

Statistics in focus

INDUSTRY, TRADE AND SERVICES

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Author

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The impact of price changes within industrial chains

For a selection of activities the publication shows the impact of price changes for intermediate goods on downstream activities: in a number of cases several successive stages of downstream processing can be identified where there is a clear impact. However, many downstream activities consume or process a very wide range of materials and energy products and the impact of changes in output prices of any individual upstream activity can not be clearly seen. The activities covered are industrial activities, and therefore do not include primary activities such as agriculture, forestry and fishing, nor downstream activities such as construction and distribution.

The analysis focuses on the domestic output price index for EU-25. Ideally an import price index should also be used as producers in downstream activities may source materials and energy products internationally as well as domestically. Whilst domestic output prices have long been available for the EU and its Member States, the compilation of import price indices are less widespread, and have only been added to the legal basis for EU short-term statistics through an amendment adopted in 2005. For this reason this publication shows a unit value index for crude materials, identifying separately fuels from other inedible crude materials: these unit value indices concern a group of relatively homogenous products that are judged to be relevant for this analysis.

Price levels result from both supply and demand, and hence while changes in the output price of materials may have an impact on the output prices of downstream activities, other factors are also involved.

Figure 1 shows that during periods of rising prices the downstream price changes are stronger than during periods of falling prices. The time lag between movements in the crude materials UVI and the PPIs for the energy and intermediate goods industries are short (less than three months). During the first four years presented in Figure 1 the price development of intermediate goods followed more closely the development of the UVI for crude inedible materials other than fuel, whilst during the rest of the period shown the price development of intermediate goods follows more closely that of energy and imported fuel products.

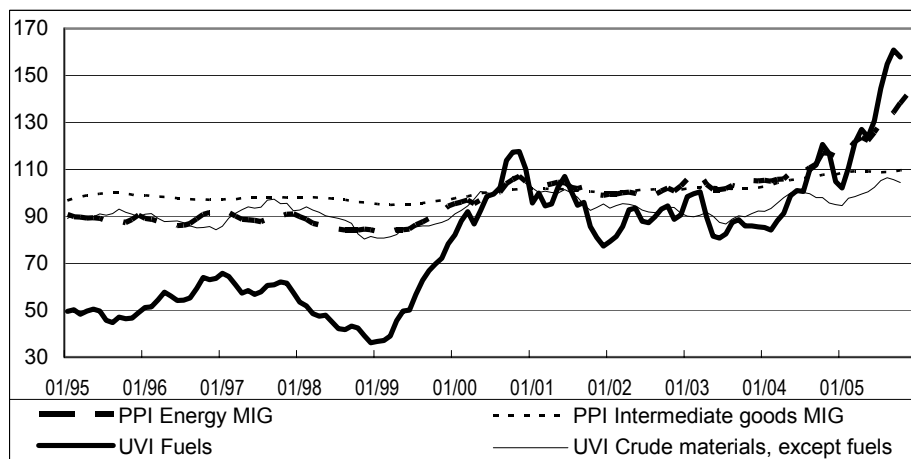


Figure 1: Producer price indices (PPI) and unit value indices (UVI), EU-25 (2000=100)

Output prices of the chemical industry under the influence of its main material: petroleum

The first selected upstream activities concern the mining and extraction of energy producing products, essentially fossil fuels. These are used in energy supply activities and are also processed, notably petroleum products being refined, with further industrial downstream processing in chemical, plastics and rubber manufacturing. The main material used in the chemical industry is petroleum and its refined derivatives.

Figure 2 shows the first part of the chain, with the manufacture of refined petroleum products (Group 23.2) and the manufacture of other organic basic chemicals (Class 24.14), as well as the UVI for mineral fuels, lubricants and related materials. The UVI and the PPI for refining were quite volatile, although for refining less so, and they moved in line with each other. The index for other organic basic chemicals manufacturing was again less volatile than for refining, and generally showed a lag in its movement. For example, there was an increase in the index for petroleum refining that started from a low in February 1999, with a consequent rise from March 1999 for the manufacture of other organic basic chemicals. In a similar vein, the petroleum refining index fell from October 2000 while the index for other organic basic chemicals did not start to fall until two months later. Table 1 shows the rates of change for these same indices over a number of selected periods.

Figure 3 shows the impact on rubber based activities and Table 2 shows for selected periods the rates of

change for the manufacture of refined petroleum products and the manufacture of synthetic rubber in primary forms (Class 24.17). The impact of the relatively volatile output prices for the manufacture of synthetic rubber in primary forms on the output price index of rubber products manufacturing (Group 25.1) was relatively small, as natural rubber is the main raw material for rubber products.

