECTRONIC COMPONENTS

This sub-chapter covers the manufacture of active components (including semiconductors such as integrated circuits, discrete semiconductors and electronic tubes), passive components (such as capacitors and resistors) and PCBs; these manufacturing activities are all classified in NACE Group 32.1. The manufacture of most other electro-mechanical components is covered within sub-chapter 11.1.

The active components part of this industry is particularly dominated by a small number of very large enterprises operating generally on a global scale. Scale is important in terms of building and operating increasingly expensive production plants. Taiwan's manufacturers pioneered and continue to dominate contract work, manufacturing semiconductors according to other enterprises' designs, particularly for standardised products. Scale is also important for financing R&D as there is a high degree of innovation in active components, notably in terms of miniaturisation and reduced power consumption, driven in particular by the demand for computer portability, consumer electronics and communications devices.

As the industry produces almost exclusively for OEMs, demand for components results from the increasing complexity of the equipment into which they are integrated. The main downstream industries using electronic components are telecommunications, data processing and consumer goods (that are all treated elsewhere in this chapter), as well as industrial machinery and transport.

STRUCTURAL PROFILE

The manufacture of electronic components accounted for 1.0% of manufacturing value added in the EU in 1997, some 11.6 billion EUR. This sector accounted for the same share of manufacturing employment, employing 224.3 thousand persons in 1997.

The Member State most specialised in this sector was Ireland, where the manufacture of electronic components accounted for 8.0% of manufacturing value added in 1999. The United Kingdom's share of EU value added in this sector was just over one quarter (27.6%) in 1997, followed by France, Germany, Italy and Ireland as the largest producers. More recent data shows that several countries have seen significant growth in this sector in 1998 and 1999 and as a result the German sector (3.5 billion EUR) overtook France's (3.1 billion EUR) in value added terms.

EU output prices for this sector fell in 1997, 1998 and 1999 by a total of 8.1%, but in 2000 they rose by 0.8%. Amongst the larger producers, France recorded a year on year increase of 5.2% in 2000, reversing the trend of falling output prices that had been recorded every year throughout the 1990s. The United Kingdom also experienced an increase in prices in 2000 (2.1%), after four years of falling prices.

Table 11.11

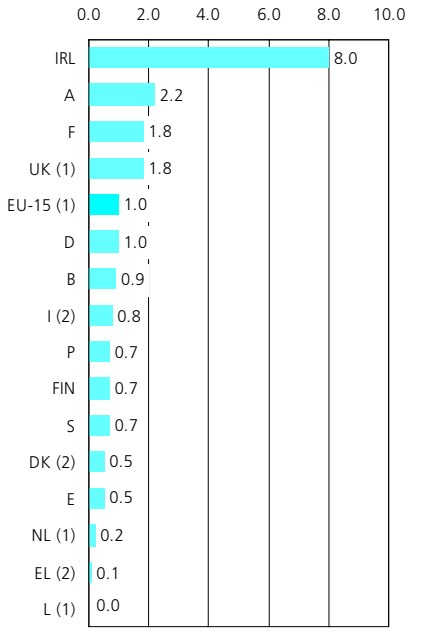
EU production value of selected products from CPA Group 32.1 (million EUR)

	PRODCOM code	Latest year	Value
Bare multilayer printed circuit boards	32.10.30.50	1998	3,785.1
Passive networks (including networks of resistors and/or capacitors) (excluding resistor chip arrays, capacitor chip arrays, boards containing active components, hybrids)	32.10.30.90	1997	868.5
Colour TV tubes	32.10.41.35	1998	2,635.3
Semiconductor diodes	32.10.51.20	1998	340.4
Semiconductor power rectifier diodes	32.10.51.30	1998	381.3
Semiconductor small signal transistors with a dissipation rate < 1 W	32.10.51.55	1998	131.5
Semiconductor power transistors with a dissipation rate >= 1 W	32.10.51.57	1998	492.0
Semiconductor thyristors, diacs and triacs	32.10.51.70	1998	198.8
Photosensitive semiconductor devices; solar cells, photo-diodes, photo-transistors, etc.	32.10.52.37	1998	461.3
Mounted piezo-electric crystals (including quartz, oscillator and resonators)	32.10.52.70	1998	151.9
Digital MOS integrated circuits: wafers not yet cut into chips	32.10.60.15	1998	1,447.3
Digital MOS integrated circuits: chips	32.10.60.17	1998	581.0
Digital MOS integrated circuits, DRAM (including modules) with a capacity <= 4 Mbits	32.10.60.25	1998	232.5
Digital MOS integrated circuits, DRAM (including modules) with a capacity > 4 Mbits	32.10.60.27	1998	1,420.5
Digital MOS integrated circuits EEPROMS and flash EEPROMS	32.10.60.65	1998	268.4
Digital MOS integrated circuits, (CPUs and MPUs)	32.10.60.70	1998	92.9
Other digital MOS integrated circuits (including MPR, MCU, ASIC, standard logic, PLD and other logic)	32.10.60.93	1998	2,742.0
Linear (analogue) integrated circuits	32.10.60.95	1998	1,675.4
Hybrid integrated circuits (excluding circuits consisting solely of passive elements)	32.10.60.97	1998	566.2

Source: Eurostat, European production and market statistics (theme4/europrom)

Figure 11.13

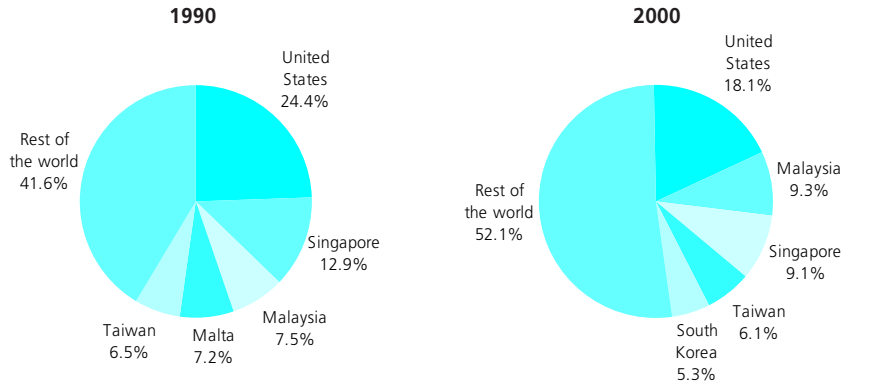
Manufacture of electronic valves and tubes and other electronic components (NACE Group 32.1)
Share of value added in manufacturing, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.14

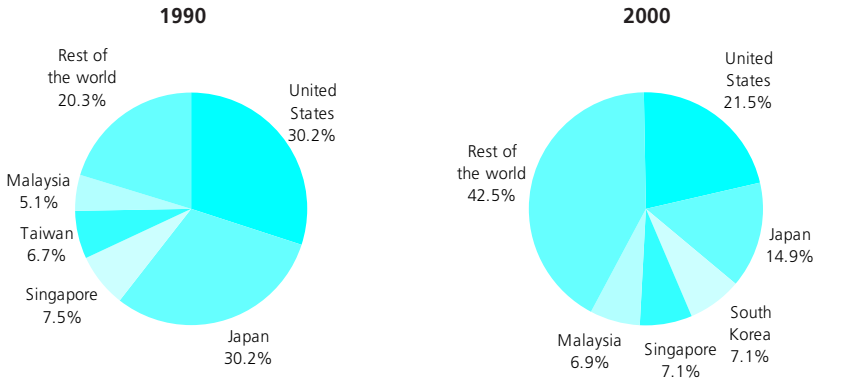
Electronic valves and tubes and other electronic components (CPA Group 32.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.15

Electronic valves and tubes and other electronic components (CPA Group 32.1)
Origin of extra-EU imports



Source: Eurostat, Comext

EXTERNAL TRADE

The EU's imports of electronic components from non-Community countries exceeded its exports in 2000 by 18.3 billion EUR, a large increase compared to the deficits of between 7 and 8 billion EUR recorded during the period 1994 to 1999. Throughout the 1990s both exports and imports grew at a rapid pace, with year on year growth falling below 10% only twice for exports and three times for imports. There was very strong growth for both exports and imports in 2000.

The Member States most specialised in the export (intra-EU and extra-EU combined) of electronic components, compared to their exports of other manufactured goods, were Ireland (227.8%) and the Netherlands (203.8%) and to a lesser extent Luxembourg (161.5%) and the United Kingdom (155.1%). Ireland, Luxembourg, the Netherlands and Austria were the only Member States to record a trade surplus for electronic components in 2000 and only in the Netherlands did this exceed 1 billion EUR (1.6 billion EUR).

EU exports to non-Community countries were focused on the US (18.1%) and Asian countries, notably Malaysia (9.3%), Singapore (9.1%), Taiwan (6.1%) and South Korea (5.3%). The origin of the EU's imports were also concentrated in the US (21.5%) and Asia, most notably Japan (14.9%). Compared to other electrical machinery and optical equipment, the share of imports from China was relatively low (2.2%).

11.4: COMPUTER AND OFFICE EQUIPMENT

This sub-chapter covers the manufacture of office machinery, computers and peripherals, such as printers and terminals (NACE Division 30). The manufacture of electronic games is classified under toys and is covered within chapter 13.

There was quarter-on-quarter growth in world-wide PC sales during a period of well over a decade, as home and business markets grew. However, in the second quarter of 2001, sales were reported not to have grown compared to the first quarter and in the third quarter of 2001 there was a clear decline in sales. Demand from households has fallen as communications rather than processing power has become the limiting factor for PC use; at the same time PCs have to compete with other devices, for example, mobile phones with Internet connectivity, electronic personal organisers or electronic games. Demand from the business community has fallen because of the generally worsening economic situation, which has led to postponements in purchasing decisions.

STRUCTURAL PROFILE

This sector is dominated by the manufacture of computers and peripherals. Value added in this sector reached 17.3 billion EUR in 2000, equivalent to 1.3% of manufacturing value added. This share has progressively declined throughout the 1990's, from 2.1% in 1990. In constant price terms, the value added generated by this sector in the EU has outperformed the manufacturing average for some time, thanks to falling output prices. Annual average growth rates in constant price value added terms for the ten years to 2000 show the output of the computer and office equipment sector rising by 7.0%, compared to 1.9% for manufacturing.

Table 11.13

Household penetration rates of computers, ranked by ownership of desktop PCs, 2000 (% of households)

	Desktop PC	CD-ROM drive	Laptop PC	Personal organiser or palm computer
NL	65.5	55.9	17.7	9
DK	59.0	53.5	10.9	2
S	56.3	43.4	10.9	4
L	45.3	43.5	9.8	8
FIN	44.9	17.3	7.3	1
B	42.4	31.3	7.1	3
UK	36.2	25.6	8.2	6
I	35.5	22.7	0.9	2
EU-15	34.9	24.9	5.4	3
E	34.2	20.8	3.1	2
D	31.9	24.0	5.4	2
A	31.6	27.0	7.2	3
F	28.9	21.7	4.6	3
IRL	28.0	17.7	5.2	3
P	20.3	12.5	3.4	2
EL	15.4	6.7	0.6	3

Source: Measuring information society, Eurobarometer 53, European Commission, 2000

Box 11.3: IT hardware market value

Table 11.12 shows that the portable PC market in the EU grew several percentage points faster than the desktop PC market in both 1999 and 2000 and accounted for just under one-quarter of the value of all PC sales in 2000.

Table 11.12

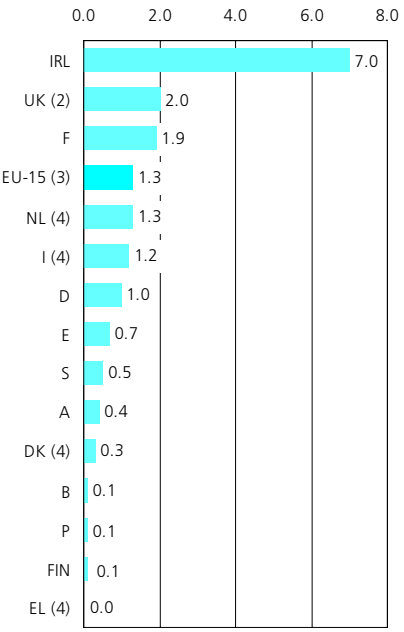
Value of the IT hardware market in the EU, selected items, ranked by 2000/1998 rate of change (million EUR)

	1998	1999	2000
LAN hardware	5,702	6,529	7,643
Portable PCs	7,588	8,374	9,414
Server systems	23,959	25,806	28,141
Desktop PCs	24,341	25,879	28,268
PC printers	6,229	6,276	6,736
Copiers	5,293	5,358	5,459
Workstations	2,327	2,210	2,099

Source: EITO, 2001

Figure 11.16

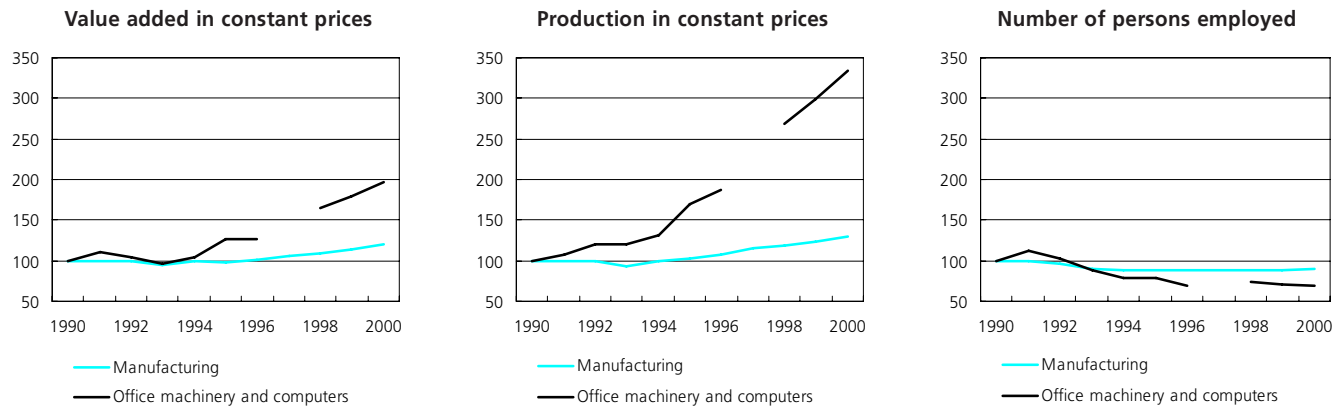
Manufacture of office machinery and computers (NACE Division 30)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1997.
(3) 2000.
(4) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.17

Manufacture of office machinery and computers (NACE Division 30)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Ireland is the most specialised Member State in this sector[10], as the manufacture of computers and office equipment accounted for 7.0% of manufacturing value added in 1999. In absolute terms the Member States generating the largest amount of value added in this sector in 1999 were Germany (3.7 billion EUR), the United Kingdom (3.6 billion EUR, 1997) and France (3.3 billion EUR).

In 2000 output prices continued a series of year on year falls, down by 4.2%, although this was a slower rate than those displayed during the second half of the 1990s. By 2000 the output price index stood at 68.5% of its 1995 value, the lowest of any manufacturing NACE Group.

(10) L, no recent data available.

Box 11.4: IT hardware shipments

Table 11.14

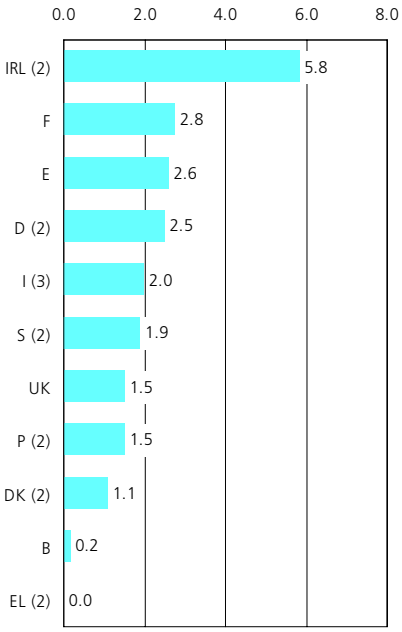
Unit shipments of IT hardware in the EU, ranked by 2000/1998 rate of change (thousands)

	1998	1999	2000
LAN cards	14,594	16,487	20,631
Portable PCs	3,355	3,864	4,530
Low-end servers	750	854	977
Desktop PCs	17,949	20,193	22,902
PC printers	18,112	19,753	22,384
Mid-range servers	57	61	65
Copiers	1,345	1,381	1,419
High-end servers	3	3	3
Calculators	24,815	24,972	25,263
Workstations	175	166	156
Typewriters	1,277	1,133	1,052

Source: EITO, 2001

Figure 11.18

Manufacture of office machinery and computers (NACE Division 30)
Share in manufacturing R&D, 1998 (%) (1)



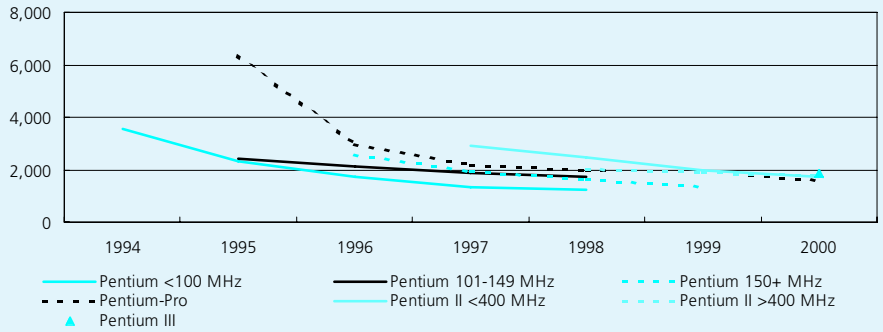
(1) L, NL A and FIN, not available.
(2) 1997.
(3) 1999.
Source: Basic Science and Technology Statistics (BSTS), OECD

Box 11.5: average sales price for Pentium PCs in Europe

Figure 11.19 shows the downward trend in PC prices over their relatively short life cycles.

Figure 11.19

Evolution of average sales price for PCs in Europe (EUR)



Source: EITO, 2001

LABOUR AND PRODUCTIVITY

SBS data indicates that the EU's employment in this sector in 2000 was equal to 208.7 thousand persons, 4.3 thousand less than in 1999 and 125.2 thousand less than the peak in 1991. The largest employer's in this sector were the United Kingdom (25.3% of the EU total), France (20.5%) and Germany (20.2%). The Irish share of total EU employment rose from 2.5% in 1989 to 9.5% in 1999, as this sector's activity expanded. At the same time, the German share of the EU workforce fell from 33.2% in 1989 to 20.2% in 1999, with the number of persons employed falling from 101.0 thousand to 43.1 thousand.

EU apparent labour productivity (value added per person employed) in this sector was 82.9 thousand EUR in 2000, some 27.0 thousand EUR more than the manufacturing average. Apparent labour productivity has been rising since 1993 when it stood at 57.1 thousand EUR per person employed. Austria recorded very high apparent labour productivity in 1999, 189.2 thousand EUR per person employed, ahead of Ireland (95.3 thousand EUR per person employed), where the second highest level of apparent labour productivity was recorded. The Austrian figure marked a significant increase on its 1998 level of 51.6 thousand EUR per person employed.

EXTERNAL TRADE

The EU's trade balance in computers and office machinery has been strongly in deficit throughout the 1990s. It doubled from nearly 20 billion EUR in 1995 to 40.2 billion EUR in 2000. By 2000 these products accounted for 8.8% of all manufactured imports into the EU from non-Community countries. The only EU Member State to record a trade surplus (intra-EU and extra-EU trade combined) in 2000 was Ireland (7.7 billion EUR). Comparing 1990 and 2000 all Member States have seen their deficits increase, except Ireland whose surplus has increased and the Netherlands whose deficit has almost disappeared.

As with most goods covered by this chapter, the US was the main source of EU imports (22.2% in 2000), but the next seven places in a ranking of import partners were all filled by Asian countries, collectively providing 62.3% of EU imports. The share of EU imports from the US and Japan approximately halved between 1990 and 2000, with most notably China, South Korea, Malaysia and the Philippines recording increased shares.

Table 11.15

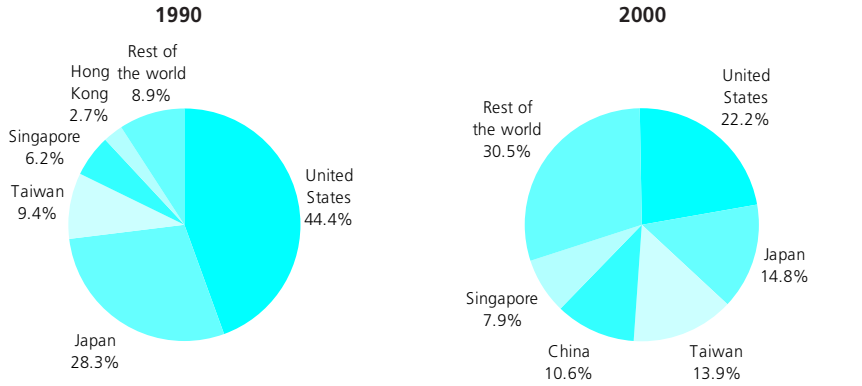
Office machinery and computers (CPA Division 30)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	31,269	71,434	-40,165	43.8
B	4,593	5,552	-959	82.7
DK	1,161	2,532	-1,371	45.9
D	18,659	32,084	-13,425	58.2
EL	98	850	-752	11.5
E	2,019	5,168	-3,149	39.1
F	10,924	17,114	-6,190	63.8
IRL	18,919	11,001	7,918	172.0
I	3,483	9,063	-5,579	38.4
L	591	802	-211	73.7
NL	29,842	29,965	-124	99.6
A	1,524	2,809	-1,285	54.3
P	92	1,063	-971	8.6
FIN	477	1,534	-1,057	31.1
S	822	3,616	-2,794	22.7
UK	23,675	31,526	-7,852	75.1

Source: Eurostat, Comext

Figure 11.20

Office machinery and computers (CPA Division 30)
Origin of extra-EU imports



Source: Eurostat, Comext

11.5: TELECOMMUNICATIONS EQUIPMENT

The activities covered by this sub-chapter (NACE Group 32.2) include the manufacture of television cameras, transmission apparatus for radio and TV, telephonic switching apparatus (including LANs and modems), telephones, fax machines and teleprinters. Chapter 20 provides information on services that make use of this equipment. This sub-chapter does not cover the manufacture of television or radio sets (see sub-chapter 11.6).

Both voice and sound communication have experienced a move towards digital communications and this has led to the replacement of hardware for transmission, switching and reception. The enormous growth in network computing has stimulated demand for network switching apparatus, whilst the mobile telephony market has exploded. However, penetration rates for mobile equipment have reached very high levels and it seems unlikely that new customers and replacement sales will be sufficient to maintain previous levels of growth in Western Europe. On a global scale, despite the general economic slowdown, there is still growth in some markets, notably China, which in 2001 was reported to have become the largest user of mobile handsets. The replacement rates of mobile handsets may spur new demand as and when new technologies become widely available, for example with the introduction of 3G services.

Box 11.6: communications hardware market value

EITO data on the EU market for telecommunications equipment shows clearly how the communications hardware market is dominated by mobile telephone communications.

Table 11.16

Value of the communications hardware market in the EU, selected items, ranked by 2000/1998 rate of change (million EUR)

	1998	1999	2000
Mobile telephone sets	16,379	25,388	33,796
Cellular mobile radio infrastructure	5,446	8,113	10,318
Packet switching and routing equipment	1,817	2,192	2,999
Other terminal equipment	2,966	3,194	3,367
Transmission equipment	3,908	4,002	4,349
Telephone sets	5,088	5,260	5,418
PBX and key systems	3,704	3,802	3,892
Circuit switching equipment	5,317	5,058	4,670

Source: EITO, 2001

Table 11.17

Household penetration rates of telecommunications equipment, 2000 (% of households)

	ISDN line	Fax without a PC	Mobile phone
EU-15	5.4	9.2	55.0
B	4.0	12.2	50.2
DK	9.1	11.2	60.7
D	12.0	12.8	39.4
EL	0.4	1.9	52.1
E	1.1	3.5	56.8
F	2.3	8.8	52.0
IRL	1.3	6.1	50.0
I	3.0	8.3	73.1
L	12.4	22.2	64.0
NL	13.2	18.1	63.3
A	7.7	12.9	51.5
P	1.1	2.8	46.7
FIN	5.9	9.4	80.4
S	4.4	12.2	71.4
UK	3.6	7.8	56.8

Source: Measuring information society, Eurobarometer 53, European Commission, 2000

STRUCTURAL PROFILE

The manufacture of telecommunications equipment accounted for 2.0% of manufacturing value added in the EU in 1997, some 22.8 billion EUR. The Member State most specialised in this sector was Finland, where the manufacture of telecommunications equipment accounted for 16.7% of Finnish manufacturing value added in 1999. The share of this sector in Swedish manufacturing was also very high, 7.5%, but this represented a significant fall compared to two years earlier (13.0%). In absolute terms, Finland and France reported the largest telecommunications equipment sectors in the EU in 1999, both with value added of 4.4 billion EUR. Finland's position has come through strong growth in value added (current prices) every year since 1992, exceeding 30% year on year growth in seven of the eight years to 1999. Looking at a shorter period, from 1995 to 1999, value added data available for seven Member States[11] also showed strong growth in current price terms in Austria, Sweden and Ireland.

Output prices for the EU telecommunications equipment sector fell each year from 1995 (the earliest available year) to 2000, leaving prices 7.5% lower in 2000 than they had been in 1995. Amongst the larger producers, Sweden recorded a year on year fall of 11.0% in 2000, which contributed to Swedish output prices being 23.8% lower in 2000 than in 1995.

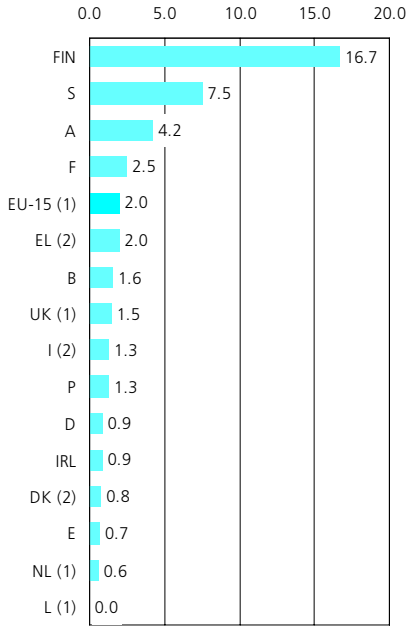
LABOUR AND PRODUCTIVITY

This sector accounted for a much smaller share of EU manufacturing employment than it did of value added, employing 314.1 thousand persons in 1997, equivalent to 1.4% of the manufacturing total. Apparent labour productivity was therefore higher in this sector (72.6 thousand EUR per person employed) than in manufacturing (48.6 thousand EUR) in 1997.

(11) D, E, F, IRL, A, FIN and S.