Period		Fuels	Group 23.2	Class 24.14
Aug-95	Jan-97	2.3%	0.9%	-0.5%
Jan-97	Dec-98	-2.5%	-0.9%	-1.2%
Dec-98	Nov-00	5.2%	3.0%	2.1%
Nov-00	Jun-03	-1.2%	-0.6%	-0.3%
Jun-03	Sep-05	2.6%	1.6%	1.5%

Table 1: Refined petroleum and organic chemicals: monthly rates of change for selected periods, EU-25

Period		Group 23.2	Class 24.17
Feb-99	Oct-00	3.0%	1.4%
Oct-00	Dec-01	-1.9%	-1.3%
Dec-01	Mar-03	1.6%	1.0%
Mar-03	Jun-03	-5.1%	-0.8%
Jun-03	Oct-05	1.6%	0.2%

Table 2: Refined petroleum and rubber: monthly rates of change for selected periods, EU-25

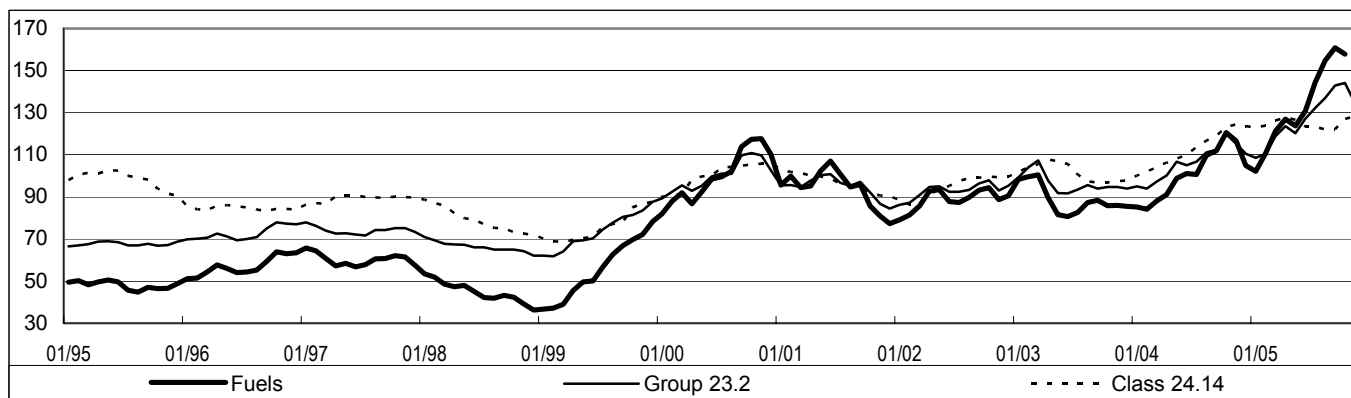


Figure 2: Petroleum refining (23.2) and other organic basic chemicals (24.14), EU-25 (2000=100)

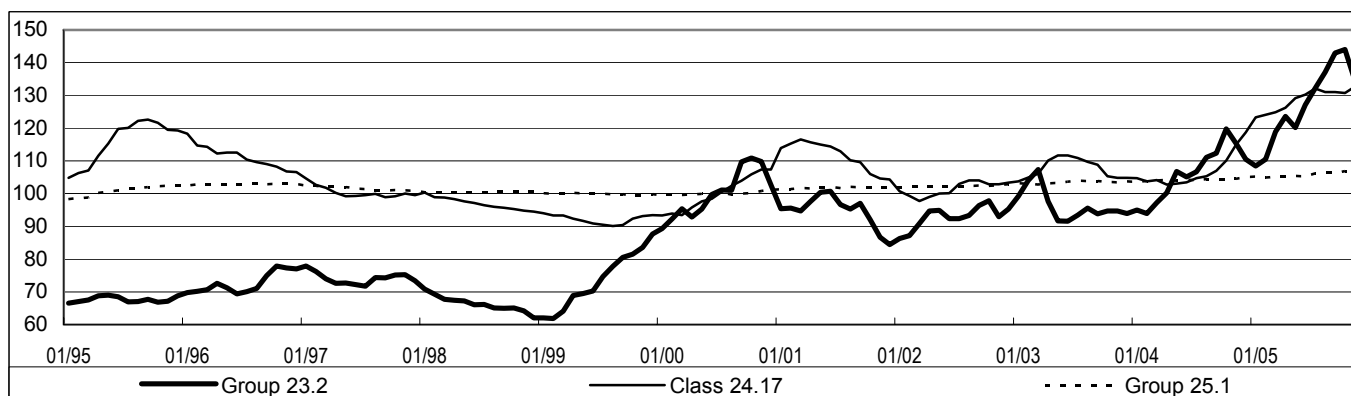


Figure 3: Petroleum refining (23.2), synthetic rubber (24.17) and rubber products (25.1), EU-25 (2000=100)

Textiles and clothing: price volatility at the beginning of the chain is less apparent nearer its end

The second group of activities presented concerns textiles and clothing manufacture. Figure 4 shows the first two stages in the preparation of textiles, namely the preparation and spinning of textile fibres (Group 17.1) and textile weaving (Group 17.2), and it can be seen that the output price indices followed a similar trend with a clear lag between the two in terms of their high and low points. An analysis of the two series indicates that the lag was generally around five months for the time period shown. Table 3 shows the rates of change for these same indices over a number of selected periods, as well as the UVI for inedible crude materials except fuels. The ratio between these rates of change is generally greater for the first stage (preparation) than for the second: on average during the periods shown the ratio was 4.5 between the change for crude materials and preparation, while it averaged 2.8 between preparation and weaving.

Figure 5 shows output price indices for the manufacture of textiles (Division 17) and the downstream activity of the manufacture of wearing apparel and the dressing and dyeing of fur (Division 18). Although the index for

the upstream textile activity was slightly more volatile, the one for the downstream activity did not follow any of the movements of the previous one. The two indices have however similar trends. Over the period shown, the textile manufacturing index grew by 0.9 % per annum on average and the index for the manufacture of wearing apparel and the dressing and dyeing of fur by 1.4 %.

Period		Crude materials	Group 17.1	Group 17.2
Jun-93	Oct-95	1.2%	0.5%	0.3%
Oct-95	Jan-97	-0.7%	-0.2%	-0.1%
Jan-97	Oct-97	1.4%	0.3%	0.2%
Oct-97	Dec-98	-1.4%	-0.3%	-0.2%
Dec-98	Dec-00	1.2%	0.3%	0.2%
Dec-00	Aug-03	-0.7%	-0.1%	-0.1%
Aug-03	Sep-05	0.8%	0.1%	0.0%

Table 3: Textile preparation and weaving: monthly rates of change for selected periods, EU-25

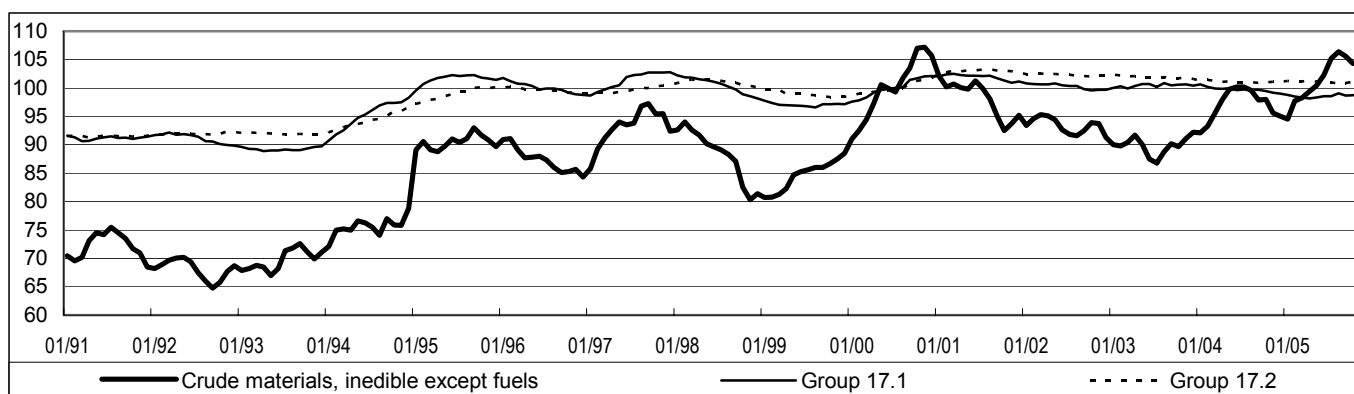


Figure 4: Textile preparation (17.1) and weaving (17.2), EU-25 (2000=100)