Figure 11.21

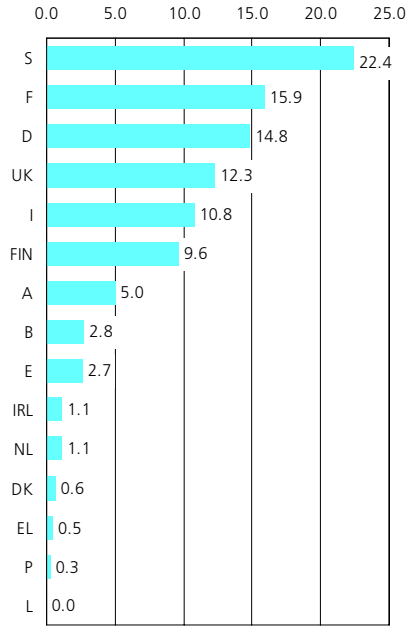
Telecommunications equipment (NACE Group 32.2)
Share of value added in manufacturing, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.22

Telecommunications equipment (NACE Group 32.2)
Share of value added in the EU, 1997 (%)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 11.18

Television and radio transmitters; apparatus for line telephony and telegraphy (CPA Group 32.2)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	30,928	24,869	6,059	124.4
B	2,067	2,199	-133	94.0
DK	1,419	1,615	-195	87.9
D	13,354	9,216	4,138	144.9
EL	326	872	-546	37.4
E	1,346	4,739	-3,394	28.4
F	10,943	5,710	5,232	191.6
IRL	3,183	2,181	1,002	145.9
I	2,902	5,559	-2,656	52.2
L	537	607	-70	88.4
NL	5,286	6,920	-1,634	76.4
A	1,002	2,298	-1,296	43.6
P	104	746	-642	13.9
FIN	8,962	1,315	7,647	681.6
S	10,939	2,452	8,487	446.2
UK	14,765	13,472	1,293	109.6

Source: Eurostat, Comext

EXTERNAL TRADE

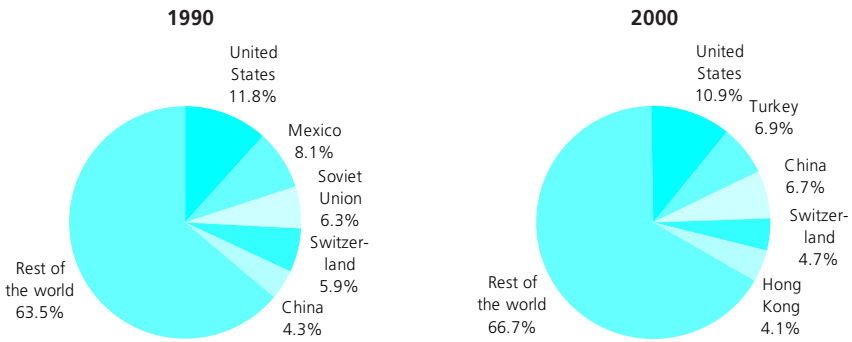
Having turned positive in 1992, the EU's trade balance in telecommunications equipment grew to a peak of 8.2 billion EUR in 1997. It has since fallen slightly each year since and in 2000 was 6.1 billion EUR. Both exports and imports have risen greatly since 1990, with exports witnessing year on year growth in excess of 10% each year. Export and import growth was particularly strong in 2000. In 1990 exports of telecommunications equipment represented 1.2% of total exports of manufactured goods and by 2000 this share had trebled to 3.6%.

Five Member States recorded trade surpluses (extra-EU and intra-EU combined) in excess of 1 billion EUR, the largest in Sweden and Finland. The largest deficits were recorded in Spain and Italy. Finland and Sweden's high trade surplus underlined their export specialisation in these products, 561.1% and 364.0% respectively.

The EU's imports were more concentrated on US suppliers (39.7%) than the average for electrical and optical equipment, whilst Canada (5.8%), Israel (4.6%) and Estonia (3.1%) all figured in the top ten countries of origin. The origin of imports in 2000 was very different from 1990: Japan's share had been 59.7% in 1990 and this collapsed to 5.6% by 2000; the US's share increased by 23.1 percentage points and China's share increased by 7.3 percentage points to 9.7%.

Figure 11.23

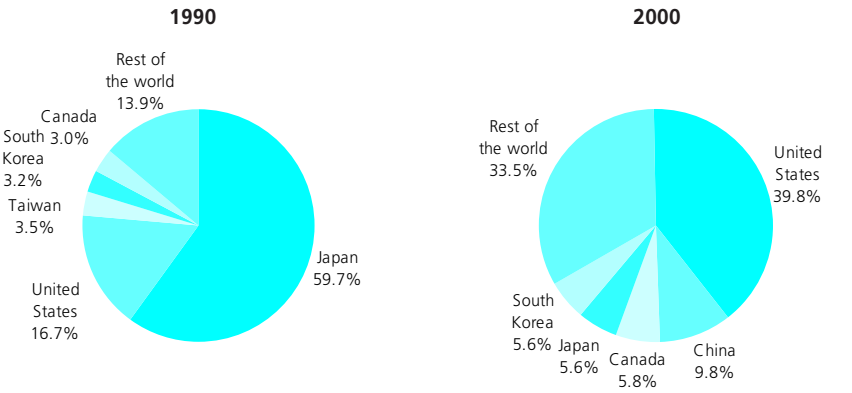
Television and radio transmitters; apparatus for line telephony and telegraphy (CPA Group 32.2)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.24

Television and radio transmitters; apparatus for line telephony and telegraphy (CPA Group 32.2)
Origin of extra-EU imports



Source: Eurostat, Comext

11.6: CONSUMER ELECTRONICS

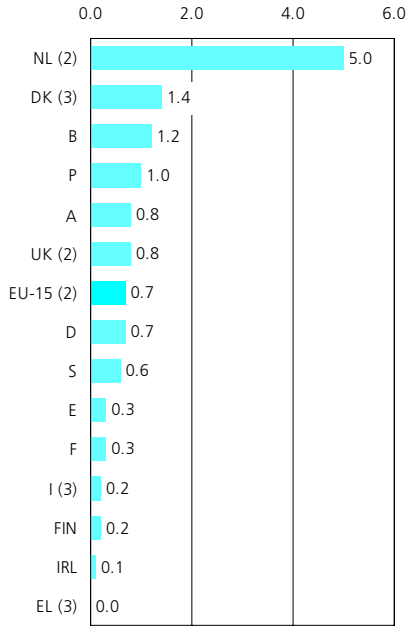
NACE Group 32.3 covers the manufacture of audio-visual equipment and related appliances such as loudspeakers, headphones and aerials, as well as other electronic consumer appliances such as telephone answering machines. The manufacture of pre-recorded and unrecorded media is not included.

The manufacture of consumer electronics concerns mainly the production of durable goods and is influenced strongly by consumer confidence. Technological innovation is also a key element for the activity, to improve existing products and to introduce new ones and hence product life-cycles are important to understand demand, as is price competition for these relatively standardised products. Penetration rates of many durables have reached saturation (for example, televisions) and demand stems essentially from replacement, upgrading to new standards (for example, 16:9 screen formats), the proliferation of multiple-television households and the rate at which new households are formed. Newer products, such as DVD players, are at an earlier stage in their life-cycle and penetration rates are still growing.

Table 11.19 from a variety of sources demonstrates the highly saturated television and radio markets across the EU and also the early stage in the product life cycle of DVD players.

Figure 11.25

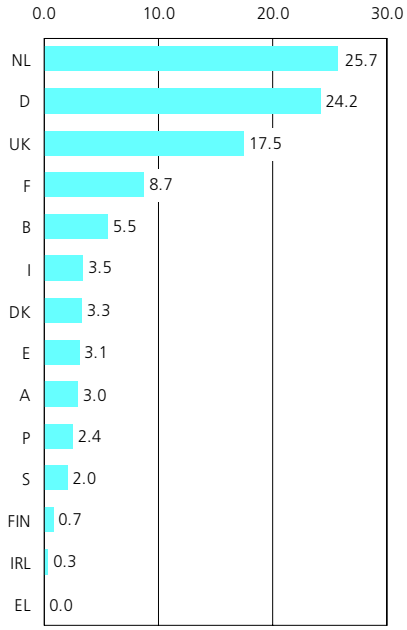
Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods (NACE Group 32.3)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 11.26

Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods (NACE Group 32.3)
Share of value added in the EU, 1997 (%) (1)



(1) L, not available.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 11.19

Household penetration rates of consumer electronics (% of households)

	Year	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Television (1) (2)	1998	97	97	98	99	99	99	94	95	97	99	98	94	90	96	97	96
Video recorder (1) (3)	1998	69	68	74	64	37	69	73	69	62	71	69	73	58	71	83	84
Satellite dish	2000	21	3	21	38	1	15	16	13	12	17	8	47	13	8	22	23
DVD player (connected to TV)	2000	4	3	4	3	1	5	4	4	5	6	5	2	2	2	8	4
Radio (total) (4)	1999	:	98	:	98	:	98	99	92	:	:	96	90	:	99	:	95
Portable radios (4)	1999	:	76	:	29	:	69	86	:	:	:	89	:	:	:	:	30
Alarm clocks (4)	1999	:	73	:	53	:	43	81	:	:	:	:	:	:	:	:	57
Hi-fi tuners (4)	1999	:	80	:	71	:	10	78	66	:	:	:	82	:	:	:	71
Car radios (4)	1999	:	66	:	70	:	72	80	77	:	:	60	83	:	:	:	:

(1) Source, Eurostat and Screen Digest in Audiovisual services, Statistics in Focus, Theme 4 3/2001, Eurostat, 2001.
(2) B, source, The European Video Yearbook in Audiovisual services, Statistics in Focus, Theme 4 3/2001, Eurostat, 2001.
(3) B, E, NL and UK, source, The European Video Yearbook in Audiovisual services, Statistics in Focus, Theme 4 3/2001, Eurostat, 2001.
(4) Source, European Keyfacts Radio, IP/CMI, 2000; B, average of data available separately for the French & Dutch speaking regions.
Source: Measuring information society, Eurobarometer 53, European Commission, 2000

STRUCTURAL PROFILE

Germany (2.3 billion EUR, 1999), the Netherlands (2.1 billion EUR, 1997) and the United Kingdom (1.4 billion EUR, 1997) are the largest manufacturers of consumer electronics in the EU. In 1997 this sector contributed 0.7% of the EU's manufacturing value added, equivalent to 5.6% of the value added generated by the electrical machinery and optical equipment sector as a whole. The Netherlands is the most specialised Member State in value added terms with this sector accounting for 5.0% of manufacturing value added.

As with several other sectors in this chapter, the output price index was lower in 2000 than in 1995, having fallen by more than 2.0% in each year since 1996. Of the three Member States with the largest activity in this sector only the Netherlands has seen an overall increase in prices during this period, rising by a total of 3.8%. German prices fell by a total of 12.2% and those in the United Kingdom by 19.3%.

EMPLOYMENT

There were 172.8 thousand persons working in this sector in the EU in 1997, 0.7% of total manufacturing employment. This figure represents a net reduction of 17.5 thousand in the number of persons employed since 1993. This fall was due essentially to a contraction in employment levels in Germany and Austria, where the number of persons employed fell by 17.0 thousand and 11.6 thousand persons respectively, outstripping the increases in the United Kingdom (5.6 thousand persons), France (5.3 thousand persons) and Sweden (1.8 thousand persons). The employment situation in Germany and Austria has since stabilised to a large extent and between 1997 and 1999 combined employment in these two Member States only fell by a further 1.1 thousand persons. France however recorded large losses in employment between 1997 and 1999 with a net fall of 7.2 thousand persons employed, equivalent to nearly 40% of the 1997 workforce.

Table 11.20

EU production value of selected products from CPA Group 32.3 (million EUR)

	PRODCOM code	Latest year for production	Value
Radio receivers motor vehicles with sound recording or reproducing apparatus	32.30.12.70	1997	1,142.3
Colour television projection equipment and video projectors	32.30.20.20	1998	289.4
Colour televisions with a video recorder or player	32.30.20.30	1998	136.5
Colour television receivers with integral tube (excluding television projection equipment, apparatus with a video recorder or player, video monitors)	32.30.20.50	1998	5,155.8
CD players, mains/personal (excluding combined with radio/ television receivers, cassette players or player/recorders, coin/disc-operated record-players, turntables)	32.30.31.79	1998	165.0
Cassette recorders (cassette player/recorders) (including recording personal stereos) (excluding those combined with a radio or television receiver, dictating machines, etc.)	32.30.32.75	1998	101.7
Video cassette recorders for magnetic tape of width <=1.3cm and with a tape speed <=50mm per second excluding those combined with television, or a built-in television camera	32.30.33.39	1998	796.2
Multiple loudspeakers mounted in the same enclosure (including frames or cabinets mainly designed for mounting loudspeakers)	32.30.42.37	1998	406.8
Loudspeakers (including speaker drive units, frames or cabinets mainly designed for mounting loudspeakers) (excluding those mounted in their enclosures)	32.30.42.39	1998	574.2
Audio-frequency electric amplifiers (including hi-fi amplifiers) (excluding high or intermediate frequency amplifiers, telephonic and measurement amplifiers)	32.30.43.59	1998	185.2
Portable receivers for calling or paging	32.30.44.50	1998	100.7
Telescopic and whip-type aerials for portable apparatus or for apparatus for fitting in motor vehicles	32.30.52.20	1998	228.8
Other aerials and parts	32.30.52.70	1998	2,496.0

Source: Eurostat, European production and market statistics (theme4/europrom)

EXTERNAL TRADE

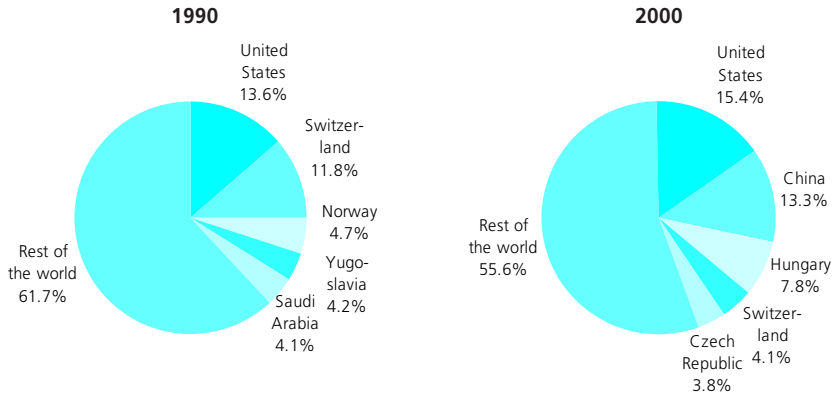
The trade deficit in consumer electronics contracted from 8.7 billion EUR in 1991 to 4.6 billion EUR in 1996 before expanding again to reach 11.5 billion EUR in 2000. Exports grew faster than imports on a year on year basis between 1992 and 1997 and the cover ratio (exports as a percentage of imports) rose from less than 30% in the early 1990s to exceed 50% since 1995, peaking at 63.3% in 1997.

Sweden (1.2 billion EUR) was the only Member State to record a trade surplus in excess of 1 billion EUR in 2000. The largest deficits were recorded by the largest Member States: Germany (3.8 billion EUR), the United Kingdom (2.4 billion EUR), France (2.1 billion EUR) and Italy (1.7 billion EUR).

Apart from the US (15.4%) and China (13.3%) the main destination for EU exports in 2000 was Central and Eastern Europe. Consumer electronics is one of the few groups of electronic products in which the US is not the main source of EU imports, ranking only fourth with 8.2% - Japan (27.9%), China (16.4%) and Hungary (8.3%) all accounted for a larger share in 2000. Compared to ten years earlier, the main change in the origin of imports is the increased supply of consumer electronics from Hungary, which in 1990 supplied only 0.4% of the EU's imports.

Figure 11.27

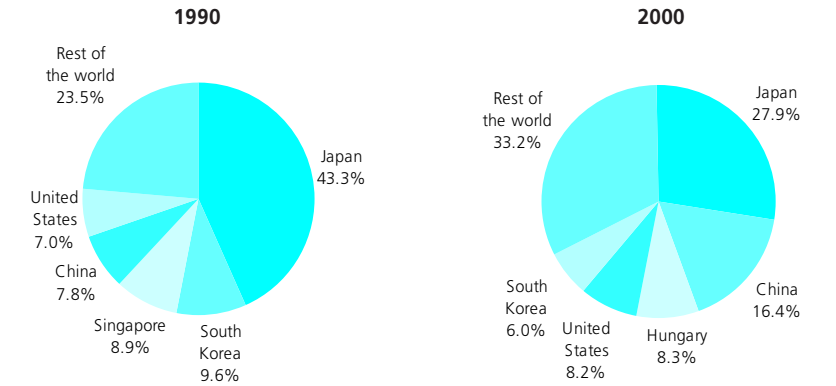
Television and radio receivers; sound or video recording or reproducing apparatus and associated goods (CPA Group 32.3)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.28

Television and radio receivers; sound or video recording or reproducing apparatus and associated goods (CPA Group 32.3)
Origin of extra-EU imports



Source: Eurostat, Comext

11.7: 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. The largest part of these activities concerns the manufacture of electrical appliances and so they are treated in this chapter rather than with the rest of NACE Division 29 in chapter 10.

The demand factors for domestic appliances are similar to those for consumer electronics: consumer confidence and product life-cycles. Product innovation is driven by reliability, safety, precision and to a limited extent, by design. Environmental issues are also an important factor as some of these appliances, such as washing machines, tend to be amongst the highest energy and water consuming appliances in a household; see also box 11.2 concerning end-of-life environmental concerns.

STRUCTURAL PROFILE

EU value added in 1999 reached 11.2 billion EUR[12] and was concentrated in Germany (4.0 billion EUR) and Italy (2.5 billion EUR, 1998).

Output prices for domestic appliances in the EU fell in 1999 by 0.2% but rose again in 2000 by 0.6%. Output prices for domestic appliances in 2000 stood 3.1% higher in the EU than in 1995 in contrast to the lower output prices recorded for consumer electronics and electrical machinery and optical equipment in general.

(12) DK, EL, I and NL, 1998; UK, 1997; L, no recent data available.

Table 11.21

EU production of selected products from CPA Group 29.7 and related indicators (thousands)

	PRODCOM code	Latest year	Production	Exports	Imports	Apparent consumption
Fridge-freezers, with separate external doors	29.71.11.10	1998	3,727.3	:	:	:
Refrigerators (excluding fitted)	29.71.11.33	1998	7,443.4	1,431.0	1,916.7	7,929.1
Chest freezers of a capacity <= 800 litres	29.71.11.50	1997	5,295.6	:	:	:
Upright freezers of a capacity <= 900 litres	29.71.11.70	1998	1,967.6	:	:	:
Dishwashers	29.71.12.00	1998	6,780.8	1,020.0	89.4	5,850.1
Fully-automatic washing machines of a dry linen capacity <= 10 kg (including washer-dryers)	29.71.13.30	1998	15,369.5	4,039.4	534.0	11,864.1
Non-automatic washing machines of a dry linen capacity <= 10 kg (including washer-dryers)	29.71.13.50	1998	1,479.9	155.6	21.7	1,345.9
Drying machines of a dry linen capacity <= 10 kg	29.71.13.70	1997	3,376.3	:	:	:
Electric blankets	29.71.14.00	1998	1,889.8	98.4	47.0	1,838.5
Electric vacuum cleaners with a self-contained motor for a voltage >= 110 V	29.71.21.13	1997	16,080.6	4,126.8	6,068.8	18,022.6
Food grinders, mixers and fruit or vegetable juice extractors, with a self-contained electric motor	29.71.21.70	1997	24,394.3	9,140.1	14,553.0	29,807.2
Shavers with a self-contained electric motor	29.71.22.30	1998	21,177.8	11,522.2	6,210.4	15,866.0
Electric steam irons	29.71.23.73	1998	20,411.7	5,746.9	13,894.0	28,558.7
Electric coffee or tea makers (including percolators)	29.71.24.30	1997	16,543.9	3,619.9	9,158.8	22,082.8
Deep fat fryers	29.71.24.93	1998	7,351.1	1,264.9	872.4	6,958.6
Electric instantaneous water heaters	29.71.25.30	1998	2,011.3	341.5	396.8	2,066.6
Electric water heaters including storage water heaters (excluding instantaneous heaters)	29.71.25.50	1998	9,736.7	3,733.4	5,037.2	11,040.6
Electric radiators (excluding storage heating apparatus and convection heaters)	29.71.26.53	1998	3,435.1	3,047.1	356.9	744.9
Electric heaters or fires with built-in fans (excluding convection heaters)	29.71.26.57	1998	3,558.7	2,231.9	1,784.6	3,111.3
Microwave ovens	29.71.27.00	1998	8,628.6	855.6	1,588.9	9,361.9
Electric cookers with at least an oven and a hob including combined gas-electric appliances	29.71.28.10	1997	4,673.6	511.7	535.7	4,697.5
Electric hobs to be fitted	29.71.28.33	1998	10,119.2	442.1	1,589.8	11,266.8
Electric ovens to be fitted	29.71.28.70	1998	4,288.6	377.2	223.0	4,134.4
Gas cooking appliances & plate warmers of iron or steel, with an oven	29.72.11.13	1998	3,554.5	1,165.9	267.7	2,656.3
Gas cooking appliances and plate warmers of iron or steel (excluding those with ovens)	29.72.11.15	1998	3,150.8	1,418.2	978.9	2,711.5
Solid fuel cooking appliances and plate warmers of iron or steel	29.72.11.50	1998	3,111.2	784.9	4,983.4	7,309.6

Source: Eurostat, European production and market statistics (theme4/europrom)

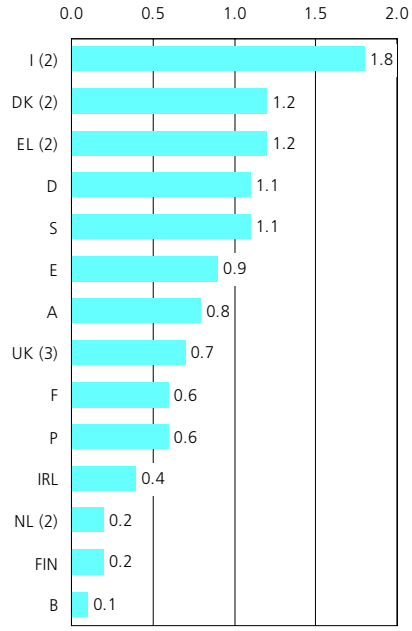
EMPLOYMENT

EU employment in this sector in 1999 was equal to 241.7 thousand persons, 3.2% lower than in 1998 and 20.2% lower than the 1991 peak of 302.9 thousand persons. Most of these longer term reductions in employment levels have been experienced in Germany, France and the United Kingdom, where the number of persons employed fell by 45.6 thousand, 6.5 thousand and 5.9 thousand respectively between 1991 and 1999[13]. Germany's share of EU employment fell from 38.2% in 1991 (it peaked at 38.3% in 1992) to 29.0% by 1999.

(13) UK, between 1991 and 1997.

Figure 11.29

Manufacture of domestic appliances n.e.c. (NACE Group 29.7)
Share of value added in manufacturing, 1999 (%) (1)



(1) L, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

EXTERNAL TRADE

Exports of domestic appliances from the EU were valued at 7.0 billion EUR in 2000, 1.6 billion EUR more than imports. The EU has run a trade surplus in these goods throughout the 1990s, peaking at 3.1 billion EUR in 1997. Italy (5.2 billion EUR), Germany (1.6 billion EUR) and Sweden (322 million EUR) were the only Member States to record a trade surplus (extra-EU and intra-EU combined) in 2000, with the United Kingdom recording the largest deficit (2.0 billion EUR).

The US accounted for 12.2% of the EU's exports and the five next largest export markets were all European: Poland (7.9%), Switzerland (7.4%), Russia (6.3%), Norway (5.4%) and Turkey (4.6%). Imports of domestic appliances were heavily dependent on China, which supplied more than one-third (36.5%) of the EU's imports in 2000.