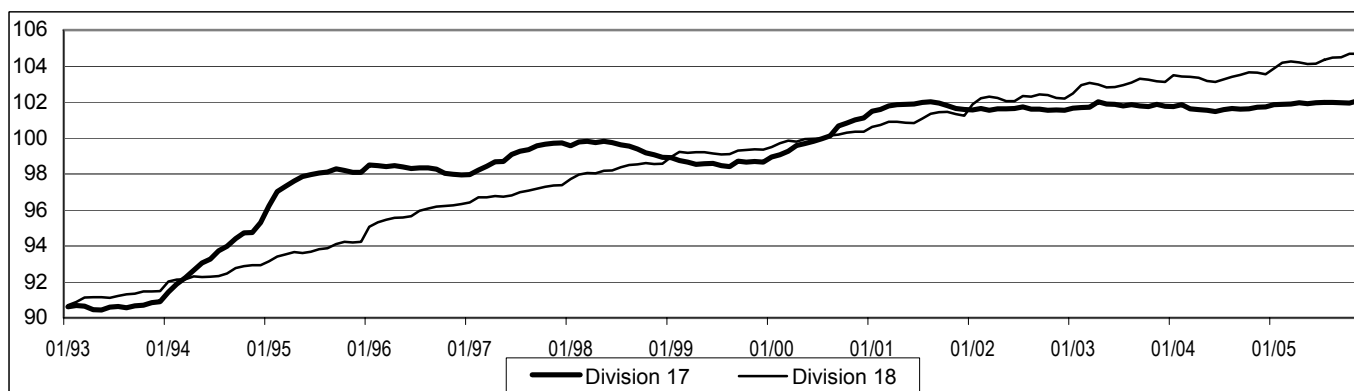


Figure 5: Textiles (17) and clothing (18), EU-25 (2000=100)

Wood, pulp and paper: prices influenced by global prices.

Figure 6 shows output price indices for the first processing stage of wood, namely sawmilling and planing (Group 20.1), and then for two further manufacturing stages involving relatively simple products, namely the manufacture of wooden sheets; boards and panels (Group 20.2) and wooden containers (Group 20.4). Furthermore, it also shows the UVI for inedible crude materials except fuel, which includes pulp and waste paper. The index for the first processing stage was notably more volatile, particularly compared with that for the manufacture of wooden containers, and generally led the indices of the two processing stages by around six months: this was particularly visible with respect to the strong price changes during 1995 and 1996.

Figure 7 shows three related manufacturing activities: the manufacture of pulp (Class 21.11), paper and paperboard (Class 21.12), corrugated paper and paperboard and containers thereof (Class 21.21). The first of these had the most volatile output price index. However, the main movements in the price index for

pulp were reflected in the indices of the two downstream activities. During the earliest peak shown, at the end of 1995, the indices for the two downstream activities led that of pulp manufacturing, but this situation was reversed for the peaks in late 1997 and late 2000. Table 4 shows the rates of change for these same indices over a number of selected periods and underlines the smoothness of the price development at the later stages of the chain.

Period		Class 21.11	Class 21.12	Class 21.21
Jan-95	Oct-95	1.8%	1.8%	1.2%
Oct-95	May-96	-7.1%	-1.1%	-0.6%
May-96	Nov-98	-0.3%	-0.1%	0.0%
Nov-98	Dec-00	2.8%	0.8%	0.6%
Dec-00	Sep-01	-5.1%	-0.4%	-0.2%
Sep-01	Nov-05	0.0%	-0.2%	0.0%

Table 4: Pulp, paper & paperboard, corrugated paper & paperboard & containers: monthly rates of change for selected periods, EU-25

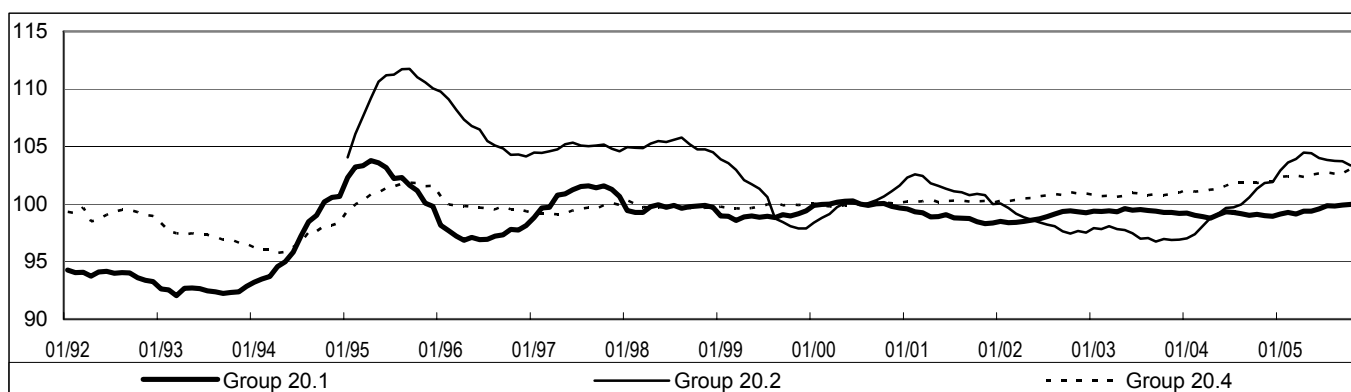


Figure 6: Sawmilling & planing (20.1), wooden sheets, boards & panels (20.2) and containers (20.4), EU-25 (2000=100)

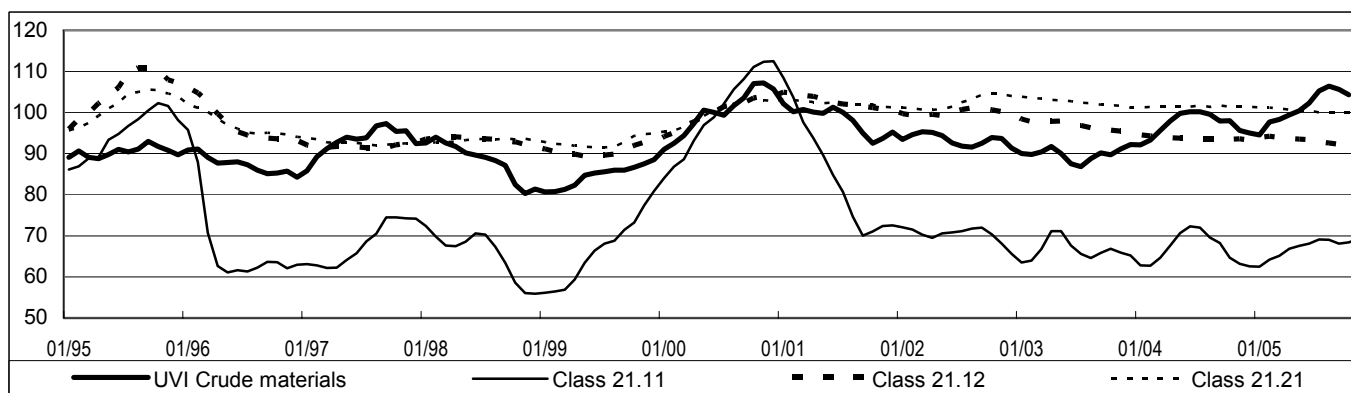


Figure 7: Pulp (21.11), paper & paperboard (21.12), and corrugated paper & paperboard & containers thereof (21.21), EU-25 (2000=100)

Metal processing: changes in basic iron and steel prices led the changes in prices of downstream activities, and all showed a similar development

Figure 8 shows output price indices for the manufacture of basic iron and steel (Group 27.1), tubes (Group 27.2) and other iron and steel first processing (Group 27.3). These indices followed a similar path, with the manufacture of basic iron and steel and of tubes generally leading the other processing activity, although the lags were quite short, between one and three months. Figure 9 shows the production of aluminium (Class 27.42) and the casting of light metals (Class 27.53) which includes the casting of aluminium as well as other light metals. The two indices reached

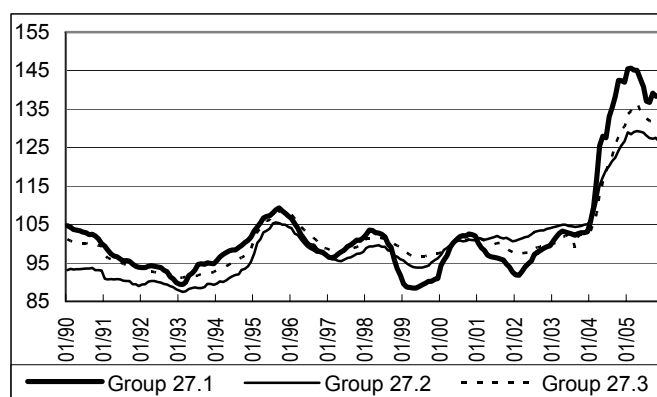


Figure 8: basic iron and steel (27.1), tubes (27.2) and other iron and steel first processing (27.3), EU-25 (2000=100)

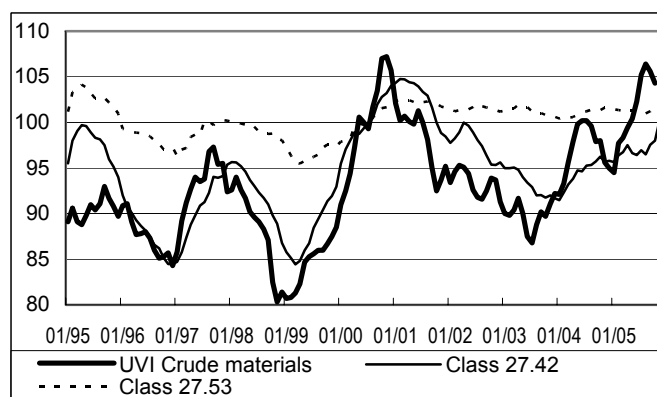


Figure 9: aluminium production (27.42) and light metal casting (27.53), EU-25 (2000=100)

high and low points in tandem through the first six years until a peak in March/April 2001, after which the index for casting remained relatively stable compared with the index for aluminium production. Table 5 shows the rates of change for these same indices.