Table 11.22

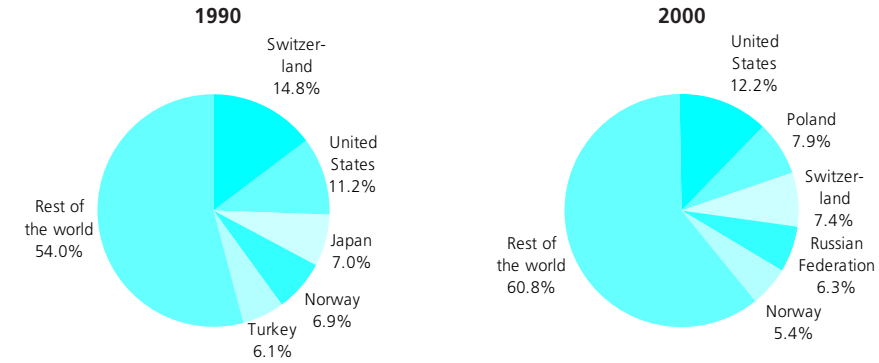
Domestic appliances n.e.c. (CPA Group 29.7)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	6,963	5,398	1,565	129.0
B	573	1,069	-495	53.7
DK	434	463	-29	93.6
D	5,530	3,998	1,532	138.3
EL	132	409	-276	32.3
E	1,335	1,468	-133	90.9
F	2,219	2,963	-745	74.9
IRL	212	364	-152	58.3
I	6,458	1,239	5,219	521.0
L	7	61	-54	11.6
NL	978	1,617	-639	60.5
A	547	796	-248	68.8
P	288	497	-209	58.0
FIN	186	407	-221	45.7
S	1,018	695	322	146.4
UK	1,185	3,209	-2,024	36.9

Source: Eurostat, Comext

Figure 11.30

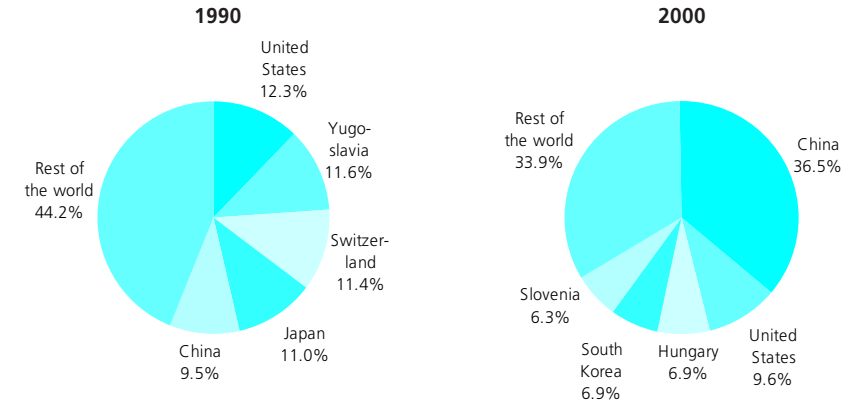
Domestic appliances n.e.c. (CPA Group 29.7)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 11.31

Domestic appliances n.e.c. (CPA Group 29.7)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 11.23

Manufacture of domestic appliances n.e.c. (NACE Group 29.7)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	136	772	10,544	206	2,737	3,745	235	9,091	:	307	544	389	175	1,305	3,871
Purchases of goods and services (million EUR)	122	567	8,539	195	2,351	3,525	138	6,862	:	310	351	323	126	1,014	2,867
Value added (million EUR)	51	246	4,012	90	827	1,067	99	2,532	:	95	240	111	60	455	1,322
Personnel costs (million EUR)	38	196	3,248	43	529	802	61	1,637	:	61	163	56	41	394	880
Number of persons employed (thousands)	1.2	5.9	70.0	2.4	21.1	25.7	2.7	55.8	:	:	4.7	4.5	1.5	10.6	36.0
Gross investment in tangible goods (million EUR)	6	:	432	:	124	:	17	:	:	:	:	:	6	:	:
Gross operating rate (%)	8.1	6.4	6.1	17.0	9.6	5.7	16.2	9.6	:	8.5	13.0	12.9	10.4	4.1	10.6
App. labour productivity (thous. EUR/pers. emp.)	44.1	41.9	57.3	37.8	39.3	41.5	36.7	45.4	:	:	51.5	25.0	41.0	42.8	36.8
Simple wage adjusted labour productivity (%)	134.9	125.5	123.5	209.0	156.3	133.0	161.3	154.7	:	155.5	147.1	200.2	147.2	115.3	150.3
Output price index (1995=100) (2)	:	:	98.9	113.0	104.2	102.8	:	106.0	:	108.3	:	104.2	112.5	114.4	105.8

(1) DK, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.24

Domestic appliances n.e.c. (CPA Group 29.7)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,649	2,790	3,185	3,788	4,255	4,993	5,775	6,616	6,343	5,993	6,963
Extra-EU imports (million EUR)	1,796	2,262	2,365	2,576	2,649	2,703	3,056	3,495	3,806	4,410	5,398
Trade balance (million EUR)	853	528	820	1,212	1,606	2,290	2,720	3,120	2,537	1,584	1,565
Cover ratio (%)	147.5	123.4	134.7	147.1	160.6	184.7	189.0	189.3	166.7	135.9	129.0

Source: Eurostat, Comext

Table 11.25

Manufacture of office machinery and computers (NACE Division 30)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	51,764	55,433	53,412	47,111	47,681	54,337	54,268	:	67,885	69,573	75,375
Purchases of goods and services (million EUR)	:	:	:	:	:	46,875	49,540	:	63,912	67,372	69,586
Value added (million EUR)	20,225	22,111	18,102	14,933	14,934	15,830	14,274	:	16,319	16,290	17,299
Personnel costs (million EUR)	12,142	14,352	14,131	11,651	10,572	10,103	9,229	:	10,417	10,066	10,250
Number of persons employed (thousands)	299	334	308	262	237	236	208	:	221	213	209
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	14.0	12.1	6.3	5.8	7.6	8.6	7.7	:	7.3	7.5	8.1
App. labour productivity (thous. EUR/pers. emp.)	67.7	66.2	58.8	57.1	63.0	67.1	68.5	:	73.7	76.5	82.9
Simple wage adjusted labour productivity (%)	166.6	154.1	128.1	128.2	141.3	156.7	154.7	:	156.7	161.8	168.8
Output price index (1995=100)	:	:	:	:	:	100.0	91.1	83.3	77.4	71.5	68.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.26

Office machinery and computers (CPA Division 30)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	8,262	9,058	9,334	11,435	13,410	15,352	16,537	19,587	21,446	24,049	31,269
Extra-EU imports (million EUR)	24,566	26,998	27,581	28,216	32,313	34,523	37,603	46,028	54,277	60,073	71,434
Trade balance (million EUR)	-16,304	-17,939	-18,248	-16,782	-18,903	-19,171	-21,066	-26,441	-32,831	-36,024	-40,165
Cover ratio (%)	33.6	33.6	33.8	40.5	41.5	44.5	44.0	42.6	39.5	40.0	43.8

Source: Eurostat, Comext

Table 11.27

Manufacture of electric motors, generators and transformers (NACE Group 31.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	16,844	17,514	:	:	:	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Value added (million EUR)	:	:	:	6,745	6,714	:	:	8,844	8,668	9,270	:
Personnel costs (million EUR)	:	:	:	5,310	5,417	:	:	6,352	6,202	6,730	:
Number of persons employed (thousands)	:	:	:	187	183	:	:	192	190	194	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	8.3	7.2	:	:	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	36.1	36.6	:	:	46.1	45.6	47.8	:
Simple wage adjusted labour productivity (%)	:	:	:	127.0	123.9	:	:	139.2	139.8	137.7	:
Output price index (1995=100)	:	:	:	:	:	100.0	101.6	101.9	102.4	101.9	102.1

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.28

Electric motors, generators and transformers (CPA Group 31.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,833	3,931	4,196	5,527	6,277	6,783	7,645	8,702	9,501	9,563	11,266
Extra-EU imports (million EUR)	2,441	2,766	2,854	3,080	3,668	4,330	4,579	6,164	6,997	7,595	9,633
Trade balance (million EUR)	1,393	1,165	1,341	2,447	2,609	2,453	3,066	2,537	2,504	1,968	1,633
Cover ratio (%)	157.1	142.1	147.0	179.4	171.1	156.7	167.0	141.2	135.8	125.9	116.9

Source: Eurostat, Comext

Table 11.29

Manufacture of electricity distribution and control apparatus (NACE Group 31.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,332	376	46,576	107	1,514	9,751	414	4,264	:	936	814	164	561	734	3,675
Purchases of goods and services (million EUR)	1,024	239	34,290	68	1,213	6,424	240	2,812	:	764	561	127	384	537	2,594
Value added (million EUR)	542	175	17,652	44	604	3,526	184	1,488	:	360	356	66	209	255	1,644
Personnel costs (million EUR)	423	116	14,954	27	352	2,664	91	952	:	246	259	43	142	189	1,190
Number of persons employed (thousands)	9.0	3.4	275.8	1.6	13.7	67.3	4.0	31.0	:	:	7.2	3.4	4.3	5.2	45.3
Gross investment in tangible goods (million EUR)	57	:	1,309	:	43	:	32	:	:	:	:	:	13	:	:
Gross operating rate (%)	7.8	14.9	5.1	16.9	14.1	8.6	21.9	13.0	:	10.6	10.3	12.5	11.3	8.6	10.6
App. labour productivity (thous. EUR/pers. emp.)	60.3	50.9	64.0	26.7	44.1	52.4	46.1	48.1	:	:	49.2	19.3	48.8	49.4	36.3
Simple wage adjusted labour productivity (%)	128.1	151.5	118.0	162.8	171.9	132.3	202.3	156.3	:	146.1	137.7	156.2	147.2	135.0	138.1
Output price index (1995=100) (2)	:	:	102.4	117.5	103.3	103.9	:	107.1	:	107.8	:	109.3	:	101.7	106.0

(1) DK, 1998; EL, I and P, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.30

Electricity distribution and control apparatus (CPA Group 31.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,539	5,088	5,471	6,232	7,317	8,154	9,084	10,466	11,165	11,427	13,585
Extra-EU imports (million EUR)	2,748	2,840	2,965	3,319	4,021	4,561	4,842	5,764	6,366	6,886	8,896
Trade balance (million EUR)	1,791	2,248	2,506	2,913	3,297	3,593	4,242	4,703	4,799	4,541	4,689
Cover ratio (%)	165.2	179.2	184.5	187.8	182.0	178.8	187.6	181.6	175.4	165.9	152.7

Source: Eurostat, Comext

Table 11.31

Manufacture of insulated wire and cable (NACE Group 31.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	14,040	15,370	:	:	17,238	16,002	16,637	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	13,118	12,021	12,658	:
Value added (million EUR)	:	:	:	4,525	4,869	:	:	4,833	4,637	4,708	:
Personnel costs (million EUR)	:	:	:	3,174	3,246	:	:	3,402	3,379	3,666	:
Number of persons employed (thousands)	:	:	:	108	108	:	:	106	108	111	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	9.2	10.2	:	:	8.0	7.5	6.0	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	41.7	45.0	:	:	45.7	43.0	42.5	:
Simple wage adjusted labour productivity (%)	:	:	:	142.6	150.0	:	:	142.1	137.2	128.4	:
Output price index (1995=100)	:	:	:	:	:	100.0	97.9	96.0	90.9	87.0	91.9

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.32

Insulated wire and cable (CPA Group 31.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,439	1,476	1,582	1,818	2,030	2,444	2,903	3,413	3,412	3,531	4,027
Extra-EU imports (million EUR)	964	1,061	1,065	1,100	1,307	1,688	1,809	2,129	2,377	2,770	3,845
Trade balance (million EUR)	475	415	517	718	722	756	1,094	1,284	1,036	761	182
Cover ratio (%)	149.2	139.1	148.5	165.3	155.2	144.8	160.5	160.3	143.6	127.5	104.7

Source: Eurostat, Comext

Table 11.33

Manufacture of accumulators, primary cells and primary batteries (NACE Group 31.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	4,761	5,053	5,003	5,184	5,411	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	3,592	3,804	3,985	:	:	:
Value added (million EUR)	:	:	:	1,752	1,784	1,625	1,734	1,846	:	:	:
Personnel costs (million EUR)	:	:	:	1,329	1,328	1,302	1,339	1,313	:	:	:
Number of persons employed (thousands)	:	:	:	42	41	37	:	36	35	33	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	8.2	8.3	6.0	7.1	9.1	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	41.5	43.4	43.9	:	51.0	:	:	:
Simple wage adjusted labour productivity (%)	:	:	:	131.8	134.3	124.8	129.5	140.6	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.5	99.4	94.9	92.1	91.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.34

Accumulators, primary cells and primary batteries (CPA Group 31.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	449	505	524	666	828	1,009	1,033	1,207	1,199	1,190	1,487
Extra-EU imports (million EUR)	604	767	787	921	1,236	1,473	1,477	1,922	1,987	2,190	2,895
Trade balance (million EUR)	-155	-262	-263	-255	-408	-464	-443	-715	-788	-1,000	-1,409
Cover ratio (%)	74.3	65.8	66.6	72.3	67.0	68.5	70.0	62.8	60.4	54.3	51.4

Source: Eurostat, Comext

Table 11.35

Manufacture of lighting equipment and electric lamps (NACE Group 31.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	9,831	9,867	9,921	9,526	10,039	10,330	10,447	11,875	12,406	12,457	:
Purchases of goods and services (million EUR)	:	:	:	:	:	7,320	7,757	8,671	9,059	8,978	:
Value added (million EUR)	4,087	4,055	4,026	3,962	4,100	4,165	4,128	4,729	4,871	4,978	:
Personnel costs (million EUR)	2,932	2,984	3,045	2,936	2,901	3,007	3,054	3,307	3,428	3,375	:
Number of persons employed (thousands)	130	122	118	109	105	109	105	112	114	113	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	10.6	9.7	8.7	9.5	10.5	9.9	9.0	10.6	10.4	11.5	:
App. labour productivity (thous. EUR/pers. emp.)	31.5	33.1	34.2	36.3	39.0	38.3	39.2	42.2	42.8	43.9	:
Simple wage adjusted labour productivity (%)	139.4	135.9	132.2	134.9	141.3	138.5	135.2	143.0	142.1	147.5	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.2	100.4	101.0	100.4	101.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.36

Lighting equipment and electric lamps (CPA Group 31.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,190	1,208	1,478	1,729	1,987	2,143	2,348	2,565	2,534	2,587	2,981
Extra-EU imports (million EUR)	791	949	1,078	1,313	1,505	1,660	1,777	2,096	2,445	2,884	3,553
Trade balance (million EUR)	399	259	400	415	482	483	571	469	89	-297	-571
Cover ratio (%)	150.4	127.3	137.2	131.6	132.0	129.1	132.1	122.4	103.7	89.7	83.9

Source: Eurostat, Comext

Table 11.37

Manufacture of electrical equipment n.e.c. (NACE Group 31.6)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	499	80	10,257	9	3,954	5,186	380	6,555	5	488	697	639	241	389	4,243
Purchases of goods and services (million EUR)	370	48	7,672	7	2,788	3,776	303	4,078	3	351	524	433	167	304	2,914
Value added (million EUR)	181	34	3,885	4	1,418	1,591	97	2,428	2	187	273	212	86	131	1,549
Personnel costs (million EUR)	140	31	3,108	2	915	1,216	64	1,619	1	110	182	163	58	97	1,150
Number of persons employed (thousands)	3.6	1.0	76.6	0.1	40.2	33.1	3.1	58.5	0.1	:	5.3	14.1	2.0	2.7	43.2
Gross investment in tangible goods (million EUR)	18	:	543	:	149	:	16	:	:	:	:	:	10	:	:
Gross operating rate (%)	7.7	4.2	6.7	17.6	12.2	6.8	8.5	12.8	7.9	14.5	11.6	7.7	11.3	7.8	8.9
App. labour productivity (thous. EUR/pers. emp.)	51.0	35.5	50.7	26.7	35.3	48.0	31.3	41.5	28.3	:	51.5	15.0	43.1	49.1	35.9
Simple wage adjusted labour productivity (%)	129.8	111.1	125.0	185.7	155.0	130.8	152.9	150.0	130.8	170.0	150.2	129.8	147.8	135.4	134.6
Output price index (1995=100) (2)	:	:	104.0	128.8	109.8	89.3	:	109.9	:	106.6	:	:	:	:	94.3

(1) DK, 1998; L, 1997; EL and I, 1998, except for output price index; NL and UK, 1997, except for output price index. (2) 2000, except for EL.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.38

Electrical equipment n.e.c. (CPA Group 31.6)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	2,657	2,717	2,810	3,371	3,806	4,472	5,241	6,227	6,231	6,914	8,814
Extra-EU imports (million EUR)	2,858	3,490	3,482	4,080	5,658	7,051	6,998	7,737	8,505	9,734	13,458
Trade balance (million EUR)	-201	-773	-672	-709	-1,852	-2,579	-1,757	-1,510	-2,274	-2,820	-4,644
Cover ratio (%)	93.0	77.9	80.7	82.6	67.3	63.4	74.9	80.5	73.3	71.0	65.5

Source: Eurostat, Comext

Table 11.39

Manufacture of electronic valves and tubes and other electronic components (NACE Group 32.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	15,342	18,638	:	:	29,886	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	21,894	:	:	:
Value added (million EUR)	:	:	:	6,618	7,781	:	:	11,648	:	:	:
Personnel costs (million EUR)	:	:	:	4,675	5,015	:	:	7,247	:	:	:
Number of persons employed (thousands)	:	:	:	173	179	:	:	224	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	11.5	13.4	:	:	13.2	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	38.3	43.5	:	:	51.9	:	:	:
Simple wage adjusted labour productivity (%)	:	:	:	141.6	155.2	:	:	160.7	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	97.3	93.8	91.3	89.3	90.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.40

Electronic valves and tubes and other electronic components (CPA Group 32.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,074	4,808	4,987	6,670	8,470	10,523	11,902	14,702	16,004	18,491	28,755
Extra-EU imports (million EUR)	7,910	8,878	9,174	11,847	15,695	18,589	19,352	22,259	23,678	26,575	47,094
Trade balance (million EUR)	-3,835	-4,070	-4,187	-5,176	-7,224	-8,067	-7,450	-7,557	-7,674	-8,084	-18,338
Cover ratio (%)	51.5	54.2	54.4	56.3	54.0	56.6	61.5	66.1	67.6	69.6	61.1

Source: Eurostat, Comext

Table 11.41

Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy (NACE Group 32.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	37,251	41,379	:	:	66,472	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	48,265	:	:	:
Value added (million EUR)	:	:	:	14,535	15,192	:	:	22,811	:	:	:
Personnel costs (million EUR)	:	:	:	11,295	11,575	:	:	14,117	:	:	:
Number of persons employed (thousands)	:	:	:	307	305	:	:	314	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	8.0	8.0	:	:	12.4	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	47.3	49.9	:	:	72.6	:	:	:
Simple wage adjusted labour productivity (%)	:	:	:	128.7	131.2	:	:	161.6	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	99.1	98.8	97.8	95.7	92.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.42

Television and radio transmitters; apparatus for line telephony and telegraphy (CPA Group 32.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,063	4,779	5,399	6,529	8,704	10,573	13,090	16,547	18,648	21,681	30,928
Extra-EU imports (million EUR)	4,285	5,425	5,390	5,232	5,896	6,744	8,176	8,334	10,947	14,771	24,869
Trade balance (million EUR)	-222	-646	9	1,297	2,808	3,829	4,913	8,214	7,700	6,910	6,059
Cover ratio (%)	94.8	88.1	100.2	124.8	147.6	156.8	160.1	198.6	170.3	146.8	124.4

Source: Eurostat, Comext

Table 11.43

Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods (NACE Group 32.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	22,823	24,994	27,472	:	30,013	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	26,785	:	31,168	:	:	:
Value added (million EUR)	:	:	:	7,573	7,896	8,089	:	8,215	:	:	:
Personnel costs (million EUR)	:	:	:	5,903	6,120	6,068	:	6,010	:	:	:
Number of persons employed (thousands)	:	:	:	190	188	179	:	173	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	5.6	5.5	5.8	:	5.6	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	39.8	41.9	45.3	:	47.5	:	:	:
Simple wage adjusted labour productivity (%)	:	:	:	128.3	129.0	133.3	:	136.7	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	99.7	97.1	94.6	91.4	89.5

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.44

Television and radio receivers; sound or video recording or reproducing apparatus and associated goods (CPA Group 32.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	3,075	2,938	3,052	3,627	4,425	5,356	6,552	8,610	8,315	8,658	11,726
Extra-EU imports (million EUR)	10,947	11,685	10,473	10,460	10,809	10,272	11,112	13,599	14,916	16,935	23,240
Trade balance (million EUR)	-7,873	-8,747	-7,421	-6,833	-6,384	-4,917	-4,560	-4,989	-6,601	-8,277	-11,514
Cover ratio (%)	28.1	25.1	29.1	34.7	40.9	52.1	59.0	63.3	55.7	51.1	50.5

Source: Eurostat, Comext

Table 11.45

Manufacture of medical and surgical equipment and orthopaedic appliances (NACE Group 33.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	11,550	12,984	13,951	14,390	15,371	16,912	17,989	19,103	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	10,747	11,866	12,947	:	:	:
Value added (million EUR)	5,514	6,166	6,606	6,913	7,473	7,790	8,407	8,606	:	:	:
Personnel costs (million EUR)	4,030	4,520	4,838	4,921	5,178	5,468	5,659	5,962	:	:	:
Number of persons employed (thousands)	167	174	175	170	171	178	177	191	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	11.8	11.5	11.4	12.1	13.0	12.3	13.6	12.3	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	33.1	35.4	37.7	40.7	43.7	43.9	47.5	45.0	:	:	:
Simple wage adjusted labour productivity (%)	136.8	136.4	136.5	140.5	144.3	142.5	148.6	144.3	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.5	103.0	103.6	104.4	104.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.46

Medical and surgical equipment and orthopaedic appliances (CPA Group 33.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,117	4,600	4,855	5,748	6,192	6,714	7,340	8,305	9,049	10,172	12,515
Extra-EU imports (million EUR)	3,313	4,035	4,310	4,605	4,967	5,286	6,024	7,027	7,576	9,342	11,183
Trade balance (million EUR)	804	565	545	1,143	1,224	1,428	1,315	1,278	1,473	830	1,331
Cover ratio (%)	124.3	114.0	112.6	124.8	124.6	127.0	121.8	118.2	119.4	108.9	111.9

Source: Eurostat, Comext

Table 11.47

Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment (NACE Group 33.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	270	501	12,989	41	1,457	8,775	367	2,598	:	1,100	350	62	516	2,446	7,659
Purchases of goods and services (million EUR)	204	266	8,101	30	963	6,005	228	1,588	:	698	196	36	315	1,510	4,496
Value added (million EUR)	102	248	5,405	13	570	2,973	148	1,050	:	440	175	27	225	968	3,596
Personnel costs (million EUR)	84	174	4,582	10	350	2,633	56	700	:	316	138	17	138	642	2,272
Number of persons employed (thousands)	2.0	4.6	103.0	0.7	11.1	53.9	2.0	20.0	:	:	3.5	1.2	4.1	13.9	72.4
Gross investment in tangible goods (million EUR)	21	:	483	:	24	:	8	:	:	:	:	:	47	:	:
Gross operating rate (%)	5.9	14.6	6.1	7.5	14.7	3.8	25.0	13.7	:	11.8	10.3	16.8	16.7	13.2	16.1
App. labour productivity (thous. EUR/pers. emp.)	52.1	53.6	52.5	19.8	51.2	55.2	75.7	52.5	:	:	49.3	22.3	54.4	69.7	49.7
Simple wage adjusted labour productivity (%)	121.4	142.8	118.0	132.0	162.7	112.9	265.1	150.1	:	139.3	127.0	162.3	163.0	150.7	158.3
Output price index (1995=100) (2)	104.0	:	106.2	102.5	109.6	:	:	106.3	:	105.6	:	:	:	111.7	107.7

(1) DK, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.48

Instruments and appliances for measuring, checking, testing, navigating and other purposes (CPA Group 33.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	7,247	7,221	7,410	8,188	8,859	9,630	10,900	13,212	13,871	14,139	17,376
Extra-EU imports (million EUR)	6,889	7,446	7,281	7,262	7,810	8,213	9,112	10,295	11,529	12,211	15,909
Trade balance (million EUR)	358	-225	129	926	1,049	1,417	1,788	2,918	2,341	1,927	1,467
Cover ratio (%)	105.2	97.0	101.8	112.8	113.4	117.3	119.6	128.3	120.3	115.8	109.2

Source: Eurostat, Comext

Table 11.49

Manufacture of industrial process control equipment (NACE Group 33.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	7,369	7,965	4,741	5,481	:	7,074	7,949	:
Purchases of goods and services (million EUR)	:	:	:	:	:	3,098	3,514	:	4,602	5,344	:
Value added (million EUR)	:	:	:	3,147	3,311	1,819	2,144	:	2,685	2,964	:
Personnel costs (million EUR)	:	:	:	2,896	3,056	1,529	1,618	:	2,111	2,147	:
Number of persons employed (thousands)	:	:	:	84	82	40	:	:	53	53	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	3.3	3.1	6.0	9.7	:	7.9	9.9	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	37.7	40.2	45.6	:	:	50.6	55.9	:
Simple wage adjusted labour productivity (%)	:	:	:	108.7	108.3	119.0	132.5	:	127.2	138.1	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.50

Manufacture of optical instruments and photographic equipment (NACE Group 33.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	6,278	6,826	7,131	6,821	7,389	7,891	:	8,632	9,340	9,510	:
Purchases of goods and services (million EUR)	:	:	:	:	:	4,826	:	5,452	6,010	6,181	:
Value added (million EUR)	2,887	3,309	3,341	3,254	3,439	3,639	:	:	4,121	4,285	:
Personnel costs (million EUR)	2,447	2,617	2,692	2,620	2,603	2,674	:	2,623	2,892	2,980	:
Number of persons employed (thousands)	104	103	101	94	91	84	:	82	85	84	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	6.8	9.8	8.6	8.6	10.5	11.3	:	:	12.3	12.6	:
App. labour productivity (thous. EUR/pers. emp.)	27.7	32.0	33.0	34.7	37.7	43.2	:	:	48.3	51.2	:
Simple wage adjusted labour productivity (%)	118.0	126.4	124.1	124.2	132.1	136.1	:	:	142.5	143.8	:
Output price index (1995=100)	85.1	89.9	93.2	96.2	98.0	100.0	101.7	102.7	103.8	103.9	104.8

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.51

Optical instruments and photographic equipment (CPA Group 33.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,912	1,991	2,171	2,482	2,716	3,088	3,580	4,327	4,513	4,912	7,166
Extra-EU imports (million EUR)	2,828	3,141	3,112	3,190	3,523	3,690	4,079	4,449	4,930	5,657	7,905
Trade balance (million EUR)	-916	-1,150	-941	-708	-806	-601	-499	-122	-418	-744	-739
Cover ratio (%)	67.6	63.4	69.8	77.8	77.1	83.7	87.8	97.3	91.5	86.8	90.6

Source: Eurostat, Comext

Table 11.52

Manufacture of watches and clocks (NACE Group 33.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	1,753	1,606	1,638	1,455	1,511	1,425	1,435	1,240	1,367	1,331	:
Purchases of goods and services (million EUR)	:	:	:	:	:	1,002	1,030	913	975	933	:
Value added (million EUR)	685	623	650	619	623	544	540	471	504	517	:
Personnel costs (million EUR)	576	549	558	497	494	447	423	404	399	396	:
Number of persons employed (thousands)	26	24	23	19	18	15	:	:	14	14	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	5.9	4.3	5.2	7.7	8.0	6.2	7.5	4.8	6.9	8.2	:
App. labour productivity (thous. EUR/pers. emp.)	26.5	26.5	28.5	32.8	34.6	35.2	:	:	37.1	38.0	:
Simple wage adjusted labour productivity (%)	118.9	113.5	116.5	124.5	126.1	121.7	127.7	116.6	126.3	130.6	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.2	101.2	102.3	104.2	105.0

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 11.53

Watches and clocks (CPA Group 33.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	1,016	991	1,029	1,113	1,259	1,360	1,299	1,441	1,327	1,354	1,575
Extra-EU imports (million EUR)	2,626	2,825	2,883	2,971	3,155	3,209	3,219	3,647	3,936	3,978	4,347
Trade balance (million EUR)	-1,609	-1,835	-1,853	-1,857	-1,896	-1,849	-1,920	-2,206	-2,609	-2,623	-2,772
Cover ratio (%)	38.7	35.1	35.7	37.5	39.9	42.4	40.4	39.5	33.7	34.0	36.2

Source: Eurostat, Comext

Transport equipment

The manufacture of transport equipment is an integral part of the economy as it provides the means for goods and individuals to circulate. Together these activities generated 159 billion EUR of value added in 2000, some 12.0% of the EU manufacturing total.

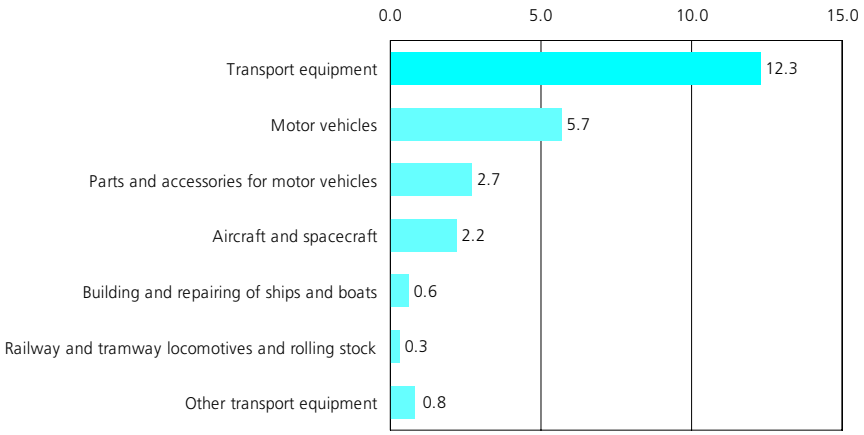
The manufacture of transport equipment is an important source of demand for a number of upstream activities including metals, rubber, plastics, electronics and engineering services. Demand for transport equipment may be split between that derived from individuals (whose purchases are strongly linked to consumer confidence), that from transport service providers (which often fluctuates as a result of public administration and private sector contract awards for ships, railway rolling stock and aircraft) and that derived from other businesses for their own transport needs (for example, delivery vehicles and car fleets).

STRUCTURAL PROFILE

Motor vehicles dominate transport equipment activities in the EU, with value added in 1999 equal to 69.1 billion EUR, almost half (46.3%) of the transport equipment total. The second largest transport equipment activity in the EU was motor vehicle parts and accessories that accounted for 22.2% of value added, whilst 18.3% of value added was generated by the manufacture of aircraft and spacecraft. The remaining activities each accounted for less than 5% of the transport equipment total.

Figure 12.1

Manufacture of transport equipment (NACE Subsection DM)
Share of manufacturing value added in the EU, 1999 (%)



(1) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

The activity of transport equipment manufacture can be split into two main parts: NACE Division 34 covering the manufacture of motor vehicles and NACE Division 35 that includes the manufacture of other transport equipment, namely ships, railway rolling stock, aircraft and spacecraft, motorcycles and bicycles. For activities with a relatively low share of transport equipment value added (railway rolling stock, motorcycles and bicycles) some details are given in this overview, whilst the remaining transport equipment activities are described in more detail in sub-chapters 12.1 to 12.4.

NACE

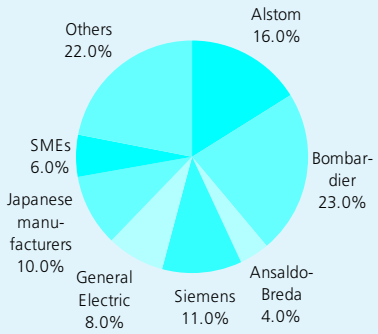
34: manufacture of motor vehicles, trailers and semi-trailers;
34.1: manufacture of motor vehicles;
34.2: manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers;
34.3: manufacture of parts and accessories for motor vehicles and their engines;
35: manufacture of other transport equipment;
35.1: building and repairing of ships and boats;
35.2: manufacture of railway and tramway locomotives and rolling stock;
35.3: manufacture of aircraft and spacecraft;
35.4: manufacture of motorcycles and bicycles;
35.5: manufacture of other transport equipment n.e.c.

Box 12.1: railway rolling stock

The largest company in the high-speed train market is Alsthom (F), manufacturer of the Train à Grande Vitesse (TGV).

Figure 12.2

Most important railway rolling stock manufacturers in the world, 1998/1999 (share of total sales)



Source: UNIFE

Railways are sometimes cited as part of the answer to sustainable development within the transport sector and governments may increasingly turn to rail as a solution for road congestion and pollution. In many countries consumers remain to be convinced about substituting rail travel for their preferred means of transport, the car.

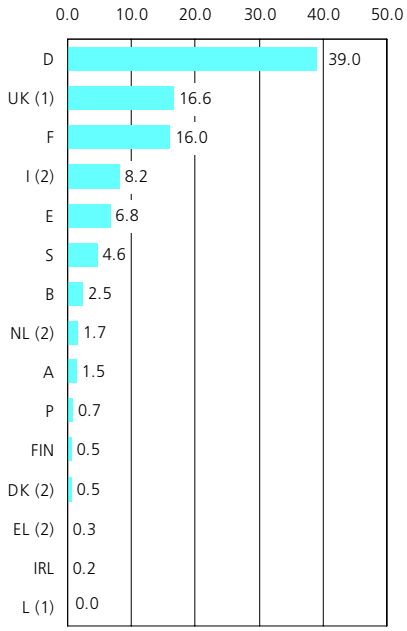
The EU's railway equipment manufacturers have been faced with severe difficulties for several decades, as productivity gains have not compensated falling price levels. UNIFE estimates that at some time during the period 1996-1999, half of the EU's large rail equipment manufacturers were operating at or below breakeven. This view is supported by SBS data, which reveals that value added in constant prices fell by 21.6% between 1997 and 1998. Nevertheless, EU suppliers of railway equipment accounted for nearly 60% of the activity's global turnover in 1999, with the expansion of the Trans-European High-Speed Rail Network initiative providing a stimulus for EU manufacturers; EU value added was up 32.6% in constant price terms between 1998 and 1999.

In general, economic cycles associated with the manufacture of transport equipment have greater amplitude than those for manufacturing. During the 1993 recession, EU manufacturing value added in constant prices declined by 4.3%, while the corresponding figure for transport equipment was -13.5%. On the other hand, annual growth rates of constant price value added for the EU's transport equipment industry were above the corresponding rates for manufacturing in 1994, 1995, 1997 and 1998. In the late 1990s, transport equipment output rose by 2.8% in 1999 and 6.2% in 2000 (in constant price terms) which was at a similar pace to the manufacturing average.

Figure 12.3

Manufacture of transport equipment (NACE Sub-section DM)

Share of value added in the EU, 1999 (%)



(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Among the Member States, Germany had the largest share of transport equipment output in 1999, some 39.0% of EU value added, equivalent to 58.1 billion EUR. Transport equipment was one of the largest manufacturing activities in Germany, responsible for 16.4% of manufacturing value added.

Table 12.1

Manufacture of transport equipment (NACE Subsection DM)

Main indicators in the EU, growth rates (%) (1)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	5-year AAGR	10-year AAGR
Value added in constant prices												
Manufacturing	-0.4	-0.7	-4.3	5.5	-1.6	2.4	5.6	3.3	3.7	5.8	4.1	1.9
Manufacture of transport equipment	-2.4	-1.3	-13.5	7.1	0.8	1.6	14.3	3.7	2.8	6.2	5.6	1.7
Production in constant prices												
Manufacturing	-0.3	-0.4	-5.9	5.7	4.0	4.6	6.9	3.3	3.8	5.7	4.9	2.7
Manufacture of transport equipment	-1.9	1.4	-14.2	8.9	5.8	8.6	13.0	6.7	10.2	7.5	9.2	4.3
Number of persons employed												
Manufacturing	-0.9	-3.4	-6.4	-2.3	0.9	-0.9	0.8	0.7	0.0	1.2	0.3	-1.1
Manufacture of transport equipment	-1.9	-3.2	-7.6	-3.9	1.5	-0.5	0.7	1.8	0.6	0.7	0.7	-1.2

(1) AAGR (average annual growth rates) are given with respect to the latest published year for each activity.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Box 12.2: motorcycles and mopeds

Demand for motorcycles and mopeds is in part driven by demographic factors, such as the age composition of the population, as young persons may choose to buy a moped before they are able to purchase a car. Another important determinant of demand is climate, with relatively more powered two-wheelers in use in southern Europe - see table 12.2.

ACEM estimate that there were almost two million mopeds and motorcycles made in the EU in 1999 and of these more than half (53.4%) were manufactured in Italy - see figure 12.4. Indeed, some of the most famous (European) names in motorcycle manufacture are Italian: Ducati, Piaggio Group (makers of the Vespa), Cagiva Group and Aprilia (that purchased Moto Guzzi in 2000).

PRODCOM data provides a more detailed breakdown of production, showing that there were almost 350 thousand small scooters and motorcycles (with an engine capacity greater than 50cc and less than or equal to 250cc) produced in the EU in 1998.

Table 12.2

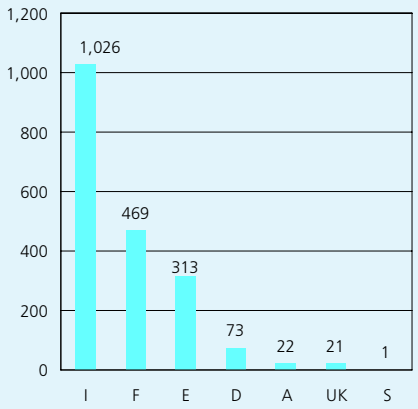
Moped and motorcycle use per 100 inhabitants, 1999 (thousands)

	Mopeds in use	Motorcycles in use
B (1)	:	2.4
DK	:	:
D	2.1	4.1
EL	:	:
E	5.6	3.7
F	2.4	1.6
IRL	:	:
I	11.1	5.8
L	:	:
NL (2)	3.5	2.6
A (2)	4.3	3.2
P	:	:
FIN	:	:
S	1.7	1.8
UK	0.3	1.7

(1) 1998.
(2) 1999.
Source: ACEM

Figure 12.4

Moped and motorcycle production, 1999 (thousands)



Source: ACEM

The EU output price index for transport equipment rose by 3.8% in total between 1995 and 2000, well below the 6.5% manufacturing average. This difference could be largely attributed to the price of goods within the motor vehicle parts and accessories branch, which remained at 1995 levels, probably as a result of increasing pressure from large motor vehicle manufacturers on their supply chains.

Given the large capital costs associated with producing transport equipment, it is not surprising to find that large enterprises (with 250 or more persons employed) accounted for a relatively high share of value added. In France, Austria, Sweden (1999), Belgium, Spain (1998) and the United Kingdom (1997), large enterprises accounted for more than 80% of the value added generated in this sector - at least 20 percentage points above their respective manufacturing averages[1].

(1) D, IRL, L, NL and P, not available.

FOREIGN DIRECT INVESTMENT AND INTANGIBLES

There was a stock of 21.0 billion EUR of FDI in the EU's transport equipment sector in 1999, with some 82.7% of it originating from the United States.

Total intramural R&D expenditure for the manufacture of motor vehicles (NACE Division 34) was 12.9 billion EUR in 1998[2]. In contrast, R&D expenditure for other transport equipment activities (NACE Division 35) was 7.7 billion EUR[3] with research concentrated within the manufacture of aircraft and spacecraft.

(2) BB, E, F, I, NL, FIN and UK, 1998; D, EL, IRL, P and S, 1997; DK, L and A, not available.
(3) B, DK, E, F, I, FIN and UK, 1998; D, EL, IRL and P, 1997; L, NL, A and S, not available.

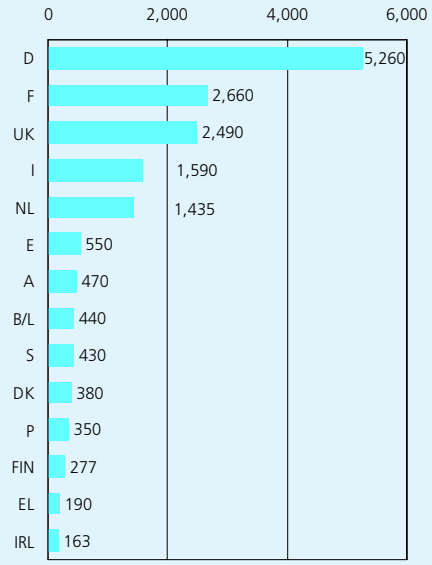
Box 12.3: bicycles

Bicycle use in northern Europe is considerably higher than it is in southern Europe, with people in Denmark and the Netherlands travelling more than 800 km per year by bicycle on average.

EBMA estimates that there were 16.7 million bicycles purchased in the EU in 2000, almost one-third of which were made in Germany - see figure 12.5. The EU is a net importer of bicycles and has faced a high degree of competition during the 1990s from south-east Asian manufacturers (notably from the Philippines, Bangladesh, Vietnam and China). Following a period of consolidation in the 1990s, the most important EU bicycle manufacturers include Cycleurope (S), Accell Group (NL) and Derby Cycle Corporation (D).

Figure 12.5

Bicycle consumption, 2000 (thousands)



Source: EBMA

Table 12.3

Manufacture of transport equipment (NACE Subsection DM)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15 (1)	62.3	:	:
B	58.3	44.7	130.3
DK (2)	41.7	33.5	124.5
D	61.0	52.3	116.7
EL (2)	28.4	24.5	116.2
E	47.8	30.4	157.3
F	62.5	42.7	146.5
IRL	45.3	29.0	156.2
I (2)	43.4	32.6	133.0
L (3)	38.7	24.7	156.5
NL	:	:	:
A	70.4	42.7	164.9
P	29.3	16.7	175.4
FIN	41.5	32.2	128.6
S	75.8	41.2	183.9
UK (3)	56.0	34.5	162.5

(1) 2000.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

LABOUR AND PRODUCTIVITY

There were 2.55 million persons employed in the EU's transport equipment sector in 2000. After significant reductions through until 1996, the number of persons employed grew uninterrupted up until 2000, with a net gain of almost 100 thousand persons employed over this four-year period.

As regards the relative shift in employment between transport activities over the period 1985 to 1999, there were net losses recorded for shipbuilding and railway rolling stock. However, the most significant change resulted from the out-sourcing of work by motor vehicle manufacturers, as the share of persons employed in the manufacture of motor vehicles parts and accessories rose from 17.2% of the transport equipment total in 1985 to 25.0% by 1999.

Germany was by far the largest transport equipment employer in the EU, accounting for 37.7% of the EU's workforce in 1999. The relative importance of the German labour force rose at a fairly uniform rate from 32.0% of the EU total in 1985. The largest absolute and relative declines were recorded in France (1985 to 1999) and the United Kingdom (1985 to 1997), with net losses of 145 and 146 thousand persons.

EXTERNAL TRADE

Transport equipment accounts for a particularly large share of the EU's external trade, some 17.5% of the manufactured goods that were exported to non-Community countries in 2000 (valued at 150 billion EUR). The EU ran a trade surplus of 43.9 billion EUR in 2000, which was a 72.2% increase on the year before. Only five of the Member States reported trade surpluses: the highest in Germany (58.6 billion EUR) and France (18.2 billion EUR), the others in Belgium (3.1 billion EUR), Sweden (2.6 billion EUR) and Spain (70.3 million EUR).

Motor vehicles accounted for 60.0% (or 90.1 billion EUR) of the EU's exports of transport equipment to non-Community countries in 2000. Aerospace products were the EU's other main export, accounting for 31.0% of exports (or 46.6 billion EUR). More than one-third (34.9%) of the EU's transport equipment exports were destined for the US.

Motor vehicles and aerospace also accounted for an overwhelming share of the EU's transport equipment imports, some 87.2% of the total in 2000. The main origin of imports was the US (34.0% of the total in 2000), whilst Japan was the only other country to report a double-digit share (18.7%). There was a significant reduction in the relative importance of Japanese transport equipment imports during the course of the last decade, as Japan had supplied 34.4% of the EU's imports in 1990. During the same period there was a marked increase in transport equipment imports originating from Eastern European countries (notably Hungary, the Czech Republic and Poland), as well as South Korea.

Table 12.4

Transport equipment (CPA Subsection DM)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	150,340	107,173	43,167	140.3
B	28,301	25,158	3,143	112.5
DK	2,370	5,218	-2,848	45.4
D	131,002	72,365	58,637	181.0
EL	330	4,667	-4,336	7.1
E	33,870	33,800	70	100.2
F	93,963	75,761	18,202	124.0
IRL	1,044	5,410	-4,366	19.3
I	29,925	34,868	-4,943	85.8
L	336	1,326	-990	25.4
NL	13,489	18,357	-4,868	73.5
A	11,925	12,387	-463	96.3
P	4,067	7,411	-3,344	54.9
FIN	2,977	3,580	-604	83.1
S	13,017	10,466	2,551	124.4
UK	38,719	47,853	-9,134	80.9

Source: Eurostat, Comext

Table 12.5

Transport equipment (CPA Subsection DM)
External trade for the EU, 2000 (million EUR))

	Exports	Imports	Trade balance	Cover ratio (%)
Manufacture of transport equipment	150,340	107,173	43,167	140.3
Manufacture of motor vehicles	64,708	35,124	29,583	184.2
Manufacture of bodies (coachwork) for motor vehicles; trailers and semi-trailers	1,860	874	987	212.9
Manufacture of parts, accessories for motor vehicles	23,565	14,458	9,107	163.0
Building and repairing of ships and boats	10,269	6,465	3,804	158.8
Manufacture of railway, tramway locomotives, rolling stock	1,906	1,208	698	157.8
Manufacture of aircraft and spacecraft	46,568	43,020	3,548	108.2
Manufacture of motorcycles and bicycles	1,361	5,512	-4,152	24.7
Manufacture of other transport equipment n.e.c.	103	513	-409	20.2

Source: Eurostat, Comext

12.1 MOTOR VEHICLES

The manufacture of motor vehicles, trailers and semi-trailers covers three NACE Groups. The first two are the subject of this sub-chapter: namely, the manufacture of motor vehicles (NACE Group 34.1) and the manufacture of bodies for motor vehicles, trailers and semi-trailers (NACE Group 34.2); the third (the manufacture of parts and accessories for motor vehicles, NACE Group 34.3) is covered in the next sub-chapter.

The manufacture of motor vehicles has inspired many new management theories and production methods throughout its history. Towards the end of the 20th Century there was a noticeable reduction in the degree of vertical integration that most motor vehicle manufacturers engaged in. As a result there were significant changes in the nature of relationships between manufacturers and suppliers of parts and accessories, as well as between manufacturers and their retail dealers (see sub-chapter 15.1).

One of the most significant manufacturing transformations is the reduced time it takes to go from the conception/design stage to the production of a car. These time reductions have been reinforced by cost reductions resulting from platform-sharing across different models and improvements in logistical co-ordination (JIT delivery of parts and accessories) and quality.

Box 12.4: passenger cars and commercial vehicles

The automotive industry is a highly concentrated, global industry dominated by the world's six largest producers (General Motors, Ford Motor, DaimlerChrysler, Toyota Motor, Volkswagen and Renault-Nissan). It is structured in the form of a pyramid, with vehicle manufacturers at its pinnacle and suppliers of parts and accessories making up the lower tiers. Over 80% of the world's car production is accounted for by these six companies (if one includes the other makes in which they have significant holdings - see table 12.6). According to the Fortune 500, DaimlerChrysler was the fifth largest company in the world in 2000 and the largest in the EU on the basis of sales, whilst Volkswagen ranked as the sixth largest in the EU and Fiat the 16th largest.

Table 12.6

Breakdown of motor vehicle production in the EU by manufacturer, 2000 (units)

	Passenger cars	Light commercial vehicles	Trucks	Buses and coaches	Total
Total	14,906,666	1,777,502	417,235	35,314	17,136,717
Volkswagen AG	3,004,243	172,947	-	-	3,177,190
PSA Peugeot Citroën	2,204,205	455,868	-	-	2,660,073
Ford of Europe INC (1)	1,980,069	216,927	-	-	2,196,996
Renault SA	1,652,129	300,189	50,805	2,547	2,005,670
GM Europe	1,817,118	92,374	-	-	1,909,492
Fiat-Iveco	1,373,426	249,541	70,506	4,229	1,697,702
DaimlerChrysler AG	1,145,938	191,087	95,678	7,187	1,439,890
BMW AG	709,633	-	-	-	709,633
MG Rover Group	174,776	-	-	-	174,776
Man Nutzfahrzeuge AG	-	11	63,885	5,121	69,017
Volvo Trucks	-	-	48,347	6,090	54,437
Porsche	51,574	-	-	-	51,574
Scania AB	-	-	42,404	2,082	44,486
DAF Trucks NV	-	-	39,762	1,677	41,439
Other European manufacturers	36,798	24,174	1,192	6,381	68,545
Japanese manufacturers	756,757	74,384	4,656	-	835,797

(1) Including Volvo car production.
Source: ACEA

Demand for commercial vehicles is highly correlated with industrial output and investment in plant and machinery. Demand has been stimulated as a result of an expansion of the road haulage industry in the EU, which has grown at a rapid pace during the last two decades (see sub-chapter 17.2).

Whilst the EU's car manufacturers face stiff competition from the US and Japan, Volvo, DaimlerChrysler, VW-Scania, Iveco and MAN are amongst the leading manufacturers of commercial vehicles. There are three main markets for commercial vehicles and by far the most important of these is light commercial vehicles (that weigh less than 3.5 tonnes), the others being articulated lorries (or heavy goods vehicles) and buses and coaches.

Box 12.5: regulatory constraints

Motor vehicle manufacturers face increasingly strict regulations concerning safety and environmental protection that are being developed within the framework of a single set of global vehicle construction regulations under the auspices of the UN. Over 90 European Directives are in place regulating the construction and functioning of motor vehicles. Of these, perhaps the most important are so-called "framework directives" that ensure the conformity of production (COP) of vehicles, systems and components. Progressive improvements in the design, standards and availability of safety equipment have increased the level of protection offered to consumers, with the introduction of airbags (front and side) and anti-lock braking systems now standard on many cars. There has also been a marked downturn in auto-crime in the EU, as new passenger cars are equipped with sophisticated alarms, immobilisers and/or vehicle tracking systems.

Since 1970 nine major EU Directives have tightened the limits on vehicle emissions. The EU's motor industry has entered into a voluntary agreement with the European Commission to cut carbon dioxide emission levels to 140 g/km by 2008 from a 1995 baseline of 186 g/kg. Other environmental cost savings have been made throughout a vehicle's life-cycle, from the energy required to produce it, to increased fuel efficiency whilst it is on the road, to a 75% recycling rate (in terms of its weight) when it is scrapped.

Details concerning the end of the block exemption for motor retailers are provided in sub-chapter 15.1.

Box 12.6: number of vehicles produced in the second half of the 1990s

In terms of the number of units produced, ACEA estimates that Germany produced approximately one-third of the 14.9 million passenger cars made in the EU in 2000This represented a 0.2% reduction when compared to the 1999 EU total, although the number of light commercial vehicles (9.9%), heavy goods vehicles (5.8%) and buses and coaches (4.5%) being produced rose - see table 12.7.

Table 12.7

Breakdown of motor vehicle production in the EU (thousands)

	1995	1996	1997	1998	1999	2000
Total	14,333.6	14,796.8	15,392.8	16,600.3	16,978.4	17,136.7
Passenger cars	12,636.1	13,061.3	13,451.3	14,510.5	14,933.5	14,906.7
Light commercial vehicles	1,318.5	1,393.2	1,570.3	1,675.3	1,616.9	1,777.5
Trucks	348.6	310.2	334.6	379.1	394.2	417.2
Buses and coaches	30.5	32.0	36.7	35.4	33.8	35.3

Source: ACEA

STRUCTURAL PROFILE

The manufacture of motor vehicles (NACE Group 34.1) generated 69.1 billion EUR of value added in the EU in 1999 (no recent data are available for the manufacture of bodies, trailers and semi-trailers - NACE Group 34.2 - which is excluded from the analysis that follows). Motor vehicle output in the EU fell in constant price terms between 1989 and 1999 from 71.0 billion EUR of value added to 66.6 billion EUR, probably due to the increasing importance of parts and accessories sub-contractors.

Germany accounted for almost half (47.5%) of the EU's value added generated through the manufacture of motor vehicles (NACE Group 34.1). Almost a tenth (9.8%) of German manufacturing value added was derived in the motor vehicles' sector in 1999, a share that was surpassed only in Sweden (11.9%) - where both passenger cars and commercial vehicles are made.

EMPLOYMENT

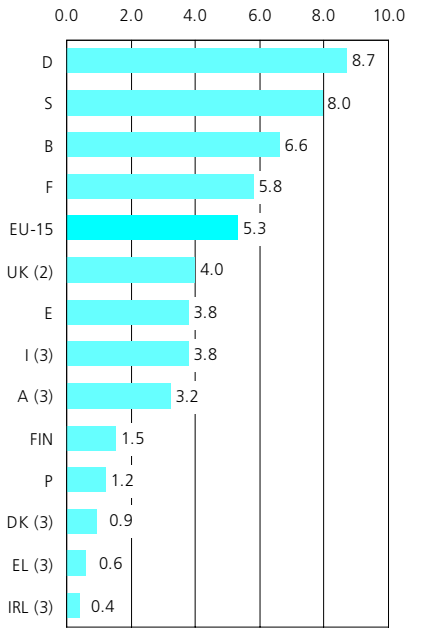
There were 1.25 million persons producing motor vehicles, bodies, trailers and semi-trailers (NACE Groups 34.1 and 34.2) in the EU in 1999, equivalent to 5.3% of the manufacturing workforce. Germany was the only country to report that this activity accounted for an increasing share of national manufacturing employment between 1990 and 1999[4].

There were substantial differences in average personnel costs per employee between the manufacture of motor vehicles and the manufacture of bodies. They were below manufacturing averages for the manufacture of bodies in every country, whilst (other than in Finland) they were consistently above manufacturing averages for the production of motor vehicles, most notably in Germany (14.1 thousand EUR per employee higher than the manufacturing average) and Portugal (11.1 thousand EUR higher).

(4) DK, EL, IRL and I, 1990-1998; UK, 1990-1997; B, L, NL and A, not available.

Figure 12.6

Motor vehicles (NACE Groups 34.1 and 34.2) Share of number of persons employed in manufacturing, 1999 (%) (1)



(1) L and NL, not available.
(2) 1997.
(3) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

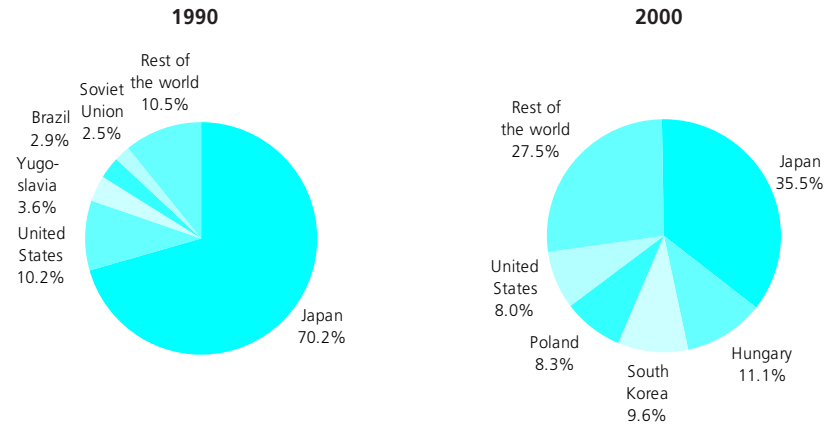
EXTERNAL TRADE

EU exports of motor vehicles and bodies (66.6 billion EUR) to non-Community countries in 2000 had almost twice the value of imports (35.9 billion EUR). Germany was the EU's main exporter and ran a sizeable trade surplus of 48.7 billion EUR in 2000 for these products in terms of trade with the rest of the world (intra and extra-EU).

More than one-third of the EU's imports of motor vehicles and bodies came from Japan (35.5%) in 2000, whilst more than a tenth were from Hungary (11.1%). The US was only the fifth most important origin of imports, while it was the most important destination for EU exports (34.7% of the total). These figures reflect not only consumer's preferences, but also the low level of production in the US by EU manufacturers (other than DaimlerChrysler) and the high level of production in the EU by Ford and General Motors.

Figure 12.7

Motor vehicles (CPA Groups 34.1 and 34.2)
Origin of extra-EU imports



Source: Eurostat, Comext

12.2 MOTOR VEHICLE PARTS AND ACCESSORIES

The third NACE Group within the manufacture of motor vehicles covers the manufacture of parts and accessories (NACE Group 34.3). The data presented in this sub-chapter do not relate to the manufacture of tyres, batteries or electrical equipment.