Period		Crude materials	Class 27.42	Class 27.53
Jan-95	Oct-95	0.5%	1.5%	1.0%
Oct-95	Jan-97	-0.7%	-0.8%	-0.4%
Jan-97	Oct-97	1.4%	0.9%	0.4%
Oct-97	Dec-98	-1.4%	-0.9%	-0.3%
Dec-98	Dec-00	1.2%	0.9%	0.3%
Dec-00	Aug-03	-0.7%	-0.4%	-0.1%
Aug-03	Sep-05	0.8%	0.4%	0.1%

Table 5: Aluminium production & casting of light metals: monthly rates of change for selected periods, EU-25

Considering the manufacture of jewellery (Class 36.22) and of precious metals (Class 27.41), although both series were volatile, the index for jewellery was generally a smoother version of that for precious metals - see Figure 10. Most of the movements in the precious metals index were reflected in the index for jewellery manufacture and there was generally no lag between the movements of the two indices. The index for precious metals rose on average by 6.3 % per annum over the period shown and that for jewellery by 2.6 %.

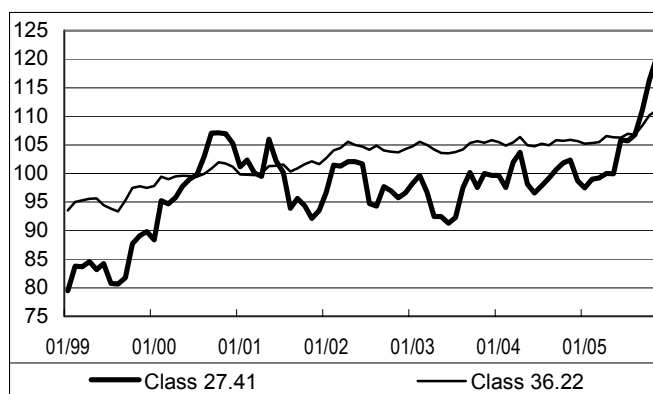


Figure 10: Precious metals production (27.41) and jewellery manufacture (36.22), EU-25 (2000=100)

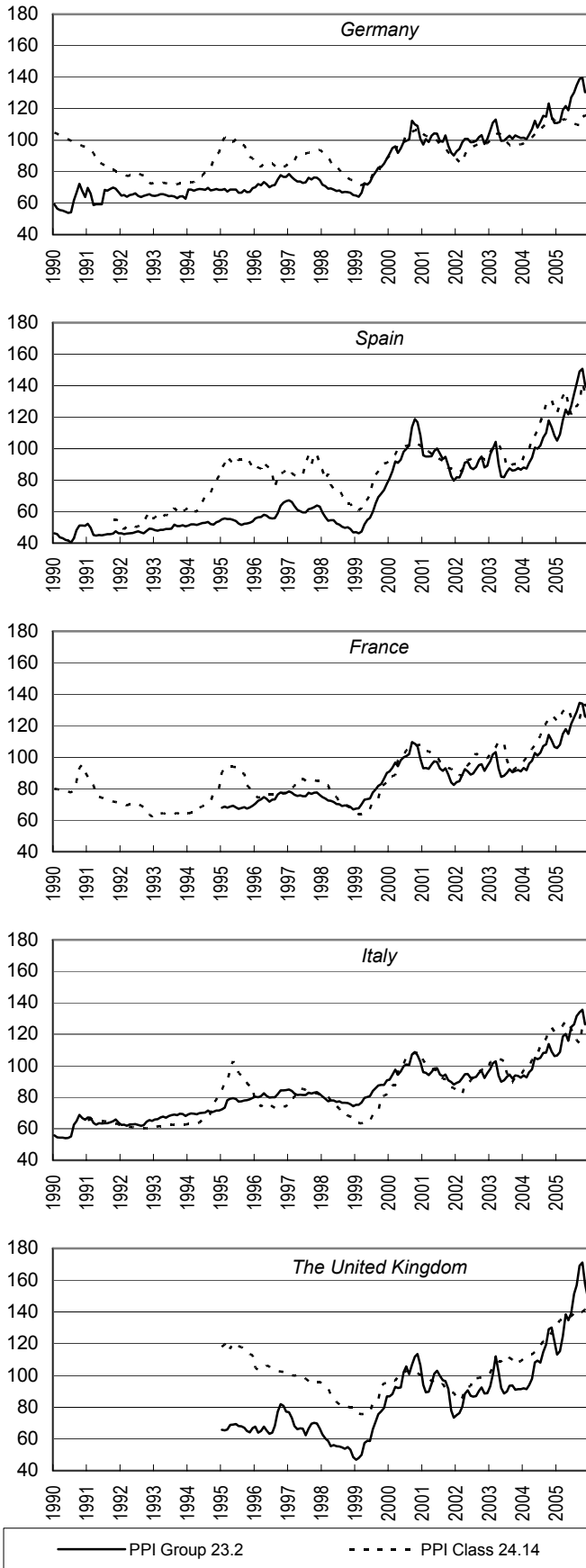
An analysis for the larger Member States