The structure of the parts and accessories industry is in direct contrast to the one that it supplies, as there are thousands of small enterprises forming a supply pyramid up to the motor vehicle manufacturers. Within this pyramid it is possible to distinguish between tier-one suppliers that assemble entire systems (like ABS and steering) and tier-two and tier-three suppliers that provide the components required for assembling these systems. CLEPA estimate that over one thousand suppliers are currently used in the construction of a European motor vehicle. Many of the largest global suppliers of vehicle parts and accessories are American, including Delphi Automotive Systems, Denso, TRW, Johnson Controls, Lear and Dana. Leading European manufacturers include Robert Bosch, ZF, Sachs, Siemens and VDO (all D), Magnetti-Marelli (I) and Valeo (F).

The relationship between vehicle manufacturers and suppliers of parts and accessories has been revolutionised by the Internet. There a number of intra-industry initiatives, the most high-profile being Covisint, which is a system with more than 40 parts suppliers of original equipment that was created by Ford Motor, General Motors, DaimlerChrysler and Renault, with the aim of streamlining logistics/delivery of parts and accessories.

The motor vehicle parts and accessories sector is witnessing a form of consolidation, as suppliers merge or acquire to either grow or diversify into related components and systems in response to the increased bargaining power of large vehicle manufacturers. Indeed, the demands of vehicle manufacturers for price reductions, quality improvements and faster deliveries have gathered apace in recent years.

Demand for vehicle parts and accessories can be split into the distinct markets of original equipment (OE) and replacement parts, otherwise known as the after-market (AM). While OE supply to vehicle manufacturers has generally been transformed, resulting in a lower number of suppliers providing complete systems or modules, the after-market continues to be based on a large number of enterprises supplying individual components. OE demand for certain parts and accessories may rise quickly once an item is accepted as a standard feature on vehicles; and penetration rates will increase but then flatten as the market moves towards saturation. AM demand is usually more stable, as it is largely driven by the necessity to change a faulty or worn part. The after-market is serviced by original suppliers of parts and by manufacturers of duplicates. Although the potential market is very large because of the number of vehicles in circulation, market growth is relatively slow, as the replacement parts market is adversely affected by the higher quality of vehicles, the longevity of parts, and a reduction in the average age of cars on the road. CLEPA estimates that the global market for the automotive parts and accessories was split 77.6% for OE sales and 22.4% for after-market sales in 2000.

STRUCTURAL PROFILE

The manufacture of motor vehicle parts and accessories in the EU generated 33.1 billion EUR of value added in 1999, equivalent to 22.2% of the transport equipment total. Vehicle parts and accessories was one of the fastest growing manufacturing activities within the EU, with value added at constant prices rising on average by 5.2% per annum between 1989 and 1999.

As with the manufacture of motor vehicles, Germany produced almost half (45.7%) of the EU's motor vehicle parts and accessories in 1999. The German share of EU value added rose by 3.1 percentage points between 1990 and 1999, whilst French manufacturers saw their share fall by 6.2 percentage points over the same period to 13.4%.

According to PRODCOM data in value terms, some of the most important parts and accessories produced for sale in the EU in 1998 included brakes (6.8 billion EUR), gear boxes (5.5 billion EUR), silencers and exhaust pipes (3.7 billion EUR) and steering wheels, columns and boxes (2.8 billion EUR)[5].

The pressure exerted by vehicle manufacturers on their suppliers of parts and accessories was apparent when studying the evolution of the output price index for the parts and accessories branch, which fell by 0.3% in total in the EU between 1995 and 2000.

LABOUR AND PRODUCTIVITY

The number of persons employed producing vehicle parts and accessories in the EU grew during the 1990s by almost 100 thousand, reaching 633 thousand by 1999. In absolute terms, the largest gains were in Germany (a 57.8 thousand net increase), although in relative terms Sweden recorded considerably faster growth, as the number of persons employed rose by 72%, equivalent to 6.2% per annum on average. There were also significant gains in the number of persons employed in the Iberian Peninsula and Ireland.

(5) Data is available for a limited number of parts and accessories that accounted for just over 70% of production value in the activity; no data available for clutches, drive axles, carburettors and fuel tanks.

Table 12.8

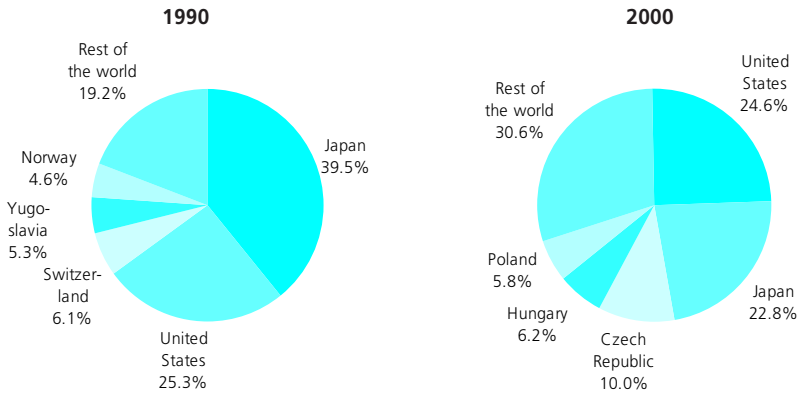
Manufacture of parts, accessories for motor vehicles (NACE Group 34.3)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15	52.2	:	:
B	57.5	38.7	148.5
DK (1)	40.2	31.0	129.6
D	56.8	45.3	125.4
EL (1)	19.6	13.5	143.4
E	45.3	27.7	163.1
F	56.0	38.6	145.3
IRL	43.0	22.7	189.7
I (1)	47.6	30.4	156.2
L	:	:	:
NL	:	:	:
A	79.1	41.1	192.3
P	22.0	13.1	167.9
FIN	45.4	30.9	146.9
S	47.9	35.7	134.2
UK (2)	43.1	28.6	150.5

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Figure 12.8

Parts and accessories for motor vehicles and their engines (CPA Group 34.3)
Origin of extra-EU imports



Source: Eurostat, Comext

EXTERNAL TRADE

The EU exported parts and accessories to the value of 23.6 billion EUR in 2000, running a trade surplus of 9.1 billion EUR. Imports grew at a faster pace than exports during the 1990s, although this from a considerably smaller base. The most noticeable change in the origin of imports was a switch from Japan to Eastern Europe.

12.3 SHIPBUILDING

This sub-chapter, covered by NACE Group 35.1, includes the building of all types of ships and boats (commercial vessels, warships, fishing boats, inflatables, sailboats, motorboats, pleasure and sports boats), as well as hovercraft, drilling platforms and other floating structures. The statistics also cover shipbreaking, maintenance, repair and re-fitting of ships.

In response to their declining economic fortunes, EU shipbuilders have sought for ways to compete strategically by specialising in high value added products such as refrigerator vessels, chemical tankers and above all cruise ships.

According to the European Commission's Fourth Report on the situation in world shipbuilding[6] there was a 56% expansion in global orders for new ships between 1999 and 2000. As a result, world output reached 29.7 million CGT. Although the EU saw demand for its cruise ships increase, the main country to benefit was South Korea, consolidating its position as the largest shipbuilding country in the world (35.6% of tonnage ordered in 2000).

Half (50.1%) of the CGT volume produced in the EU in 2000 was accounted for by cruise ships (which are currently not produced in South Korea). However, only a very limited number of EU shipyards produce these ships, and the remaining yards have to contend with Far Eastern competition for new orders - see table 12.9. The shipbuilding market is subject to many price distortions that are created by different levels of government subsidies. The Commission's Fourth Report stated that "there are [currently] no signs that Korean yards will act to raise prices to commercially viable levels".

(6) COM(2001) 219 final of 2 May 2001, available at http://europa.eu.int/comm/enterprise/maritime/shipbuilding_market/doc/com2001-219_en.pdf.

STRUCTURAL PROFILE

The building and repairing of ships and boats generated added value of 7.4 billion EUR in 1999, which represented 4.9% of the transport equipment total. The United Kingdom was the largest shipbuilder in the EU in 1997 (accounting for 22.0% of the EU's output). Fresher data exists for some countries, and this shows that the German share of EU value added was 17.3% in 1999, whilst France, Spain and Italy (1998) all accounted for between 9% and 11%. In terms of relative production specialisation, Denmark, Finland, the Netherlands and Greece were the most specialised countries.

The value added generated by the manufacture of ships and boats in the EU contracted by almost one-third (30.1%) between 1990 and 1997, falling in constant price terms in every year. Output has grown since, rising by 7.4% in constant price terms in 1998 and 1.4% in 1999.

EMPLOYMENT

The contraction in shipbuilding activity had a direct effect on the number of persons employed in the EU, which almost halved (down 48.7%) between 1985 and 1999, leaving only 177.5 thousand persons employed.

EXTERNAL TRADE

Many ships that are built in the EU are registered under flags of convenience, for example, in Liberia or the Caribbean islands - it is important to bear this in mind when analysing external trade data. The share of EU imports from South Korea grew from 8.7% in 1990 to 14.2% by 2000, highlighting that country's growing importance as a shipbuilding nation.

Table 12.9

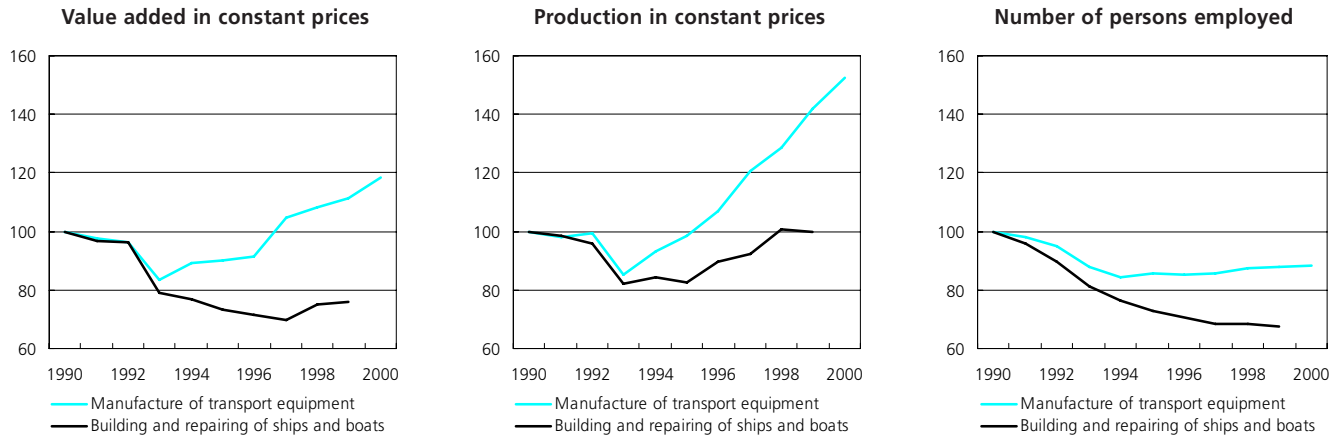
Market share of new orders for shipbuilding (%, based on CGT)

	1997	1998	1999	2000
All ships				
Rest of the world	15.1	16.3	23.5	21.0
EU-15 & Norway	17.9	25.8	17.2	17.5
South Korea	29.2	24.9	33.3	35.6
Japan	37.9	33.1	26.0	25.9
of which, container ships				
Rest of the world	16.3	19.3	10.9	24.4
EU-15 & Norway	23.9	15.3	14.1	11.5
South Korea	15.1	44.1	64.8	52.1
Japan	44.6	21.3	10.2	12.0

Source: Lloyd's Register of Shipping in Fourth Report from the Commission to the Council on the Situation in World Shipbuilding - COM(2001) 219 final

Figure 12.9

Building and repairing of ships and boats (NACE Group 35.1)
Main indicators in the EU (1990=100)



Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

12.4 AEROSPACE EQUIPMENT

The manufacture of aircraft and spacecraft is covered by NACE Group 35.3, which includes the manufacture of both civilian and military aircraft, as well as parts and accessories for their construction.

The aerospace industry (as the motor vehicles industry) is characterised by a pyramidal structure, with a very limited number of global players at the top. High levels of concentration and continued merger activity are driven by the belief that the structure of the industry only allows a small number of prime contractors to sustain competitiveness. Airbus (a joint stock company owned 80% by EADS (European Aeronautic Defence and Space Company) and 20% by BAE Systems is one of only two aircraft manufacturers in the market for large commercial airliners, with more than two and a half thousand aircraft currently in operation. Airbus launched the A380 super-jumbo programme in December 2000, an aircraft which will be capable of transporting 555 passengers over distances of up to 14,800 km. At the start of December 2001, German airline Lufthansa decided to go ahead with an order for 15 super-jumbos. Demand for new aircraft is linked to the number of persons flying and in times of recession (when business travel and private travel are reduced) it is normal to see a reduction in new aircraft orders.

STRUCTURAL PROFILE

The manufacture of aircraft and spacecraft in the EU generated 27.3 billion EUR of value added in 1999. In 1997, the United Kingdom accounted for just over one-third (33.6%) of EU value added. Fresher data is available for several countries for 1999 and this shows that France had a 22.1% share, followed by Germany (20.5%). France and the United Kingdom were the only two Member States to report a relative specialisation for this activity.

A period of sustained development enjoyed by the European aerospace industry in the 1970s and 1980s came to an abrupt end in the early 1990s, as reductions in defence-related contracts (following the end of the Cold War) and civilian orders (in the aftermath of the Gulf War) took their toll. Nevertheless, it should be noted that many parts manufacturers are in a position to supply both civilian and military markets.

Value added in constant prices fell from 19.7 billion EUR in 1990 to 16.3 billion EUR by 1994. There was a significant increase in activity during the second half of the 1990s, as value added rose to 25.5 billion EUR in 1999, with constant price gains of 19.8% and 13.7% respectively in 1998 and 1999. Figures from AECMA indicate that constant price turnover rose by a further 7.2% between 1999 and 2000.

With 14.5% of its consolidated turnover spent on R&D, the aerospace sector is among the most research intensive in the EU economy - see table 12.11. Aerospace may be seen as a driver for the development of a wide variety of technologies in other industries (for example, materials and electronics). Within the five largest EU economies, between 9.0% (Germany, 1997) and 13.6% (France, 1998) of intramural manufacturing R&D was accounted for by aerospace.

Box 12.7: the aircraft industry in the EU

While the civilian market is global - with the other major player Boeing - demand for military products is frequently constrained by national defence and procurement policies that often leaves EU markets fragmented[7]. In the US, Lockheed Martin specialises in military aerospace products.

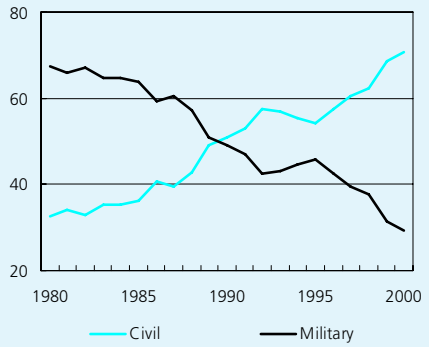
During the last two decades there has been a considerable switch in demand in the aerospace sector, with the civilian market accounting for 70.8% of consolidated turnover in the EU in 2000, compared to just 32.5% back in 1980 - see figure 12.10.

In the market for regional aircraft, European manufacturers have seen their once dominant position eroded, as a result of increasing competition from Canadian, Brazilian and Asian producers and the collapse of Fokker - see table 12.10 for a sectoral breakdown.

(7) It is important to note that it is often difficult within statistics to distinguish between these markets as many products may have a dual use in either civilian or military aircraft.

Figure 12.10

Breakdown of aerospace consolidated turnover in the EU by market (% of total)



Source: AECMA

Table 12.11

R&D expenditure in the EU aerospace industry, 2000 (1)

	(billion EUR)	(% of turnover)
Total	10.5	14.5
Company financed		
Civil	3.4	4.7
Military	1.6	2.2
Financed by government (2)		
Civil	0.9	1.3
Military	4.6	6.4

(1) Consolidated expenditure and turnover.
(2) Includes European Space Agency (ESA), national aerospace research establishments and agencies.
Source: AECMA

Table 12.10

Breakdown of aerospace consolidated turnover in the EU by product segment, 2000

	(million EUR)	(% of total)
Total	72,279	100.0
Aircraft	66,145	91.5
Aircraft final products (1)	31,856	44.1
Large civil aircraft	18,331	25.4
Regional aircraft	1,622	2.2
Business jets	1,463	2.0
Helicopters	3,756	5.2
Military aircraft	6,685	9.2
Aerostructures	2,924	4.0
Aircraft engines	8,352	11.6
Aircraft equipment	5,734	7.9
Aircraft maintenance	17,279	23.9
Missiles (1)	2,150	3.0
Space (1)	3,984	5.5

(1) Data comprise EU and non-EU supplied engines and equipment.
Source: AECMA

LABOUR AND PRODUCTIVITY

The number of persons employed manufacturing aircraft and spacecraft in the EU declined from a high of 423 thousand persons in 1991 to 326 thousand by 1997. In the two most recent years for which data are available there was a reversal in fortunes, with net gains of 4.1 and 3.5 thousand persons employed in 1998 and 1999 respectively. AECMA estimates that the number of employees rose by a further 2.4 thousand in 2000.

Apparent labour productivity of the aircraft and spacecraft workforce rose from 41.8 thousand EUR to 81.8 thousand EUR of value added per person employed between 1990 and 1999. The most competitive countries in terms of simple wage adjusted labour productivity[8], were Spain (1999) and the United Kingdom (1997), where approximately 1.7 EUR of value added was generated for each euro of labour input costs.

(8) This ratio (value added divided by personnel costs) is influenced by the extent of self-employment and unpaid family work, which may vary between countries and over time as well as across activities. However, within the aerospace sector the lowest share of employees in persons employed was 98.1% in Portugal in 1999 (DK and EL, 1998; UK, 1997; IRL, L, NL and A, not available) - indicating that there is unlikely to be much distortion for these figures.

EXTERNAL TRADE

EU exports of aircraft and spacecraft to non-Community countries accounted for 5.4% of total manufacturing exports in 2000. The EU ran a relatively small surplus for these products, equal to 3.4 billion EUR, over-turning a deficit of 1.3 billion EUR recorded the year before. The US is by far the most important export destination for EU aerospace products, whilst the Gulf States and Asia also accounted for important shares. Just over two-thirds (66.8%) of the EU's imports of aerospace equipment in 2000 originated from the US.

Box 12.8: the space industry in the EU

In the European space industry contracts are gathered by a prime contractor and then distributed to other enterprises. It is therefore essential to consolidate figures to avoid multiple counts. Within their survey Eurospace ask enterprises to provide their internal turnover (turnover resulting from own production), in other words, the value of space contracts actually carried out in-house - see tables 12.12 and 12.13. The ratio consolidated turnover/total turnover is a good measure of the degree of concentration within the space industry (the closer the ratio is to 0 the more the industry involves a chain of contractors and sub-contractors). The ratio rose steadily from 0.42 in 1996 to 0.65 by 1999, suggesting that the number of sub-contractors was reduced.

Table 12.12

Breakdown of space industry consolidated turnover in the EU by customer, 1999 (million EUR)

Total	5,481
ESA	1,521
National civil programmes	754
National military programmes	522
European Commission	17
Total European public customers	2,814
Commercial contracts	1,647
Arianespace contracts	976
Total commercial contracts	2,623
Other contracts (or unidentified)	44

Source: Eurospace

Table 12.13

Breakdown of space industry consolidated turnover in the EU by activity, 1999 (million EUR)

Total	5,481
Telecommunications	1,875
Earth observation	1,043
Navigation	40
Launcher development and production	1,405
Space infrastructure & manned programmes	415
Science	376
Micro gravity	72
Support and test activities	165
Other (technology, general studies etc.)	90

Source: Eurospace

Table 12.14

Manufacture of aircraft and spacecraft (NACE Group 35.3)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15	81.8	:	:
B	66.9	50.4	132.7
DK (1)	28.2	33.5	84.1
D	81.7	58.2	140.4
EL (1)	33.7	32.3	104.4
E	61.8	36.4	169.9
F	77.0	54.7	140.7
IRL	:	:	:
I (1)	49.4	38.2	129.3
L	:	:	:
NL	:	:	:
A	:	:	:
P	20.9	19.3	108.4
FIN	53.2	38.1	139.8
S	58.9	42.3	139.1
UK (2)	63.4	37.9	167.5

(1) 1998.
(2) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 12.15

Manufacture of motor vehicles (NACE Group 34.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	217,264	221,584	232,400	201,102	230,331	243,858	:	:	317,970	359,333	:
Purchases of goods and services (million EUR)	:	:	:	:	:	210,408	:	:	302,449	349,843	:
Value added (million EUR)	59,648	60,573	61,908	52,745	59,447	59,644	:	:	70,806	69,084	:
Personnel costs (million EUR)	42,237	44,519	46,637	43,309	43,139	44,450	:	:	50,264	53,334	:
Number of persons employed (thousands)	1,328	1,301	1,254	1,151	1,096	1,078	:	:	1,098	1,105	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.0	6.3	5.9	4.1	6.2	5.5	:	:	5.5	3.8	:
App. labour productivity (thous. EUR/pers. emp.)	44.9	46.6	49.4	45.8	54.3	55.3	:	:	64.5	62.5	:
Simple wage adjusted labour productivity (%)	141.2	136.1	132.7	121.8	137.8	134.2	:	:	140.9	129.5	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.2	102.3	103.1	103.7	103.8

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.16

Motor vehicles (CPA Group 34.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	26,799	24,483	24,487	29,470	36,280	39,546	43,106	48,749	50,161	50,473	64,708
Extra-EU imports (million EUR)	13,765	15,550	16,407	14,097	14,027	14,809	16,329	21,692	27,538	32,443	35,124
Trade balance (million EUR)	13,034	8,933	8,080	15,374	22,253	24,737	26,777	27,058	22,623	18,030	29,583
Cover ratio (%)	194.7	157.4	149.3	209.1	258.6	267.0	264.0	224.7	182.2	155.6	184.2

Source: Eurostat, Comext

Table 12.17

Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers (NACE Group 34.2)
Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Production (million EUR)	1,114	553	5,801	33	1,543	3,092	76	1,818	:	968	352	143	447	328	3,309
Purchases of goods and services (million EUR)	1,012	401	4,381	24	1,247	2,501	60	1,336	:	785	265	114	298	224	2,424
Value added (million EUR)	299	180	1,717	11	413	864	22	507	:	257	123	45	160	108	1,018
Personnel costs (million EUR)	228	126	1,384	6	266	680	13	359	:	196	97	33	111	77	721
Number of persons employed (thousands)	6.9	3.9	37.6	0.4	13.6	22.5	0.7	12.7	:	:	3.1	3.3	3.8	2.3	25.3
Gross investment in tangible goods (million EUR)	70	:	152	:	30	:	3	:	:	:	:	:	9	:	:
Gross operating rate (%)	5.7	9.5	5.4	16.8	8.9	5.5	10.0	8.2	:	5.9	7.1	7.5	10.8	9.5	8.6
App. labour productivity (thous. EUR/pers. emp.)	43.4	45.8	45.7	27.8	30.4	38.5	31.7	40.0	:	:	40.2	13.5	42.6	46.8	40.3
Simple wage adjusted labour productivity (%)	131.4	142.4	124.0	194.7	155.0	127.1	162.7	141.0	:	130.8	127.5	134.8	143.9	140.7	141.2
Output price index (1995=100) (2)	:	:	103.3	118.3	109.9	:	:	109.2	:	106.2	:	:	:	:	103.6

(1) DK, IRL and A, 1998; EL, I and NL, 1998, except for output price index; UK, 1997, except for output price index. (2) 2000.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.18

Bodies (coachwork) for motor vehicles; trailers and semi-trailers (CPA Group 34.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	757	812	867	866	975	1,123	1,188	1,657	1,895	1,693	1,860
Extra-EU imports (million EUR)	233	288	299	304	316	419	439	496	650	727	874
Trade balance (million EUR)	524	524	568	562	659	704	749	1,162	1,245	966	987
Cover ratio (%)	325.0	282.1	289.7	284.8	308.8	268.2	270.5	334.2	291.7	232.8	212.9

Source: Eurostat, Comext

Table 12.19

Manufacture of parts, accessories for motor vehicles (NACE Group 34.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	46,070	47,001	51,496	47,482	53,905	69,686	:	:	92,228	97,363	:
Purchases of goods and services (million EUR)	:	:	:	:	:	50,336	:	:	68,584	74,624	:
Value added (million EUR)	17,248	17,491	19,310	17,915	20,496	25,654	:	:	31,583	33,053	:
Personnel costs (million EUR)	13,562	14,403	15,247	14,595	15,278	18,867	:	:	22,705	24,006	:
Number of persons employed (thousands)	538	529	525	488	491	565	:	:	626	633	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	7.4	6.0	7.3	6.4	8.8	8.8	:	:	8.8	8.4	:
App. labour productivity (thous. EUR/pers. emp.)	32.0	33.1	36.8	36.7	41.7	45.4	:	:	50.5	52.2	:
Simple wage adjusted labour productivity (%)	127.2	121.4	126.6	122.7	134.2	136.0	:	:	139.1	137.7	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.6	100.5	100.5	100.2	99.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.20

Parts and accessories for motor vehicles and their engines (CPA Group 34.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	7,845	8,325	8,230	9,398	10,651	12,219	13,928	17,034	18,014	18,640	23,565
Extra-EU imports (million EUR)	3,693	3,971	4,479	5,265	6,165	7,061	7,413	8,595	9,777	11,611	14,458
Trade balance (million EUR)	4,152	4,354	3,752	4,133	4,485	5,158	6,514	8,439	8,237	7,029	9,107
Cover ratio (%)	212.4	209.6	183.8	178.5	172.7	173.0	187.9	198.2	184.3	160.5	163.0

Source: Eurostat, Comext

Table 12.21

Building and repairing of ships and boats (NACE Group 35.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	20,770	21,130	20,773	17,977	18,845	19,104	21,211	22,026	24,390	24,792	:
Purchases of goods and services (million EUR)	:	:	:	:	:	13,003	14,941	15,811	17,876	18,046	:
Value added (million EUR)	8,113	8,101	8,125	6,783	6,673	6,623	6,590	6,503	7,082	7,370	:
Personnel costs (million EUR)	6,354	6,512	6,359	5,824	6,190	5,706	5,707	5,670	5,679	5,578	:
Number of persons employed (thousands)	262	251	235	212	200	191	185	179	179	178	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	8.4	7.1	8.4	5.1	2.5	4.8	4.0	3.9	5.9	7.6	:
App. labour productivity (thous. EUR/pers. emp.)	31.0	32.3	34.5	31.9	33.4	34.7	35.6	36.4	39.6	41.5	:
Simple wage adjusted labour productivity (%)	127.7	124.4	127.8	116.5	107.8	116.1	115.5	114.7	124.7	132.1	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.22

Ships and boats (CPA Group 35.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,183	4,097	5,032	6,247	5,655	6,367	7,062	7,853	8,173	8,332	10,269
Extra-EU imports (million EUR)	2,150	2,630	2,324	3,108	2,534	2,032	2,944	2,990	3,664	4,563	6,465
Trade balance (million EUR)	2,033	1,467	2,708	3,138	3,122	4,334	4,118	4,863	4,509	3,770	3,804
Cover ratio (%)	194.6	155.8	216.5	201.0	223.2	313.3	239.9	262.7	223.1	182.6	158.8

Source: Eurostat, Comext

Table 12.23

Manufacture of railway, tramway locomotives, rolling stock (NACE Group 35.2)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	7,027	7,404	8,723	9,890	9,544	9,539	:	11,764	12,353	13,201	:
Purchases of goods and services (million EUR)	:	:	:	:	:	6,447	:	8,004	9,577	10,011	:
Value added (million EUR)	2,773	2,950	3,293	3,714	3,468	3,362	:	3,728	2,964	4,032	:
Personnel costs (million EUR)	2,513	2,603	2,861	3,173	3,046	3,010	:	3,271	3,255	3,476	:
Number of persons employed (thousands)	97	96	100	103	94	88	:	86	84	84	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	3.7	4.6	4.9	5.3	4.2	3.6	:	4.2	-2.6	4.3	:
App. labour productivity (thous. EUR/pers. emp.)	28.6	30.7	33.0	36.0	36.8	38.2	:	43.2	35.5	47.8	:
Simple wage adjusted labour productivity (%)	110.3	113.3	115.1	117.1	113.9	111.7	:	114.0	91.1	116.0	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.24

Railway and tramway locomotives and rolling-stock (CPA Group 35.2)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	709	1,482	1,762	1,393	1,342	1,331	1,488	1,541	1,757	1,584	1,906
Extra-EU imports (million EUR)	175	337	360	337	558	489	365	434	625	921	1,208
Trade balance (million EUR)	534	1,145	1,402	1,056	784	842	1,123	1,107	1,133	663	698
Cover ratio (%)	404.6	440.1	490.0	412.8	240.4	272.2	408.2	354.8	281.4	171.9	157.8

Source: Eurostat, Comext

Table 12.25

Manufacture of aircraft and spacecraft (NACE Group 35.3)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	44,982	46,655	46,246	41,531	41,308	:	:	64,706	71,948	84,495	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	45,986	53,024	58,565	:
Value added (million EUR)	17,670	18,107	16,199	15,579	15,675	:	:	19,245	23,382	27,288	:
Personnel costs (million EUR)	13,409	14,514	14,715	13,878	13,733	:	:	14,719	15,598	16,575	:
Number of persons employed (thousands)	423	423	409	383	360	:	:	326	330	334	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.9	8.1	3.1	3.9	4.6	:	:	6.8	10.2	12.7	:
App. labour productivity (thous. EUR/pers. emp.)	41.8	42.8	39.6	40.7	43.5	:	:	59.0	70.8	81.8	:
Simple wage adjusted labour productivity (%)	131.8	124.8	110.1	112.3	114.1	:	:	130.7	149.9	164.6	:
Output price index (1995=100)	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.26

Aircraft and spacecraft (CPA Group 35.3)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	14,685	17,722	19,886	22,654	23,189	25,392	27,097	36,030	40,548	43,374	46,568
Extra-EU imports (million EUR)	16,341	18,795	16,189	17,881	18,044	17,417	20,245	29,765	36,482	44,650	43,020
Trade balance (million EUR)	-1,656	-1,073	3,697	4,773	5,145	7,975	6,852	6,265	4,067	-1,276	3,548
Cover ratio (%)	89.9	94.3	122.8	126.7	128.5	145.8	133.8	121.0	111.1	97.1	108.2

Source: Eurostat, Comext

Table 12.27

Manufacture of motorcycles and bicycles (NACE Group 35.4)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	5,268	5,203	5,566	5,218	5,707	6,473	:	6,161	:	:	:
Purchases of goods and services (million EUR)	:	:	:	:	:	5,321	:	4,774	:	:	:
Value added (million EUR)	1,802	1,771	1,765	1,594	1,677	1,910	:	:	:	:	:
Personnel costs (million EUR)	1,238	1,292	1,291	1,242	1,285	1,292	:	1,362	:	:	:
Number of persons employed (thousands)	57	55	53	51	49	50	:	50	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.6	8.3	7.7	6.0	6.2	8.7	:	:	:	:	:
App. labour productivity (thous. EUR/pers. emp.)	31.6	32.1	33.3	31.1	34.3	38.4	:	:	:	:	:
Simple wage adjusted labour productivity (%)	145.6	137.1	136.7	128.3	130.5	147.8	:	:	:	:	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.1	102.4	103.1	103.7	105.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.28

Motorcycles and bicycles (CPA Group 35.4)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	525	531	517	590	719	803	857	893	964	1,046	1,361
Extra-EU imports (million EUR)	2,344	3,009	3,204	3,344	3,141	3,075	3,304	3,759	4,279	4,752	5,512
Trade balance (million EUR)	-1,819	-2,479	-2,687	-2,753	-2,422	-2,272	-2,447	-2,866	-3,315	-3,706	-4,152
Cover ratio (%)	22.4	17.6	16.1	17.7	22.9	26.1	25.9	23.8	22.5	22.0	24.7

Source: Eurostat, Comext

Table 12.29

Manufacture of other transport equipment n.e.c. (NACE Group 35.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	691	750	773	633	621	:	:	:	744	779	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	:	480	503	:
Value added (million EUR)	251	269	274	248	228	:	:	:	282	290	:
Personnel costs (million EUR)	184	200	216	195	171	:	:	:	211	222	:
Number of persons employed (thousands)	9	9	9	7	7	:	:	7	:	:	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.5	9.2	7.2	7.8	8.6	:	:	:	9.4	8.8	:
App. labour productivity (thous. EUR/pers. emp.)	29.3	31.3	31.6	34.4	34.5	:	:	:	:	:	:
Simple wage adjusted labour productivity (%)	136.4	134.5	126.9	127.2	133.3	:	:	:	133.6	130.6	:
Output price index (1995=100)	:	:	:	:	:	100.0	100.3	99.9	101.3	103.3	103.4

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 12.30

Other transport equipment n.e.c. (CPA Group 35.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	52.6	56.7	55.8	57.1	66.9	73.0	83.5	103.4	83.9	93.4	103.5
Extra-EU imports (million EUR)	24.6	31.3	38.8	41.3	44.4	50.3	54.3	66.3	70.2	85.5	512.9
Trade balance (million EUR)	28.0	25.4	17.1	15.8	22.5	22.7	29.1	37.1	13.7	7.9	-409.4
Cover ratio (%)	214.0	181.1	144.0	138.3	150.8	145.0	153.6	155.9	119.5	109.2	20.2

Source: Eurostat, Comext

Other manufacturing industries

Despite the diverse nature of the activities covered in this chapter one common characteristic is their focus on consumer goods. More specifically, the data presented in this chapter covers the manufacture of consumer durables (such as furniture, jewellery, musical instruments and some sports goods), semi-durables (most sports equipment, toys and games, as well as baby carriages and personal effects such as lighters and umbrellas) and non-durables (such as cleaning materials and writing instruments). Together they generated 2.9% of the EU's total value added in manufacturing in 1997.

STRUCTURAL PROFILE

By far the biggest activity within NACE Division 36 is the manufacture of furniture which accounted for over 70% of the Division's production (71.0%), value added (70.6%) and persons employed (73.0%) in the EU in 1997. The next largest activities were jewellery, games and toys, and miscellaneous manufacturing. The manufacture of sports goods and of musical instruments were the smallest sectors.

This chapter covers a number of unrelated manufacturing activities that are classified within NACE Division 36. The largest of these is the furniture sector (NACE Group 36.1), which is the subject of a specific sub-chapter. The remaining activities are dealt with exclusively in this overview and include the manufacture of jewellery and related articles (NACE Group 36.2), musical instruments (NACE Group 36.3), sports goods (NACE Group 36.4) and games and toys (NACE Group 36.5), as well as miscellaneous manufacturing not elsewhere classified (NACE Group 36.6). Note that NACE Division 36 does not cover the manufacture of sports clothes or footwear (which are classified within NACE Divisions 18 and 19).

NACE

36: manufacture of furniture; manufacturing n.e.c.;
36.1: manufacture of furniture;
36.2: manufacture of jewellery and related articles;
36.3: manufacture of musical instruments;
36.4: manufacture of sports goods;
36.5: manufacture of games and toys;
36.6: miscellaneous manufacturing n.e.c.

Table 13.1

Manufacture of furniture; manufacturing n.e.c. (NACE Division 36)
Foreign direct investment, 1999 (million EUR)

	In the reporting economy	(% of investment abroad)				
		Abroad	Intra	Extra	JP	US
EU-15	13,974	63,682	:	100.0	1.3	52.7
B	:	:	:	:	:	:
DK	:	:	:	:	:	:
D	8,736	28,294	51.3	48.7	2.2	15.7
EL	:	:	:	:	:	:
E	10,057	8,796	:	:	:	:
F	5,426	11,981	41.9	58.1	0.6	27.9
IRL	1,805	439	:	:	:	:
I	:	:	:	:	:	:
L	:	:	:	:	:	:
NL	2,122	1,128	67.9	31.9	:	4.0
A	877	1,445	36.2	60.0	:	:
P	808	597	12.6	87.3	0.0	1.7
FIN	:	1,672	47.1	52.9	:	:
S	:	:	:	:	:	:
UK	8,898	38,150	22.9	77.1	:	62.0

Source: Eurostat, European Union Direct Investments (theme2/bop/fdi)

Many of the diverse sectors in this chapter are of particular importance for a limited number of countries, as witnessed by the relatively high production specialisation ratios for Denmark in the manufacture of furniture and games and toys, for Belgium, Italy, Austria and Portugal in the manufacture of jewellery, for Austria in sports goods (ski equipment) and for Italy in musical instruments.

LABOUR AND PRODUCTIVITY

The number of persons employed in NACE Division 36 in the EU has remained fairly constant, at levels between 940 thousand and 1 million between 1990 and 1997. Due to the decline in manufacturing employment, this sector's share of total manufacturing employment has risen from 3.8% in 1990 to 4.3% in 1997. These manufacturing activities are often performed by craft enterprises and consequently the share of self-employed persons (not including family workers) in the sector was more than double that in total manufacturing (15.3% versus 7.3% in 2000) according to the LFS.

Furthermore, SBS data indicates that apparent labour productivity (gross value added per person employed) was relatively low in this sector of the EU economy, with values between 33.8 thousand EUR (furniture) and 39.9 thousand EUR (sports goods) in 1999, as compared to the 51.9 thousand EUR average reported for manufacturing in the same year.

EXTERNAL TRADE

In other manufacturing - unlike manufacturing in general - the EU has become a net importer over the last decade, with a trade deficit of 6.6 billion EUR in 2000. This shift can mainly be attributed to two long-term trends. Firstly, after three years of a declining surplus, the EU recorded its first trade deficit for furniture products in 2000. Secondly, the EU games and toys sector has seen its traditional trade deficit increase further, both in absolute and relative terms, as exports doubled but imports nearly tripled in value terms over the course of the last decade.

Table 13.2

Manufacture of furniture; manufacturing n.e.c. (NACE Division 36)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000 (1)	1995	2000	1995	2000 (2)	1995	2000 (3)
EU-15	26.3	25.2	8.4	9.2	14.4	15.3	9.3	10.7
B	27.2	15.2	:	:	8.6	23.4	11.9	15.9
DK	31.9	34.6	8.0	12.1	9.0	:	11.8	12.3
D	32.2	28.9	11.4	11.8	9.3	12.2	17.5	19.8
EL	18.6	16.4	:	:	41.6	37.2	6.5	8.3
E	14.5	16.7	2.6	2.5	30.7	22.1	7.4	12.1
F	33.7	32.2	7.6	8.8	15.3	14.0	7.7	12.0
IRL	21.8	26.1	:	:	21.2	19.7	:	:
I	25.5	26.1	3.8	4.8	11.8	21.3	1.7	2.0
L	:	:	:	:	:	:	:	:
NL	20.9	25.4	22.2	24.2	6.5	4.5	:	8.8
A	24.3	22.2	8.5	9.4	7.5	7.6	:	14.3
P	21.4	20.3	:	:	21.2	16.6	:	:
FIN	31.2	28.9	:	:	:	18.5	:	15.5
S	:	33.5	:	:	:	:	:	:
UK	26.7	24.6	8.2	10.7	13.6	13.1	12.7	13.4

(1) S, 1999.
(2) B, 1999.
(3) EL, 1999; EU-15, 1997.
Source: Eurostat, Labour Force Survey

Table 13.3

Manufacture of furniture; manufacturing n.e.c. (NACE Division 36)
Labour productivity and personnel costs, 1999

	Apparent labour productivity (thousand EUR per person employed)	Average personnel costs (thousand EUR per employee)	Wage adjusted labour productivity (%)
EU-15 (1)	33.0	:	:
B	35.6	28.6	124.5
DK (2)	39.8	28.4	140.1
D	43.7	34.1	127.9
EL (2)	19.6	12.5	156.9
E	21.8	17.4	125.3
F	37.8	29.8	127.0
IRL	:	:	:
I (2)	37.8	24.0	157.4
L (1)	39.6	23.3	170.0
NL	:	:	:
A	39.6	30.2	131.1
P	11.0	8.3	132.1
FIN	36.4	25.8	141.4
S	35.7	31.9	112.2
UK (1)	37.0	24.9	148.8

(1) 1997.
(2) 1998.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms)

Table 13.4

Furniture; other manufactured goods n.e.c. (CPA Division 36)
Extra-EU exports

	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in export value 2000/1990 (%)	Change in export share 2000/1990 (% points)
Furniture; other manufactured goods n.e.c.	14,077.7	100.0	29,307.5	100.0	108.2	-
Furniture	4,229.8	30.0	10,037.8	34.2	137.3	4.2
Jewellery and related articles	6,342.0	45.0	12,527.6	42.7	97.5	-2.3
Musical instruments	256.2	1.8	477.5	1.6	86.4	-0.2
Sports goods	697.0	5.0	1,324.4	4.5	90.0	-0.4
Games and toys	677.8	4.8	1,417.7	4.8	109.2	0.0
Miscellaneous manufactured goods n.e.c.	1,872.4	13.3	3,518.2	12.0	87.9	-1.3

Source: Eurostat, Comext

Table 13.5

Furniture; other manufactured goods n.e.c. (CPA Division 36)
Extra-EU imports

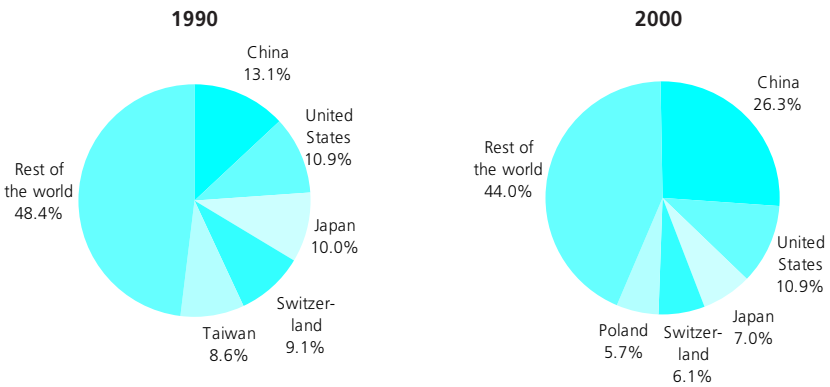
	1990 (million EUR)	(%)	2000 (million EUR)	(%)	Change in import value 2000/1990 (%)	Change in import share 2000/1990 (% points)
Furniture; other manufactured goods n.e.c.	12,704.4	100.0	35,937.2	100.0	182.9	-
Furniture	2,059.9	16.2	10,378.8	28.9	403.8	12.7
Jewellery and related articles	4,174.4	32.9	9,258.7	25.8	121.8	-7.1
Musical instruments	691.2	5.4	809.5	2.3	17.1	-3.2
Sports goods	955.5	7.5	2,531.6	7.0	165.0	-0.5
Games and toys	2,587.3	20.4	7,469.9	20.8	188.7	0.4
Miscellaneous manufactured goods n.e.c.	2,235.6	17.6	5,453.2	15.2	143.9	-2.4

Source: Eurostat, Comext

The expanding EU trade deficit was due largely to increased competition from developing countries. More specifically, China (with a share of 26.3% of all EU imports in other manufacturing) emerged as the largest or second largest origin of imports for all CPA Groups in this chapter by 2000, except for jewellery, where imports came mainly from the US, India, Switzerland and Israel. Other nations with an important share in particular CPA Groups were Poland (17.9% of EU furniture imports) and Japan (32.1% of musical instruments and 20.0% of sports goods).

Figure 13.1

Furniture; other manufactured goods n.e.c. (CPA Division 36)
Origin of extra-EU imports



Source: Eurostat, Comext

13.1 FURNITURE

The NACE classification breaks down the manufacture of furniture (NACE Group 36.1) into the following activities: the manufacture of chairs and seats (Class 36.11), other office and shop furniture (36.12), other kitchen furniture (36.13), other furniture (36.14) and mattresses (36.15).

The furniture sector's output is centred around the home and the office, although there has been a growing overlap between these two markets, namely in the form of furniture for the small office/home office (SOHO).

Furniture is both an investment article (for the business community and households) and an article sensitive to fashion. The latter is especially true for furniture made from materials like glass and metal. In developed economies, households are generally well equipped and the market for new furniture is largely saturated. As a result, demand is mainly driven by the need for replacement items (which may be induced by changes in fashion) or by the creation of new (or expanding) households.

The unit price of some furniture items can be very high (for example, a fitted kitchen) and as a result purchases often require financing. Purchases (especially of replacement items) are often deferred, due to the influence of interest rates and consumer confidence.

The furniture sector is dominated by micro and small enterprises (with less than 50 persons employed); they accounted for 49.2% of the value added generated in the EU in 1999[1], close to double the manufacturing average of 26.8%.

(1) B, E and I, 1998; IRL, NL and UK, 1997; DK, D, EL and L, incomplete or no recent data available.

STRUCTURAL PROFILE

The EU's furniture sector generated 26.0 billion EUR of value added in 1999, representing a 2.1% share of EU manufacturing. Among the Member States, the manufacture of furniture was especially important relative to total manufacturing in Denmark. Its production specialisation ratio stood at 216.6% in 1998. Portugal's relative specialisation in this sector increased from 129.7% to 150.1% between 1997 and 1999. The five largest EU Member States had the largest furniture sectors in absolute terms, but only Spain (129.8%, 1999) and Italy (126.6%, 1998) recorded relative production specialisation ratios above 100%.

The manufacture of chairs and seats accounted for 24.2% of the total value added generated in the furniture sector in 1999; office and shop furniture 18.4%; kitchen furniture 10.9%; mattresses 4.8% and other furniture (which includes furniture for bedrooms, dining rooms and gardens) for the largest share, some 41.7%[2].

LABOUR AND PRODUCTIVITY

After a decline in the first half of the 1990s, the number of persons employed in the manufacturing of furniture rose again in the second half of the decade. In the five years to 1999 employment in the EU grew at an average rate of 2.3% per annum and reached a level of 769 thousand persons.

Apparent labour productivity was lower in the furniture sector than the manufacturing average in every Member State in 1999[3]. Most Member States recorded apparent labour productivity in the range of 18 thousand EUR to 40 thousand EUR per person employed, with Portugal (10.4 thousand EUR) below this range and Germany (44.7 thousand EUR) above it.

(2) E, I and NL, 1998; D, EL and L, incomplete or no recent data available; note this analysis of the different furniture manufacturing sectors is based on data for enterprises of all sizes.
(3) DK, EL and I, 1998; L and UK, 1997; NL, no recent data available.

EXTERNAL TRADE

During the 1990s the EU was a net exporter of furniture. However, its cover ratio (the ratio between exports and imports) declined from 205.3% in 1990 to 101.4% by 1999. The cover ratio fell most quickly at the beginning and end of the decade, while it was relatively stable at around 140% between 1992 and 1996. The cover ratio dropped to 96.7% in 2000, indicating a reversal of the EU's trading position with respect to the rest of the world - its trade deficit for furniture products was 341 million EUR.

While most Member States mirrored the general developments reported above for the EU, Italy stood out as the exception to the rule. It managed to widen its trade surplus with extra and intra-EU partners from 3.9 billion EUR in 1990 to 8.0 billion EUR by 2000. On the other hand, Germany, France, the Netherlands and the United Kingdom all recorded deficits in excess of 1 billion EUR. Both Italy and Denmark recorded high export specialisation ratios in the furniture sector.

The EU's trading partners for furniture products have changed significantly during the last decade. On the export side, the most prominent destination in 2000 was the United States (28.6% of EU exports) which replaced Switzerland (dropping from 26.0% to 13.9% between 1990 and 2000). Concerning the EU's imports, Poland (17.9%), China (9.3%) and Indonesia (8.0%) all managed to increase their shares between 1990 and 2000. At the same time, imports from Switzerland (4.8%) and Romania (4.0%) were reduced to about a third of their relative shares at the beginning of the decade.

Table 13.6

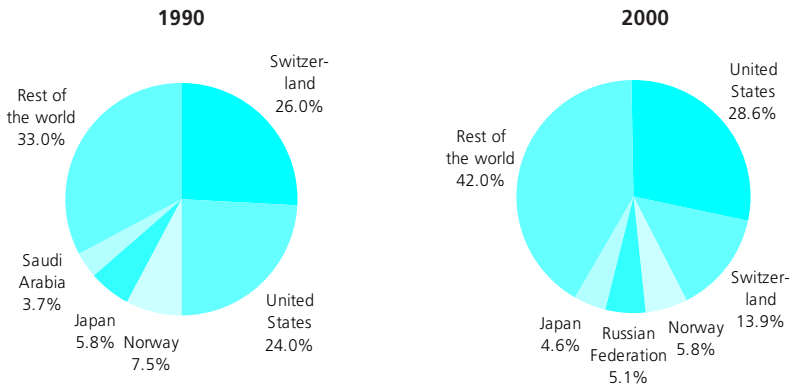
Furniture (CPA Group 36.1)
External trade, 2000 (million EUR)

	Exports	Imports	Trade balance	Cover ratio (%)
EU-15	10,038	10,379	-341	96.7
B	1,767	2,012	-245	87.8
DK	1,957	756	1,200	258.7
D	5,332	7,102	-1,770	75.1
EL	26	225	-199	11.6
E	1,574	998	576	157.8
F	2,497	3,768	-1,270	66.3
IRL	107	314	-207	34.0
I	8,994	992	8,002	907.0
L	9	167	-158	5.5
NL	889	2,013	-1,124	44.2
A	1,194	1,574	-380	75.9
P	367	344	23	106.8
FIN	252	314	-61	80.4
S	1,379	971	409	142.1
UK	1,598	3,703	-2,105	43.2

Source: Eurostat, Comext

Figure 13.2

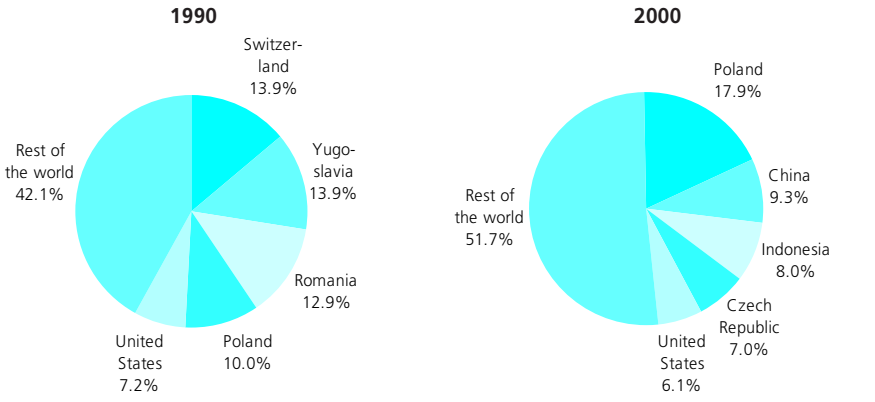
Furniture (CPA Group 36.1)
Destination of extra-EU exports



Source: Eurostat, Comext

Figure 13.3

Furniture (CPA Group 36.1)
Origin of extra-EU imports



Source: Eurostat, Comext

Table 13.7

Manufacture of furniture (NACE Group 36.1)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	52,912	56,554	58,175	55,696	57,896	59,879	:	68,177	74,072	78,707	:
Purchases of goods and services (million EUR)	:	:	:	:	:	41,128	:	47,453	51,988	54,559	:
Value added (million EUR)	19,225	20,676	21,220	20,616	20,671	20,846	:	23,523	25,110	25,982	:
Personnel costs (million EUR)	14,300	15,530	16,096	15,616	15,903	16,193	:	17,754	18,222	18,930	:
Number of persons employed (thousands)	722	729	720	687	687	652	:	737	751	769	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	9.0	8.8	8.5	8.6	7.9	7.4	:	8.1	8.9	8.8	:
App. labour productivity (thous. EUR/pers. emp.)	26.6	28.4	29.5	30.0	30.1	32.0	:	31.9	33.4	33.8	:
Simple wage adjusted labour productivity (%)	134.4	133.1	131.8	132.0	130.0	128.7	:	132.5	137.8	137.3	:
Output price index (1995=100)	:	:	:	:	:	100.0	103.0	104.3	105.8	107.2	108.7

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 13.8

Furniture (CPA Group 36.1)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	4,230	4,099	4,135	4,557	5,433	6,157	6,815	7,834	8,089	8,443	10,038
Extra-EU imports (million EUR)	2,060	2,540	2,877	3,275	3,705	4,309	4,877	5,862	6,831	8,329	10,379
Trade balance (million EUR)	2,170	1,558	1,257	1,282	1,728	1,848	1,939	1,972	1,258	113	-341
Cover ratio (%)	205.3	161.3	143.7	139.2	146.6	142.9	139.8	133.6	118.4	101.4	96.7

Source: Eurostat, Comext

Table 13.9

Manufacture of games and toys (NACE Group 36.5)
Main indicators in the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production (million EUR)	:	:	:	4,327	4,755	:	:	5,253	5,213	5,233	:
Purchases of goods and services (million EUR)	:	:	:	:	:	:	:	3,837	3,985	3,627	:
Value added (million EUR)	:	:	:	1,756	1,812	:	:	1,907	1,862	1,881	:
Personnel costs (million EUR)	:	:	:	1,003	1,075	:	:	1,272	1,204	1,231	:
Number of persons employed (thousands)	:	:	:	46	48	:	:	50	50	48	:
Gross investment in tangible goods (million EUR)	:	:	:	:	:	:	:	:	:	:	:
Gross operating rate (%)	:	:	:	16.2	14.3	:	:	11.2	11.3	12.0	:
App. labour productivity (thous. EUR/pers. emp.)	:	:	:	38.5	38.0	:	:	37.9	37.6	39.4	:
Simple wage adjusted labour productivity (%)	:	:	:	175.1	168.6	:	:	149.9	154.7	152.8	:
Output price index (1995=100)	:	:	:	:	:	100.0	102.9	103.6	105.0	105.5	106.8

Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/ent_l_ms) and European Business Trends - Monthly and Quarterly Short Term Statistics (theme4/ebt)

Table 13.10

Games and toys (CPA Group 36.5)
External trade indicators for the EU

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Extra-EU exports (million EUR)	678	754	804	902	1,027	1,057	1,035	1,174	1,165	1,208	1,418
Extra-EU imports (million EUR)	2,587	3,872	4,833	4,655	4,106	3,968	4,126	5,496	5,639	6,025	7,470
Trade balance (million EUR)	-1,909	-3,118	-4,029	-3,753	-3,079	-2,911	-3,092	-4,322	-4,475	-4,817	-6,052
Cover ratio (%)	26.2	19.5	16.6	19.4	25.0	26.6	25.1	21.4	20.7	20.1	19.0

Source: Eurostat, Comext

Construction and real estate

Two possible approaches can be used to classify construction. The first considers the type of construction[1], whereby a distinction is generally made between building and civil engineering. Below this level, commonly used sub-divisions are defined in terms of the nature of the final construction (for example, housing or non-residential building), the client (public or private) or whether the work concerns a new construction or involves repair, maintenance or improvement of an existing structure. The second approach, as defined within the activity classification, NACE, defines construction according to stages of the construction process: starting with demolition and site preparation (NACE Group 45.1), passing through general construction activities (NACE Group 45.2), and ending with installation (NACE Group 45.3) and completion work (NACE Group 45.4). There is one final activity in Division 45 that covers the renting with operator of construction equipment (NACE Group 45.5).