Figure 11 on the next page shows the output price indices for the manufacture of refined petroleum products (Group 23.2) and other organic basic chemicals (Class 24.14). In all of the countries the petroleum refining index and that of organic basic chemicals developed in a very similar manner, particularly in more recent years. The development of these indices was particularly similar in Germany and France and less so in the United Kingdom.

All of the Member States showed a relatively similar trend with respect to their output price indices for the

manufacture of basic iron and steel (Group 27.1) tubes (Group 27.2) and other first processing of iron and steel (Group 27.3) - see Figure 12. The index for the manufacture of tubes generally showed the least pronounced price increases and decreases in the four Member States with data available, and this was particularly true in the United Kingdom. In Germany and Spain there was a clear lag between price movements for the manufacture of basic iron and steel and the two other activities.

Petroleum refining and chemicals



Iron and steel

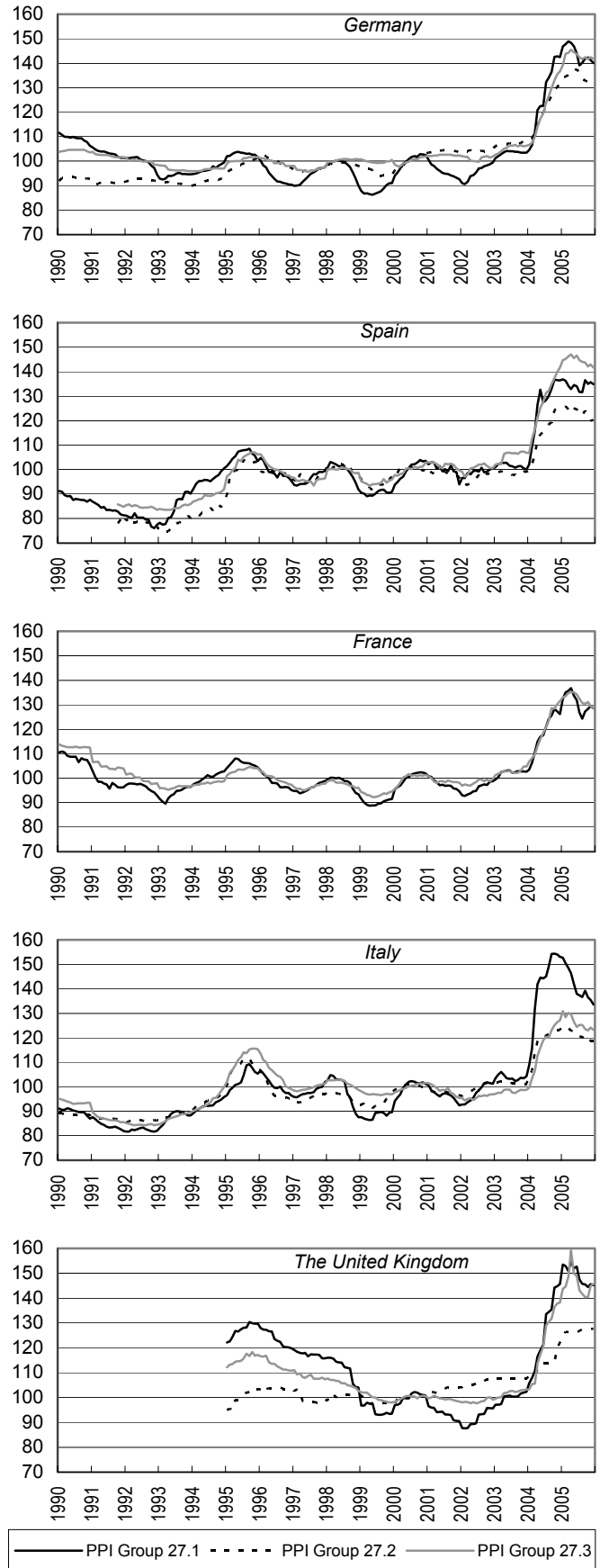


Figure 11: petroleum refining (23.2) and other organic basic chemicals (24.14) (2000=100)