It is important to distinguish between these two approaches and to note that data from the professional trade association FIEC (see boxes) follows the first of these approaches, whilst data derived from official statistics (SBS and LFS) uses the second. Please note that SBS data presented in this chapter relates to the whole enterprise population, and is not limited to enterprises employing 20 or more persons (as is the case for the vast majority of the other industrial chapters within this publication).

(1) The Classification of Types of Constructions (CC) has been developed on the basis of the Central Product Classification (CPC).

Contrary to a large number of other industrial activities, clients of the construction sector frequently require one-off designs. As a result, the production process for larger projects is often managed by a project co-ordinator that brings together firms specialising in particular activities. The structure of the construction sector can be viewed as a pyramid, with project co-ordinators at the top, often sub-contracting out work to smaller, specialised enterprises in lower tiers.

Modern buildings and structures make use of a multitude of specialised technologies. In recent years, there has been rapid technological progress in the construction sector with respect to processes and design. For example, there is increasing adoption of computer-aided design (CAD) systems, as well as a tendency towards prefabrication, moving work away from construction sites into factories (at present, this concerns mainly the prefabrication of sub-components, such as building frames or modules such as toilet pods). However, the need to repair, maintain and alter existing structures means that the industry needs to retain a competence in more traditional skills and crafts too.

The statistical classification of economic activities covers construction activities and real estate services within NACE Section F and Division 70 respectively. Other activities that are related to the construction sector, such as architectural services or landscaping, are covered within chapter 19.

NACE

45: construction;
45.1: site preparation;
45.2: building of complete constructions or parts thereof; civil engineering;
45.3: building installation;
45.4: building completion;
45.5: renting of construction or demolition equipment with operator;
70: real estate activities;
70.1: real estate activities with own property;
70.2: letting of own property;
70.3: real estate activities on a fee or contract basis.

STRUCTURAL PROFILE

According to National Accounts, the construction branch (not including real estate services) contributed 5.4% to the total value added of the EU in 2000, or 423.1 billion EUR. This was almost a full percentage point below its share in 1992 (6.3%). Spain displayed the highest degree of specialisation within the construction sector, as this activity contributed 8.5% to national value added in 2000. Three other Member States also displayed high shares: Luxembourg (7.9%), Austria (7.8%) and Portugal (7.5%). In contrast, the Swedish construction branch accounted for only 4.2% of total value added, the lowest proportion in the EU, followed by France (4.5%).

Small enterprises generally account for a large share of the construction sector. Enterprises with less than 50 employees accounted for the majority of value added generated in the EU's construction sector; they accounted for 67.2% of total value added in 1999[2]. This was 2.5 times as much as the corresponding share of small enterprises within the manufacturing sector (26.8%)[3].

Small enterprises were particularly active in the building completion sector (NACE Group 45.4), where self-employed plasterers, decorators, plumbers and electricians make-up a sizeable share of the workforce. In this sector, small enterprises (with between 1 and 49 persons employed) accounted for 88.5% of total value added, whilst in activities where scale economies played a more important role the share of small enterprises was somewhat reduced. For example, 57.8% of the value added created in the building of complete constructions (or parts thereof) and civil engineering (NACE Group 45.2) was generated by small enterprises[4].

(2) F, A, P, FIN, S, 1999; B, DK and I, 1998; UK, 1997; D, EL, E, IRL, L and NL, not available.
(3) F, A, P, FIN, S, 1999; B, DK, E, IRL, I and NL 1998; UK, 1997; D, EL and L, not available.
(4) F, A, P, FIN, S, 1999; B, DK and I, 1998; UK, 1997; D, EL, E, IRL, L and NL, not available.

Table 14.1

Construction (NACE Division 45)
Value added in the EU, growth rates (%) (1)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	5-year AAGR
Value added in constant prices										
Total (NACE Sections A to Q)	1.3	-0.4	3.0	2.4	1.6	2.5	2.9	2.5	3.5	2.6
Construction	1.5	-4.1	2.2	-0.2	-1.3	-1.1	0.8	2.3	2.0	0.5

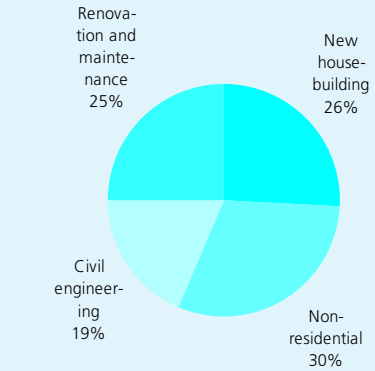
(1) AAGR (average annual growth rates) are given with respect to the latest published year for each activity.
Source: Eurostat, National Accounts - Breakdowns by branch of activity (theme2/brkdowns)

Box 14.1: breakdown of construction output

Construction output can be divided into four main categories: private house-building; non-residential construction; renovation and maintenance; and civil engineering. According to FIEC, non-residential construction accounted for 30% of the EU's production value in 2000 (see figure 14.2). It was the largest activity, preceding new house-building (individual dwellings and apartment blocks) which accounted for 26% of the total. Civil engineering (for example roads, railways, bridges or tunnels) was the smallest construction sector according to this classification, generating 19% of production value, whilst one-quarter of total construction activity was accounted for by renovation and maintenance activities.

Figure 14.2

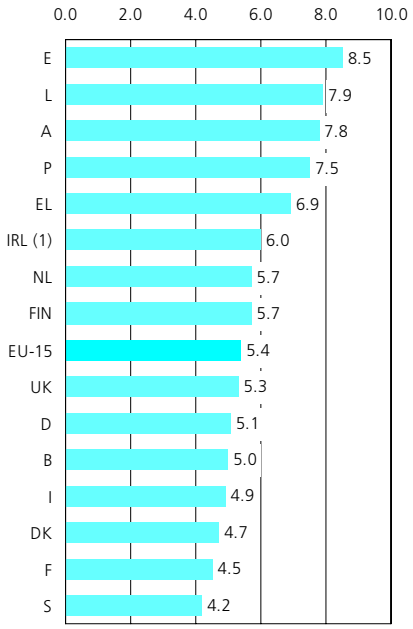
Breakdown of construction output in the EU, 2000 (1)



(1) Estimates.
Source: FIEC

Figure 14.1

Construction (NACE Division 45)
Share of total value added, 2000 (%)



(1) 1999.
Source: Eurostat, National Accounts - Breakdowns by branch of activity (theme2/brkdowns)

FOREIGN DIRECT INVESTMENT

The EU's construction sector (NACE Section F) more than doubled its stock of foreign investment abroad in the second half of the 1990s. Between 1995 and 1999, stocks rose from 3.9 billion EUR to 8.8 billion EUR. The US was the largest partner, accounting for 46.8% of the EU's FDI abroad in 1999 (or 4.1 billion EUR), up from 40.2% in 1995.

Non-Community countries FDI stocks in the EU were much lower, equal to 2.7 billion EUR in 1999, although this figure marked a rapid development when compared to the level of stocks in 1995, 0.6 billion EUR. The US accounted for 36.1% of FDI stocks in the EU in 1999.

FDI plays a more important role within real estate services (NACE Division 70). The EU's stock of FDI abroad reached 16.9 billion EUR in 1999, of which 57.8% was located in the US. The stock of foreign investment in the EU was even higher, equal to 20.2 billion EUR in 1999, with just over a quarter of this total (25.8%) from the US, a share that was down considerably when compared to 1995 (46.6%).

Table 14.2

Construction (NACE Division 45)
Foreign direct investment, 1999 (million EUR)

	In the reporting economy	Abroad	(% of investment abroad) Intra	Extra	JP (1)	US
EU-15	2,663	8,790	:	100.0	0.2	46.8
B	:	:	:	:	:	:
DK	328	118	58.5	40.7	:	:
D	471	1,187	22.5	77.6	0.0	22.9
EL	646	217	39.6	60.4	:	39.6
E	2,336	1,429	:	:	:	:
F	186	1,455	46.5	53.6	0.0	1.2
IRL	:	:	:	:	:	:
I	:	:	:	:	:	:
L	:	:	:	:	:	:
NL	808	1,437	64.3	35.7	0.0	9.0
A	81	399	48.4	51.6	:	:
P	400	134	24.6	75.4	0.0	20.9
FIN (2)	75	:	:	:	:	:
S	1,401	2,920	:	:	:	:
UK	909	4,319	21.0	79.0	0.0	68.0

(1) D, 1998.
(2) 1997.
Source: Eurostat, European Union Direct Investments (theme2/bop/fdi)

Table 14.3

Real estate activities (NACE Division 70)
Foreign direct investment, 1999 (million EUR)

	In the reporting economy (1)	Abroad	(% of investment abroad) Intra	Extra	JP	US
EU-15	20,166	16,853	:	100.0	0.2	57.8
B	:	:	:	:	:	:
DK	582	285	87.0	13.0	:	:
D	2,857	5,373	40.5	59.5	0.0	33.7
EL	1,194	:	:	:	:	:
E	5,933	569	:	:	:	:
F	1,463	2,493	12.7	87.3	0.0	81.9
IRL	:	:	:	:	:	:
I	:	:	:	:	:	:
L	:	:	:	:	:	:
NL	17,239	15,900	57.6	42.4	:	31.0
A	283	1,445	79.0	20.0	:	:
P	724	13	23.1	84.6	0.0	0.0
FIN	0	-30	123.3	-23.3	:	:
S	:	:	:	:	:	:
UK	1,554	2,252	63.4	36.6	0.0	16.1

(1) FIN, 1997.
Source: Eurostat, European Union Direct Investments (theme2/bop/fdi)

Box 14.2: international aspects

Table 14.4

Turnover of new international construction contracts by region, 1999 (million EUR) (1)

	B	DK	D	E	F	I	NL	A	P	FIN	S	UK
EU-15	2,937.8	0.0	2,475.2	532.9	6,098.8	291.8	3,861.0	0.0	0.9	38.5	4,591.0	463.5
Africa	292.7	42.2	237.4	169.8	2,251.9	531.1	321.8	:	5,753.5	1.9	0.0	405.3
North America	0.0	0.9	8,525.2	126.7	1,876.6	154.8	133.2	:	56.3	0.0	5,711.3	1,740.5
South America	4.7	35.7	47.9	2,233.1	563.0	1,695.5	304.0	:	11.3	5.6	0.0	113.5
Asia	915.8	61.9	304.0	44.1	1,688.9	16.9	606.1	:	0.5	3.8	0.0	1,384.9
Australia / Pacific	0.9	0.0	2,039.8	0.0	:	:	15.0	:	0.0	0.0	0.0	580.8
Middle East	266.5	0.0	68.5	23.5	656.8	153.9	176.4	:	0.0	2.8	0.0	792.8
Other	121.0	0.0	549.8	50.7	1,313.6	306.8	47.9	1,271.4	:	267.4	:	125.7

(1) EL, IRL and L, not available.
Source: FIEC

Construction is traditionally a local activity that is dominated by small enterprises and displays little export activity. However, several large EU companies are successful in world markets and FIEC reports that their activity has increased over the past decade.

The geographical distribution of international construction activity is very diversified and varies according to cultural, geographical and historical criteria. For example, Spanish construction firms have a strong presence in Latin America, British construction firms in North America and Asia, whilst Finnish construction firms are present in the Commonwealth of Independent States (see table 14.4).

Table 14.5

Top 20 international construction contractors, 2000 (1)

		Total international revenue (million EUR)	Share of total revenue (%)
Hochtief	D	9,878	75.7
Skanska AB	S	9,372	79.9
Bechtel Group Inc.	US	7,388	55.0
Vinci	F	6,859	39.2
Bouygues	F	6,144	44.8
Bovis Lend Lease	UK	4,807	76.6
Kellogg Brown & Root	US	4,290	74.9
Philipp Holzmann AG	D	3,881	60.1
HBG, Hollandsche Beton Groep	NL	3,870	77.3
Fluor Corp.	US	3,558	41.9
TECHNIP	F	2,929	97.0
AMEC PLC	UK	2,633	50.3
Bilfinger + Berger Bau AG	D	2,594	59.8
Hyundai Engineering & Const. Co. Ltd.	KR	2,185	45.2
Foster Wheeler Corp.	US	2,151	71.9
NCC	S	1,823	43.0
Consolidated Contractors Int'l Co.	EL	1,508	100.0
Kajima Corp.	JP	1,489	11.6
China State Const. Engineering Corp.	CN	1,387	27.2
PCL Construction Enterprises Inc.	US	1,302	63.5

(1) Ranked according to the construction revenue generated outside of each company's home country.
Source: Engineering News-Record, McGraw-Hill, 20 August, 2001, available at http://www.enr.com/dbase/2001tic.asp

LABOUR AND PRODUCTIVITY

According to National Accounts, employment in the construction branch was estimated at 11.1 million persons in the EU in 2000. Employment in construction alone accounted for between one-tenth of those employed in Luxembourg (10.5%, 1999) and Portugal (9.8%, 1999) down to 4.5% of the total in the United Kingdom, with an average of 6.7% in 2000[5].

(5) I, L, NL, A and P, 1999; E and S, 1998; F and IRL, not available.

National Accounts data confirms that there was a net increase in employment in the construction sector in most of the Member States between 1995 and 2000. Growth was particularly strong in Finland, where the average annual growth rate of employment reached 6.4%. High rates of job creation were also recorded in Spain (5.6% per annum) and the United Kingdom (4.1% per annum). Only Germany (-3.1%), France (-0.6%, 1994 to 1999) and Austria (-0.6%) recorded decreasing employment[6]. These figures reflect to a large extent the evolution of construction activity seen above.

(6) IRL and P, not available.

According to the LFS, self-employment (excluding family workers) was relatively important in the EU's construction sector as 21.8% of persons in employment were classified in this category in 2000, as compared to 7.3% for manufacturing (NACE Section D) and 17.8% for services (NACE Sections G to K).

Construction is a predominantly male activity, some 91.4% of the EU's construction labour force in 2000 were men, the manufacturing industry average being 71.6%. Some 5.4% of the persons employed in construction in the EU in 2000 worked part-time, less than the manufacturing average of 7.6%.

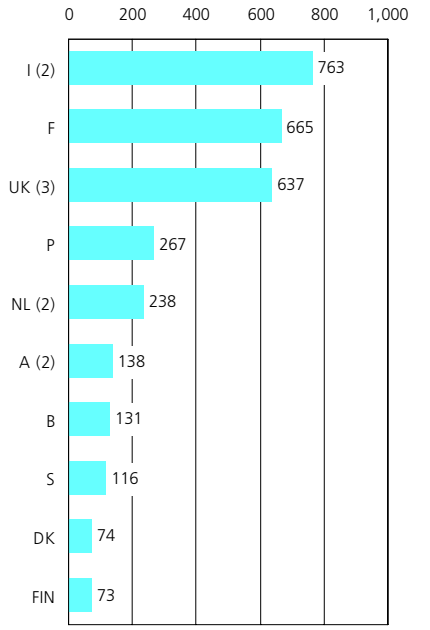
The educational attainment of the EU's construction workforce is spread, between a relatively small number who have completed a higher level of education (for example engineers) and a relatively high number that have at most completed only lower secondary education. Overall, the construction sector is characterised by a low level of education; only 11.8% of those persons in employment in the EU's construction sector in 1997 had a higher level education compared to a 16.5% average for manufacturing.

In most Member States, average personnel costs in the construction sector were equal to or greater than 30.0 thousand EUR per employee in 1999[7], with a maximum of 34.4 thousand EUR recorded in Sweden and Austria. Italy and Portugal recorded levels noticeably below these averages, with average personnel costs of 22.5 thousand EUR per employee and 11.2 thousand EUR per employee respectively. Wage adjusted labour productivity in the construction sector in 1999 was spread between 106% in the Netherlands and 152% in the United Kingdom[8].

(7) I, L and NL, 1998; UK, 1997; D, EL, E and IRL, not available.
(8) I, L and NL, 1998; UK, 1997; D, EL, E and IRL, not available.

Figure 14.3

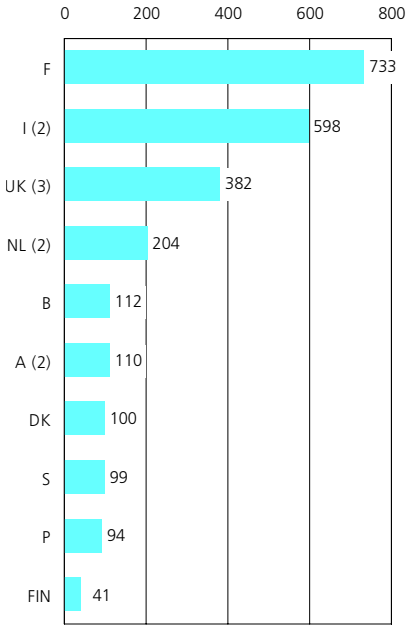
Site preparation and construction (NACE Groups 45.1 and 45.2) Number of persons employed, 1999 (thousands) (1)



(1) D, EL, E and IRL, not available.
(2) 1998.
(3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Figure 14.4

Building installation and completion; renting of construction equipment (NACE Groups 45.3 to 45.5) Number of persons employed, 1999 (thousands) (1)



(1) D, EL. E, IRL and L, not available.
(2) 1998. (3) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.6

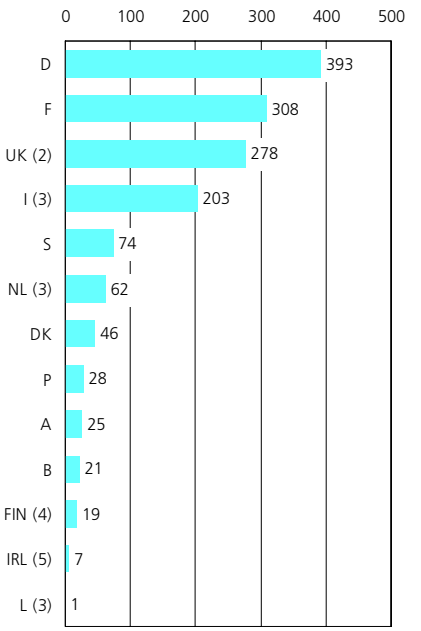
Construction (NACE Division 45) Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000	1995	2000 (1)	1995	2000	1995	2000 (2)
EU-15	8.5	8.6	5.0	5.4	22.7	21.8	11.2	11.8
B	6.3	5.7	3.5	5.5	19.5	22.1	8.7	10.6
DK	7.3	7.2	3.5	3.9	14.2	15.6	18.4	13.0
D	12.1	12.6	5.2	6.7	9.1	12.9	20.1	23.2
EL	1.2	1.9	4.5	3.4	35.5	33.3	2.7	6.0
E	3.6	4.9	1.4	1.5	22.8	19.6	9.5	12.0
F	10.0	9.5	5.3	5.2	19.1	18.7	5.6	7.3
IRL	5.6	4.3	5.8	4.8	26.3	26.5	13.8	14.5
I	4.9	5.9	4.1	4.4	34.9	35.4	4.0	3.6
L	7.9	6.5	:	4.1	6.6	5.6	3.7	4.1
NL	7.2	9.6	9.4	12.1	12.4	13.5	:	6.2
A	10.9	9.0	4.5	5.0	5.8	6.7	2.4	10.3
P	2.8	4.2	2.4	2.7	26.9	23.4	3.5	2.3
FIN	7.6	6.4	6.0	5.1	24.9	19.2	16.7	18.7
S	7.2	9.6	8.8	8.5	24.4	20.9	8.8	11.4
UK	9.7	9.5	6.9	6.8	43.6	31.2	11.9	14.8

(1) L, 1999. (2) EU-15 and IRL, 1997.
Source: Eurostat, Labour Force Survey

Figure 14.5

Real estate activities (NACE Division 70) Number of persons employed, 1999 (thousands) (1)



(1) EL and E, not available.
(2) Number of employees, 1997.
(3) 1998. (4) 2000. (5) 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

14.1: SITE PREPARATION AND CONSTRUCTION

Site preparation and the building of complete constructions (or parts thereof) and civil engineering are the first stages of construction activity; they are covered by NACE Groups 45.1 and 45.2. The activity of landscaping is addressed in sub-chapter 19.2.

Site preparation (NACE Group 45.1) includes relatively diverse activities, ranging from test drilling and boring to determine ground conditions, through demolition of existing buildings and structures, site clearance, ground stabilisation, excavation, to earth moving and trench digging. The building of complete constructions (or parts thereof) and civil engineering (NACE Group 45.2), hereafter referred to as general construction, constitutes the core activities of the construction sector.

STRUCTURAL PROFILE

In the absence of SBS data for site preparation and general construction activities (NACE Groups 45.1 and 45.2) for several countries, including Germany and Spain, it is not possible to calculate reliable EU aggregates for this sub-chapter[9]. However, available data indicates that these activities accounted for around 60% of value added generated in the whole of the construction sector (NACE Section F) in the late 1990s. This estimate should be treated with care, as it relies on the assumption that the structure of the construction sector in the missing countries is similar to the average for the other countries. In fact, data that is available shows that site preparation and general construction activities accounted for less than 50% of the value added generated in the construction sectors of Denmark (47%) and France (49%), whilst accounting for almost 80% of construction activity in Portugal. It is important to note that these shares are largely determined by the importance of general construction activities, which accounted for a share of between 43.2% of total construction value added in France and 77.4% in Portugal.

(9) D, EL, E, IRL and L, not available.

LABOUR AND PRODUCTIVITY

SBS data indicate that site preparation and construction activities accounted for 56% of total employment in the EU's construction sector (NACE Section F) in 1999[10]. Estimates put total employment at around 6 million persons.

It is notable that these activities accounted for a lower share of total construction employment than their share of value added, an indication of higher productivity. This assumption is confirmed when looking at wage adjusted labour productivity for site preparation and general construction activities (NACE Groups 45.1 and 45.2) which was above 120% in the majority of countries in 1999[11], rising to 157.9% in the United Kingdom (1997). France (107.8%) and the Netherlands (105.6%, 1998) were the only countries where it was below 110%.

One element to explain these figures could be average personnel costs. In the case of the Netherlands, for example, the low level of wage adjusted labour productivity may be related to the relatively high level of average personnel costs per employee, that reached 35.3 thousand EUR (1998). Only Danish (35.7 thousand EUR) and Austrian (37.9 thousand EUR) enterprises faced higher costs in 1999[12]. In contrast, average personnel costs were lower in the United Kingdom (31.8 thousand EUR, 1997), although they were below 30.0 thousand EUR in Finland (28.6 thousand EUR) and Italy (23.5 thousand EUR, 1998), and reached a minimum of 11.2 thousand EUR in Portugal.

(10) I, NL and A, 1998; UK, 1997;
D, EL, E, IRL and L, not available.
(11) I, NL and A, 1998; UK, 1997;
D, EL, E, IRL and L, not available.
(12) I, NL and A, 1998; UK, 1997;
D, EL, E, IRL and L, not available.

Box 14.3: developments in construction activity

FIEC states there was constant price production growth in construction activity across all Member States in 2000, except in Germany (-1.5%) - see table 14.7. The highest growth rate for 2000 was recorded in Ireland with an expansion of 8.9% in constant prices, ahead of Spain (7.3%). Recent data available for 2001, shows an end to the positive trend of production growth experienced in 1999 and 2000. There were notable reductions in construction output in Belgium (-4.6%), Denmark (-4.9%) and Germany (-5.5%) in 2001. Spain, however, continued to display strong growth (5.4%), led by the non-residential (7.2%) and civil engineering (10.0%) sectors, whilst there was also high growth in Sweden (4.2%), as a result of new house-building (12.2%) and civil engineering (6.2%).

Ireland was the country where the construction sector experienced its most rapid expansion during the 1990s, with just one year of contraction in 1993 and five years of double-digit growth. Irish production in constant prices doubled between 1991 and 1999. Spain, Portugal and Finland also reported high growth rates, with seven years of continuous growth from 1994 (Finland, 1995). Germany had a mixed pattern of development: the first half of the 1990s was characterised by a rapid expansion in production, following reunification, but construction activity decreased in every year between 1995 and 2000, with the exception of 0.4% growth in 1999. Despite this, construction activity in Germany was still 10.9% higher in 2000 than it had been in 1991 (in constant price terms). France, Italy and Sweden all reported low growth for construction activity during the 1990s.

Table 14.7

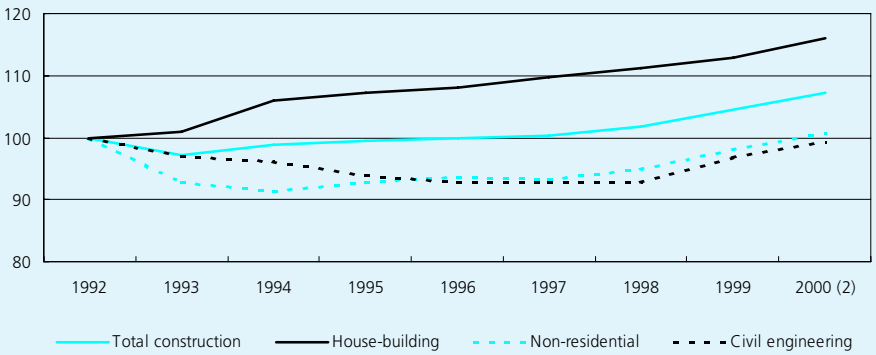
Annual growth rate of production in constant prices in the construction sector (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000 (1)
EU-15 (2)	0.7	-2.8	1.8	0.6	0.4	0.5	1.3	2.8	2.7
B	2.1	-5.0	2.0	3.2	-3.1	6.2	3.4	1.0	4.4
DK	0.5	-1.6	2.5	5.3	7.1	3.5	2.3	-5.1	3.4
D	10.7	1.8	6.9	-1.8	-2.8	-1.5	-1.0	0.4	-1.5
EL	:	:	:	:	:	:	:	:	:
E	-6.1	-6.4	1.6	5.7	0.1	2.2	5.7	8.5	7.3
F	-2.8	-5.1	-0.4	-1.4	-3.7	-1.1	0.8	5.6	5.5
IRL	1.1	-6.1	11.0	13.6	18.3	14.9	8.1	14.2	8.9
I	-1.3	-6.6	-6.3	0.9	3.5	-2.3	-0.1	1.8	3.4
L	:	:	:	:	:	:	:	:	:
NL	-0.1	1.0	-1.9	1.7	:	2.8	2.9	5.5	5.4
A	:	:	:	-3.3	2.4	1.3	3.0	1.0	2.0
P	2.9	-0.2	13.6	:	5.0	13.3	5.9	4.7	4.9
FIN	-17.2	-13.2	-2.5	2.8	6.5	11.7	11.0	6.0	4.7
S	-8.1	-11.4	-4.6	-0.9	1.1	-6.6	2.9	2.2	4.3
UK	-4.0	-1.9	3.3	-0.2	2.3	3.1	1.9	1.8	1.8

(1) Estimates.
(2) EL and L, not available.
Source: FIEC

Figure 14.6

Evolution of production in constant prices in the construction sector in the EU (1992=100) (1)



(1) EL and L, not available.
(2) Estimates.
Source: FIEC

At an EU level, growth in the construction sector during the 1990s was mainly in the area of house-building (see figure 14.6). In 2000, the production of house-building was 16.1% above its level of 1992, with not a single year of declining output. On the other hand, non-residential construction and civil engineering both experienced a downturn in activity from 1993 onwards, with a recovery not occurring until 1999. In both cases, production returned to its 1991 level during 2000. According to FIEC, the main reason for the poor performance of these two sectors was a contraction in publicly financed projects.