Figure 12: basic iron & steel man'f. (27.1), tubes (27.2) & other iron & steel first processing (27.3) (2000=100)

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Producer price index

The **output price index** (or *producer price index*) shows monthly price changes in the industrial sector, which can be an indicator of inflationary pressure before it reaches the consumer.

Covered are mining & quarrying, manufacturing and electricity & gas & water supply.

The **legal basis** for the index is the Council Regulation **No 1165/98** of 19 May 1998 concerning short-term statistics¹ and Regulation (EC) **No 1158/2005** of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No 1165/98 concerning short-term statistics².

Definition³

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.

The actual transaction price should be measured, and not a list price.

If transport costs are included this should be part of the product specification.

The price of period *t* should refer to the moment when the order is made, not the moment when the commodities leave the factory gates.

The **measured price** may represent an average over the whole period. If not, it should refer preferably to a particular day in the middle of the month.

The **domestic market** is defined as customers resident in the same national territory as the observation unit.

Data transmission and calculation method

Data should be transmitted to Eurostat for the Main Industrial Groupings and for Section, Subsection and Division levels of NACE Rev. 1.1 from all Member States. For Section D (manufacturing), data should be transmitted at the 3-digit and 4-digit levels by those Member States whose total value added for this Section represents more than 4 % of the EU total.

The frequency for the output price index is monthly. **Data should be transmitted no later than 1 month and 5 days** after the end of the reference period for the domestic price index, as well as the price

index for the non-domestic market. **The deadline for the total price index is 1 month and 15 days.**

This deadline may, however, be extended by up to 15 days for those Member States whose value added in Sections C, D and E of NACE Rev. 1.1 for a given base year represents less than 3 % of the EU total. The deadline may be up to 15 calendar days longer for data on the NACE Group and Class levels or the CPA Groups and Class levels.

Weights are based on turnover information from the Structural Business Statistics database or on information coming directly from Member States. Weights and base years are revised every five years. **The current base year is 2000.**

Dissemination

Eurostat publishes detailed short-term business statistics data and time series in the Industry, trade and services theme of their database.

Unit value indices

The unit value index (UVI) for imports is compiled at the most detailed level of the product classification. Import UVIs are based on the import values divided by import quantities. The calculation includes an automatic system for identifying extreme unit values which would suggest implausible price movements. The indices are of the chained Fisher type.

The series presented are for imports from outside of the EU-15 until 1999, and from outside of the EU-25 for 2000 onwards.

The UVIs are based on product data aggregated according to the Standard International Trade Classification (SITC). The following SITC headings are used in this publication.

— Mineral fuels, lubricants and related materials (SITC Section 3), made up of coal, coke and briquettes; petroleum, petroleum products and related materials; gas, natural and manufactured; electric current.

— Crude materials, inedible, except fuels (SITC Section 2), made up of hides, skins and furskins, raw; oil-seeds and oleaginous fruits; crude rubber (including synthetic and reclaimed); cork and wood; pulp and waste paper; textile fibres and their wastes (not manufactured into yarn or fabric); crude fertilizers and crude minerals (precious stones); metalliferous ores and metal scrap; crude animal and vegetable materials, not elsewhere specified.

Further information

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¹ Official Journal No L 162, of 5 June 1998. Also available via the 'Business Methods' Internet site: <http://forum.europa.eu.int/Public/irc/dsis/bmethods/home>.

² Official Journal No L 191/1, of 22 July 2005. Also available via the 'Business Methods' Internet site: <http://forum.europa.eu.int/Public/irc/dsis/bmethods/home>.

³ This abbreviated version of the definition of the indices is based on the Commission Regulation on the Definition of Variables.

Further information:

Reference publications

Title [Quarterly panorama of European business statistics - No 4/2005](#)
Catalogue No KS-DL-05-004-EN-C
Price EUR 30

Data:

[Industry, trade and services/Industry, trade and services - horizontal view/Short-term Business Statistics - Monthly and Quarterly \(Industry, Construction, Retail Trade and Other Services\)/Industry \(NACE Rev.1 C-F\)/Producer price indices \(2000=100\)/Domestic producer price index - monthly data](#)

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