14.2: INSTALLATION AND COMPLETION

Installation and completion work for buildings (residential and non-residential) and civil engineering works is divided into nine Classes at the NACE 4-digit level: installation of electrical wiring and fittings (Class 45.31); insulation (Class 45.32); plumbing (Class 45.33); plastering (Class 45.41); joinery installation (Class 45.42); floor and wall covering (Class 45.43); painting and glazing (Class 45.44); and other building installation and completion activities (Class 45.34 and 45.45). This sub-chapter also covers the activities of renting construction or demolition equipment with an operator (Group 45.5).

Installation and completion enterprises intervene in the last stages of the production process, once a construction structure is completed. The renovation, repair and maintenance market is also particularly important for these sectors.

STRUCTURAL PROFILE

SBS data for installation and completion is unfortunately not available for several countries, including Germany and Spain, and hence it is impossible to compute EU aggregates for this sub-chapter[13]. Available data does however indicate that installation, completion and renting of construction equipment (NACE Groups 45.3 to 45.5) accounted for around 40% of the value added generated in the construction sector (NACE Section F) in 1999[14].

Within these activities, building installation (NACE Group 45.3) was the most important activity, generating 23.6% of total construction value added in 1999[15], with the installation of electrical wiring (Class 45.31) and plumbing (Class 45.33) by far the largest contributors, providing 12.1% and 10.5% of value added respectively.

(13) D, EL, E, IRL and L, not available.
(14) I, NL and A, 1998;
D, EL, E, IRL and L, not available.
(15) I, NL and A, 1998;
D, EL, E, IRL and L, not available.

Building completion (NACE Group 45.4) accounted on average for 15.7% of construction value added in 1999[16], ranging from 5.6% in Portugal to 25.2% in Denmark. The main Class within this Group was painting and glazing (Class 45.44), which accounted for 5.4% of total construction value added.

As regards the renting of construction or demolition equipment with operator (NACE Group 45.5), it accounted for a marginal share of construction activity, usually less than 1.0% of total construction value added in 1999[17], although Finland (1.7%), the Netherlands (2.0%, 1998) and the United Kingdom (2.0%) reported higher shares.

Whilst construction in general is characterised by a large population of small enterprises, the activities covered in this sub-chapter report even higher shares. On average micro-enterprises (with between 1 and 9 persons employed) accounted for 48.3% of construction (NACE Division 45) employment and 39.3% of value added. However, within building completion (NACE Group 45.4) they accounted for two-thirds (66.3%) of employment and 59.6% of the value added generated[18].

(16) I, NL and A, 1998;
D, EL, E, IRL and L, not available.
(17) I, NL and A, 1998;
D, EL, E, IRL and L, not available.
(18) F, A, P, FIN, S, 1999; B, DK and I, 1998;
UK, 1997; D, EL, E, IRL, L and NL, not available.

LABOUR AND PRODUCTIVITY

EU employment in the installation and completion sector is estimated at just under 5 million persons. This sector's wage adjusted labour productivity ratio was lower than 115% in the majority of Member States in 1999[19], although none reported a level below 100%. The minimum value was recorded in Belgium (101.8%), whilst France (105.8%) also had a low figure. The United Kingdom (141.7%, 1997) and Finland (127.7%) recorded the highest levels. Such differences originate from a disparity in apparent labour productivity, as the four countries mentioned all displayed similar levels of average personnel costs, between 28.5 thousand EUR per employee in Finland and 30.3 thousand EUR in the United Kingdom[20].

(19) I, NL and A, 1998; UK, 1997;
D, EL, E, IRL and L, not available.
(20) I, NL and A, 1998; UK, 1997;
D, EL, E, IRL and L, not available.

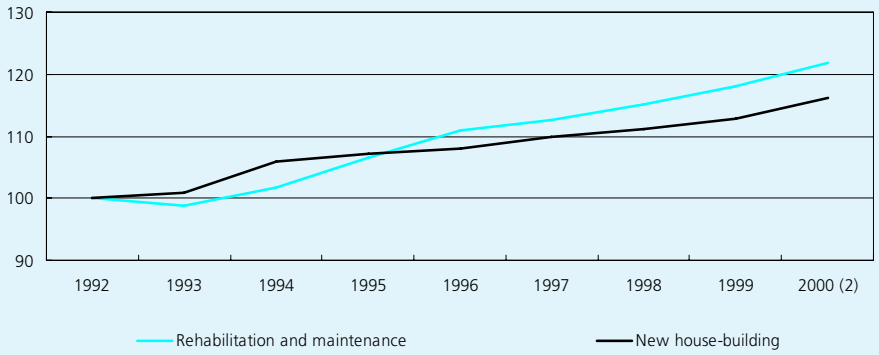
Box 14.4: renovation activity

FIEC estimates that EU growth rates in the repair, maintenance and improvement of residential buildings sector have exceeded those for new house-building in recent years (see figure 14.7). In 2000, production in constant price terms expanded by 3.3% in the EU, against 2.9% for new house-building. The average growth rate between 1992 and 2000 was 2.5% per annum, compared to 1.9% for new house-building.

Most countries in the EU recorded a majority of positive annual growth rates for the production of renovation and maintenance in constant price terms throughout the 1990s and into 2000, with four Member States reporting a positive evolution in every year: Spain, Italy, Portugal and Finland (see table 14.8).

Figure 14.7

Evolution of production in constant prices for the renovation and maintenance sector in the EU (1992=100) (1)



(1) EL and L, not available.
(2) Estimates.
Source: FIEC

Table 14.8

Annual growth rate of production in constant prices for the renovation and maintenance sector (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000 (1)
EU-15 (2)	2.5	-1.3	3.1	4.6	4.1	1.6	2.1	2.5	3.3
B	-1.9	-18.9	3.1	2.6	3.6	1.2	2.8	2.3	2.0
DK	2.0	29.1	9.9	0.7	-3.0	-3.2	0.8	9.9	12.2
D	8.1	-8.0	-2.7	6.5	6.2	0.3	2.8	1.9	0.2
EL	:	:	:	:	:	:	:	:	:
E	3.1	4.3	6.2	9.8	7.2	5.2	3.7	5.7	5.5
F	0.0	3.0	1.2	0.2	-1.8	1.0	1.7	2.4	7.2
IRL	7.9	-12.2	23.8	12.1	31.0	-2.1	-11.8	-5.5	13.9
I	2.5	4.7	10.7	4.3	2.3	2.4	3.4	5.7	5.0
L	:	:	:	:	:	:	:	:	:
NL	7.8	-2.9	-2.8	-0.3	:	2.0	2.9	3.0	2.8
A	:	:	:	-7.8	6.0	3.5	15.5	5.5	6.1
P	13.1	6.4	13.1	:	12.1	18.7	6.4	5.6	6.0
FIN	0.0	4.8	9.2	12.6	5.6	11.5	5.6	5.3	5.0
S	-3.2	-7.7	-5.9	-8.7	4.6	-7.7	-0.4	4.3	3.0
UK	-6.7	-1.2	5.1	1.7	0.4	2.2	-1.5	-2.1	0.0

(1) Estimates.
(2) EL and L, not available.
Source: FIEC

14.3: REAL ESTATE SERVICES

In the NACE classification, real estate services are covered by Division 70. Real estate activities are, strictly speaking, a service activity, classified in the NACE alongside other business services. They are nevertheless included in this chapter because of their natural relationship with the construction sector.

Real estate services have a dual nature: some relate to primary demand and the completion of property development, whilst others relate to the functioning of the secondary market. Developers and consultants specialising in feasibility studies are found in the first category, whilst estate agents operate largely in the secondary market, with expertise in surveying and valuation, as well as transactions and estate management.

LABOUR AND PRODUCTIVITY

Real estate services numbered some 1.5 million persons employed in the EU in 1999[21]. Most were working in Germany (393 thousand) and France (308 thousand). Italy, in contrast, reported only 203 thousand persons employed in real estate services. Sweden reported a noticeably high figure, with 73.6 thousand persons employed, which mirrored the importance of this sector in terms of value added.

Data from the LFS shows that real estate services had a relatively gender balanced workforce in 2000 (50.8% of women), and that self-employment was a relatively frequent work status (17.9% of persons employed). Part-time work was also relatively widespread, as it concerned 21.3% of the persons employed in 2000, whilst 23.8% of them had completed a higher education in 1997, above the 19.3% average for services (NACE Sections G to K).

Most countries had average personnel costs in real estate services of around 30.0 thousand EUR per employee in 1999[22], although a maximum of 44.3 thousand EUR was recorded in the Netherlands. There were relatively low average personnel costs in Italy (24.4 thousand EUR, 1998) and Denmark (21.7 thousand EUR), whilst the lowest figure was again recorded in Portugal (14.0 thousand EUR).

(21) I, L and NL, 1998; IRL and UK, 1997;
UK, number of employees; EL and E, not available.
(22) I, L and NL, 1998; UK, 1997;
D, EL, E and IRL, not available.

Please note that measures of value added and hence of labour productivity in real estate services have to be interpreted with care. The nature of these services, in particular NACE Groups 70.1 and 70.2 concerning development, selling and letting of real estate, mean that the cost structure faced by these enterprises is not comparable to other activities. In particular when real estate enterprises are the owner of the good they rent or lease they may well face considerably higher financial and depreciation charges.

Table 14.9

Real estate activities (NACE Division 70)
Labour force characteristics (% of total employment)

	Female		Part-time		Self-employed		Higher level of education	
	1995	2000 (1)	1995	2000	1995	2000 (2)	1995	2000 (3)
EU-15	48.1	50.8	20.4	21.3	19.0	17.9	24.4	23.8
B	43.6	51.3	:	37.6	30.4	23.9	30.8	29.7
DK	38.8	35.4	25.9	16.3	:	22.7	19.3	27.9
D	47.6	50.5	22.3	24.5	28.1	24.7	27.4	26.6
EL	:	:	:	:	:	:	:	:
E	42.6	50.3	12.2	10.1	26.1	25.3	34.9	48.0
F	55.0	56.4	18.8	17.8	11.1	8.8	17.7	21.4
IRL	:	41.8	:	:	:	:	:	:
I	37.3	41.1	7.4	9.5	49.0	56.6	23.4	9.4
L	:	:	:	:	:	:	:	:
NL	38.7	44.1	29.5	29.0	10.2	11.9	:	32.7
A	73.5	68.0	33.2	34.2	:	7.9	:	8.1
P	:	45.8	:	:	:	:	:	:
FIN	35.8	43.7	17.6	16.5	15.8	16.1	18.7	32.4
S	33.1	28.0	19.4	21.3	:	19.6	:	16.0
UK	50.2	53.2	23.5	24.9	13.7	12.9	32.5	37.1

(1) P, 1999.
(2) S, 1999.
(3) S, 1999; EU-15, 1997.
Source: Eurostat, Labour Force Survey

Box 14.5: housing transactions and prices

The EU's property sector experienced growth in the second half of the 1990s, after a difficult start to the beginning of the decade when slower economic growth and higher real interest rates were evident (see table 14.10). Most countries registered growth in the number of housing transactions from 1993 onwards, with the notable exception of Germany, where they fell from 754 thousand in 1993 to 550 thousand in 2000. One should also note that the housing market in the United Kingdom recorded almost twice the number of housing transactions when compared to either France or Germany, which could be related to the relatively low level of taxation on real estate in the United Kingdom.

Between 1993 and 2000, the price of dwellings (in current prices) increased in all Member States (see table 14.11). In Austria, Finland, Sweden and the United Kingdom, prices remained below their level of 1990 until at least 1995 before picking up. The highest rates of increase were recorded in Ireland and the Netherlands, where dwelling prices more than doubled between 1990 and 2000. It must be borne in mind that these figures refer to national averages and that significant variations can be recorded for different regions, cities or even local suburbs.

Table 14.10

Number of housing transactions (thousands)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
B	99.7	104.9	104.1	104.1	96.3	102.4	105.6	107.7	114.6	108.2
DK	52.4	60.1	63.2	71.4	74.1	76.9	78.1	76.6	81.3	:
D	543.0	612.5	754.3	662.2	619.5	600.0	570.0	595.0	580.0	550.0
EL	43.9	59.9	61.4	66.0	67.2	68.7	100.2	:	:	:
E	:	:	:	:	:	:	:	:	:	:
F (1)	712.5	611.1	623.7	684.3	639.1	773.1	:	739.0	:	:
IRL	37.1	44.4	45.4	50.2	49.3	61.0	64.7	68.9	78.6	80.9
I	555.9	465.4	501.9	495.2	502.5	483.8	523.6	576.3	639.6	:
L	3.1	3.7	3.0	:	:	:	:	:	:	:
NL (2)	211.1	245.3	198.0	215.0	224.0	259.0	281.0	280.0	292.0	268.0
A	:	:	:	:	:	:	:	:	:	:
P	150.2	166.0	178.1	186.9	186.0	:	:	:	:	:
FIN	62.1	68.0	75.2	71.1	68.2	83.3	81.4	88.0	90.0	:
S	57.2	33.3	35.7	42.7	41.9	46.6	54.7	52.2	61.1	54.4
UK	1,305.0	1,138.0	1,195.0	1,275.0	1,134.0	1,241.0	1,440.0	1,348.0	1,469.0	1,431.0

(1) Break in series as of 1992. (2) Break in series as of 1993.
Source: European Mortgage Federation

Table 14.11

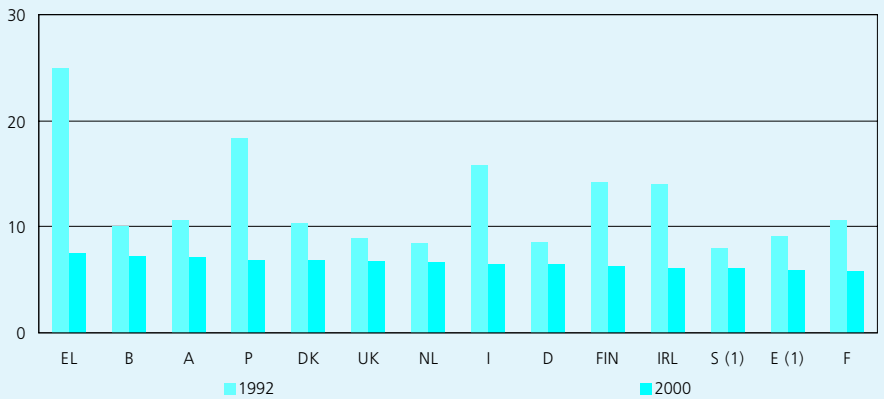
Trend in the price of dwellings (1990=100)

	1993	1994	1995	1996	1997	1998	1999	2000
B	123.0	132.4	138.1	143.9	146.0	150.0	169.0	:
DK	101.0	107.9	119.0	131.0	144.0	158.0	170.0	180.0
D	123.0	136.0	133.0	133.0	133.0	137.0	115.0	:
EL	:	:	:	:	:	:	:	:
E	112.4	113.5	117.4	119.7	121.3	127.0	140.0	160.0
F	103.0	111.0	105.0	108.0	110.0	124.0	:	:
IRL	106.3	111.3	118.3	133.0	156.0	191.0	227.0	258.0
I	120.0	116.4	118.2	117.6	:	:	:	:
L	:	:	:	:	:	:	:	:
NL	121.6	131.2	137.0	151.0	163.0	181.0	216.0	247.0
A	90.8	95.4	98.5	100.0	102.0	103.0	103.0	104.0
P	100.0	107.0	110.0	113.0	117.0	130.0	140.0	140.0
FIN	65.2	69.0	66.5	70.1	82.4	90.9	106.0	109.0
S	86.0	90.0	91.0	91.0	98.0	107.0	117.0	129.0
UK	92.5	94.8	95.5	98.9	108.1	120.0	133.8	152.9

Source: European Mortgage Federation

Figure 14.8

Interest rates for new mortgage loans (%)



(1) 1993 instead of 1992.
Source: European Mortgage Federation

Table 14.12

Site preparation (NACE Group 45.1)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	1,557	562	:	:	:	13,193	:	10,475	41	1,915	1,162	646	5,015	6,428	2,475
Turnover (million EUR)	708	266	:	:	:	8,127	:	2,070	:	1,137	571	388	1,237	1,819	3,092
Purchases of goods and services (million EUR)	419	170	:	:	:	5,157	:	1,294	:	682	275	296	752	1,138	1,925
Value added (million EUR)	278	102	:	:	:	2,693	:	869	:	432	302	109	477	684	1,140
Personnel costs (million EUR)	129	64	:	:	:	2,089	:	381	:	305	172	60	218	419	491
Number of persons employed (thousands) (2)	6.0	2.6	:	:	:	73.8	:	29.8	:	12.0	7.4	5.0	10.9	16.8	10.9
Gross investment in tangible goods (million EUR)	152	22	:	:	:	452	:	327	:	118	85	:	180	296	102
Gross operating rate (%)	21.2	14.3	:	:	:	7.4	:	23.6	:	13.4	22.8	12.6	21.0	14.6	21.0
App. labour productivity (thous. EUR/pers. emp.) (2)	46.4	38.5	:	:	:	36.5	:	29.2	:	36.1	41.1	21.8	43.6	40.7	68.6
Wage adjusted labour productivity (%) (2)	149.5	135.8	:	:	:	117.8	:	121.5	:	109.2	146.9	170.8	173.9	129.7	221.0

(1) I, L and NL, 1998; A, 1998, except for number of enterprises. (2) UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.13

Building of complete constructions or parts thereof; civil engineering (NACE Group 45.2)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	17,482	8,277	:	:	:	102,298	:	214,106	700	27,450	4,831	50,606	12,763	17,687	104,973
Turnover (million EUR)	15,068	9,400	:	:	:	60,752	:	73,353	1,216	30,352	13,694	20,850	8,609	12,762	117,747
Purchases of goods and services (million EUR)	10,758	6,354	:	:	:	40,659	:	52,792	622	22,067	7,850	19,194	6,298	9,522	82,036
Value added (million EUR)	4,519	3,233	:	:	:	19,028	:	20,059	533	8,425	5,870	4,405	2,440	4,939	37,073
Personnel costs (million EUR)	3,387	2,365	:	:	:	16,378	:	10,790	358	7,029	4,825	2,482	1,702	3,129	20,374
Number of persons employed (thousands) (2)	125.4	71.2	:	:	:	590.9	:	733.0	13.9	225.7	121.6	261.8	61.7	99.2	626.0
Gross investment in tangible goods (million EUR)	820	437	:	:	:	1,518	:	3,492	:	761	539	:	216	526	1,205
Gross operating rate (%)	7.5	9.2	:	:	:	4.4	:	12.6	15.2	4.6	7.6	9.2	8.6	14.2	14.2
App. labour productivity (thous. EUR/pers. emp.) (2)	36.0	45.4	:	:	:	32.2	:	27.4	38.5	37.3	48.3	16.8	39.6	49.8	50.0
Wage adjusted labour productivity (%) (2)	112.4	126.2	:	:	:	106.6	:	116.4	143.1	105.5	119.1	150.7	135.9	142.9	156.8

(1) I and NL, 1998, L, 1998, except for number of enterprises and turnover. (2) UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.14

Building installation (NACE Group 45.3)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	15,091	5,978	:	:	:	76,811	:	117,967	464	10,575	5,368	13,212	6,175	13,594	53,375
Turnover (million EUR)	5,299	4,251	:	:	:	28,808	:	25,459	576	11,321	5,274	2,845	2,814	6,326	28,534
Purchases of goods and services (million EUR)	3,541	2,365	:	:	:	17,220	:	17,162	300	7,262	2,982	2,040	1,784	3,892	16,565
Value added (million EUR)	1,779	1,953	:	:	:	11,278	:	8,929	213	4,080	2,320	841	1,032	2,579	11,853
Personnel costs (million EUR)	1,226	1,500	:	:	:	9,086	:	4,567	155	3,229	1,778	594	738	2,064	6,854
Number of persons employed (thousands) (2)	54.5	47.8	:	:	:	349.1	:	374.9	6.2	123.0	67.4	60.5	27.8	64.2	226.8
Gross investment in tangible goods (million EUR)	262	132	:	:	:	578	:	907	:	280	142	:	60	142	319
Gross operating rate (%)	10.4	10.7	:	:	:	7.6	:	17.1	11.4	7.5	10.3	8.7	10.4	8.1	17.5
App. labour productivity (thous. EUR/pers. emp.) (2)	32.6	40.9	:	:	:	32.3	:	23.8	34.6	33.2	34.4	13.9	37.2	40.2	42.5
Wage adjusted labour productivity (%) (2)	101.4	120.2	:	:	:	106.9	:	114.3	127.9	113.1	123.0	117.7	125.7	111.6	131.6

(1) I and NL, 1998, L, 1998, except for number of enterprises and turnover. (2) UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.15

Building completion (NACE Group 45.4)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	19,239	11,486	:	:	:	115,872	:	138,759	579	17,505	6,164	13,395	3,987	11,914	43,296
Turnover (million EUR)	4,589	4,086	:	:	:	25,530	:	8,821	327	4,882	2,952	1,093	813	2,318	17,499
Purchases of goods and services (million EUR)	2,954	2,410	:	:	:	14,544	:	5,099	169	2,508	1,463	778	442	1,327	10,271
Value added (million EUR)	1,612	1,797	:	:	:	10,825	:	4,139	148	2,383	1,494	319	377	1,027	7,058
Personnel costs (million EUR)	995	1,221	:	:	:	8,333	:	1,158	108	1,729	1,064	193	252	772	3,331
Number of persons employed (thousands) (2)	57.0	51.2	:	:	:	380.8	:	220.9	4.7	74.2	46.0	32.2	11.5	32.8	133.7
Gross investment in tangible goods (million EUR)	328	174	:	:	:	651	:	561	:	207	108	:	34	89	129
Gross operating rate (%)	13.4	14.1	:	:	:	9.8	:	33.8	12.6	13.4	14.6	11.5	15.3	11.0	21.3
App. labour productivity (thous. EUR/pers. emp.) (2)	28.3	35.1	:	:	:	28.4	:	18.7	31.1	32.1	32.5	9.9	32.8	31.3	41.1
Wage adjusted labour productivity (%) (2)	101.0	121.1	:	:	:	104.6	:	94.0	120.6	93.4	123.0	106.6	126.5	101.8	155.0

(1) I and NL, 1998, L, 1998, except for number of enterprises and turnover. (2) UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.16

Renting of construction or demolition equipment with operator (NACE Group 45.5)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	48	120	:	:	:	329	:	827	4	895	3	114	332	1,195	4,059
Turnover (million EUR)	147	91	:	:	:	422	:	130	:	692	20	50	131	242	2,148
Purchases of goods and services (million EUR)	77	48	:	:	:	236	:	67	:	376	10	29	62	149	929
Value added (million EUR)	65	44	:	:	:	176	:	64	:	318	10	22	73	97	1,192
Personnel costs (million EUR)	29	25	:	:	:	115	:	23	:	202	4	10	36	46	538
Number of persons employed (thousands) (2)	0.8	0.7	:	:	:	3.6	:	1.9	:	7.2	0.1	0.8	1.4	2.2	21.7
Gross investment in tangible goods (million EUR)	51	18	:	:	:	43	:	39	:	134	2	:	34	50	295
Gross operating rate (%)	24.8	21.2	:	:	:	14.5	:	31.5	:	16.6	31.0	22.2	28.5	21.2	30.5
App. labour productivity (thous. EUR/pers. emp.) (2)	78.8	65.6	:	:	:	49.1	:	34.1	:	44.4	73.3	25.5	51.2	43.3	58.9
Wage adjusted labour productivity (%) (2)	212.4	163.4	:	:	:	149.6	:	138.4	:	133.4	194.3	191.4	184.7	126.4	188.5

(1) I, L and NL, 1998; A, 1998, except for number of enterprises. (2) UK, 1997.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)

Table 14.17

Real estate activities (NACE Division 70)

Main indicators in the EU, 1999 (1)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Number of enterprises (units)	10,078	24,725	241,843	:	61,472	140,358	2,279	134,404	817	16,850	3,839	10,439	8,494	29,225	64,954
Turnover (million EUR)	5,085	9,421	112,543	:	:	60,498	501	20,010	307	20,129	6,038	7,847	3,813	17,341	41,857
Purchases of goods and services (million EUR)	3,672	4,164	:	:	:	34,106	225	11,395	209	6,746	3,349	7,838	2,061	8,773	18,614
Value added (million EUR)	1,537	5,476	214,823	:	:	20,642	270	10,263	85	10,729	2,865	1,557	1,683	9,614	:
Personnel costs (million EUR)	377	750	11,504	:	:	7,322	:	1,041	31	2,396	719	279	476	1,786	7,475
Number of persons employed (thousands)	21.3	45.6	393.0	:	:	308.1	6.9	203.5	1.4	62.3	25.2	27.8	18.6	73.6	:
Gross investment in tangible goods (million EUR)	1,283	1,618	140,268	:	:	17,950	134	3,623	:	3,234	2,927	2,065	921	8,300	22,339
Gross operating rate (%)	22.8	50.2	180.7	:	:	22.0	:	46.1	18.3	41.4	35.5	16.3	32.9	45.1	:
App. labour productivity (thous. EUR/pers. emp.)	72.0	120.0	546.6	:	:	67.0	39.1	50.4	62.9	172.4	113.6	56.1	87.8	130.6	:
Wage adjusted labour productivity (%)	228.9	552.2	1,530.0	:	:	205.1	:	207.0	218.0	389.5	356.6	399.4	316.4	380.4	:

(1) I and NL, 1998; E and IRL, 1997; L, 1998, except for turnover.
Source: Eurostat, Structural Business Statistics (theme4/sbs/enterpr/enter_ms)