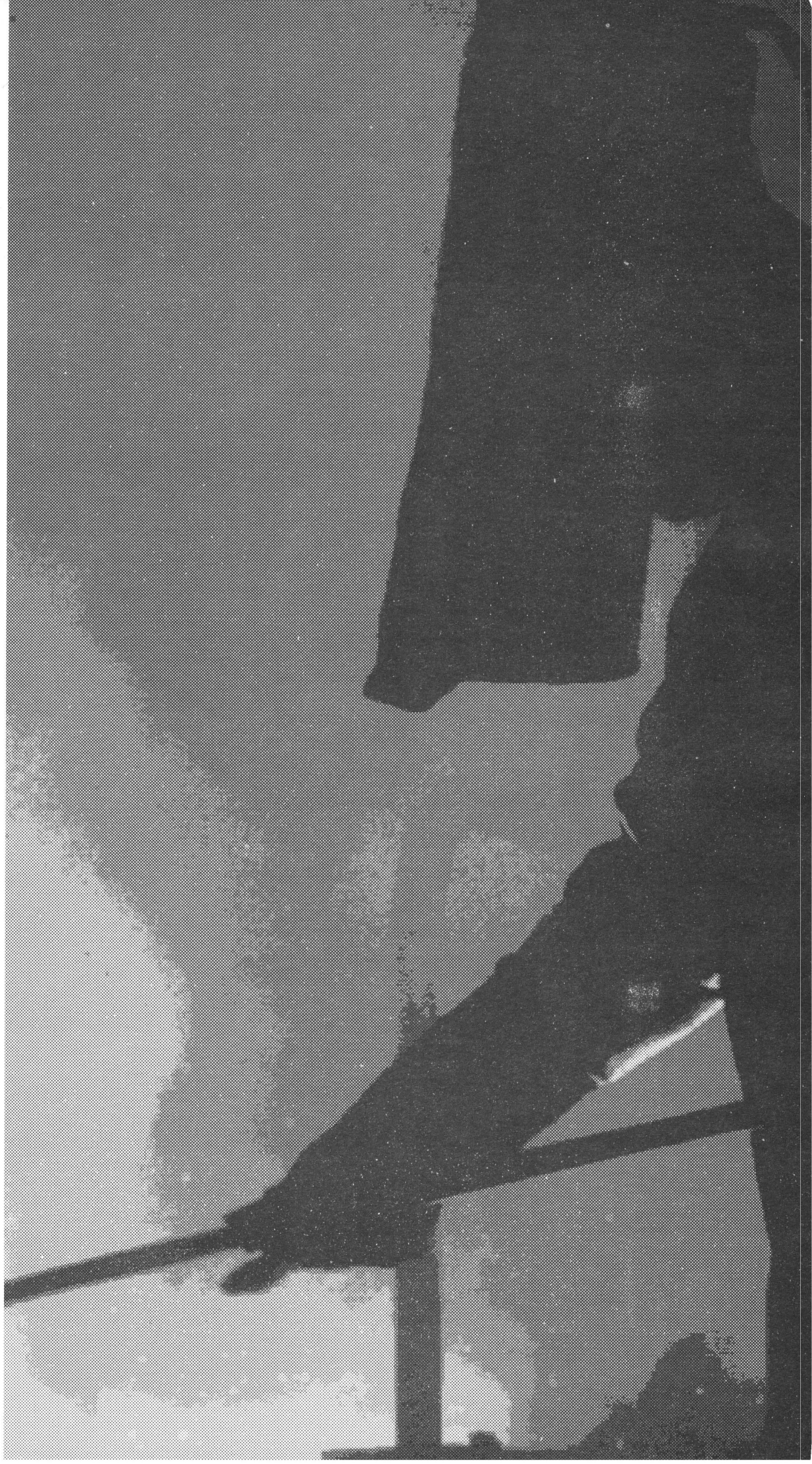


Ferrous metals



In 1988-89 EC production of ferrous metals in real terms rose by more than 6% per year on average, amounting to about 96 billion ECU in 1989. This revival took place after a period of crisis dating back to the 1970s, due to low growth in the main customer sectors as well as the emergence of new producing countries. The 1980s were characterised by a steady process of rationalisation and reduction of capacity, which began at the end of the 1970s and caused major cutbacks in employment. This restructuring made sizeable productivity gains possible, and allowed most EC firms to return to profitability.

Description of the sector

The production and preliminary transformation of ferrous metals covers both the steel industry as defined by the ECSC Treaty, and the preliminary processing of ferrous metals. According to the NACE classification, it includes the following branches:

- iron and steel, as defined in the ECSC Treaty (NACE 221);
- the manufacture of steel tubes (NACE 222);
- cold drawing, cold rolling and cold folding of steel (NACE 223).

Iron and steel is by far the largest component of the sector. It accounts for 74% of total ferrous metal production. Both the manufacture of steel tubes and the industry of drawing, cold rolling and cold folding only accounts for 13% of ferrous metals production (see figure 1).

The importance of the industry in the EC economy

In 1989, the overall production of ferrous metals reached a level of about 96 billion

ECU. This represents a share of 3.9% of total manufacturing production in the Community. As shown in figure 2, the contribution of ferrous metals production to total industry differs widely from country to country.

The high share of 8.4% in Belgium-Luxembourg reflects the great significance of the steel industry in Luxembourg, where the share of ferrous metals production in total industry exceeds 40%. On the other hand, in Ireland, Denmark and Portugal, whose steel industries are less-developed, the contribution of ferrous metals to total manufacturing production is low.

However, it should be kept in mind that these shares do not really reflect the importance of ferrous metals in the economy, which comes from the fact that the sector's output is the most important input material for other industries. Indeed, the sector is a major supplier of intermediate goods, especially to the following industries:

- the metal products industry;
- mechanical engineering;

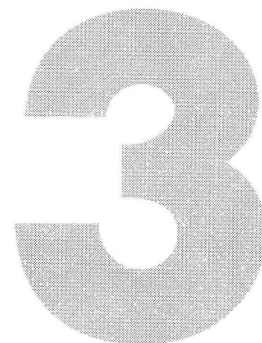
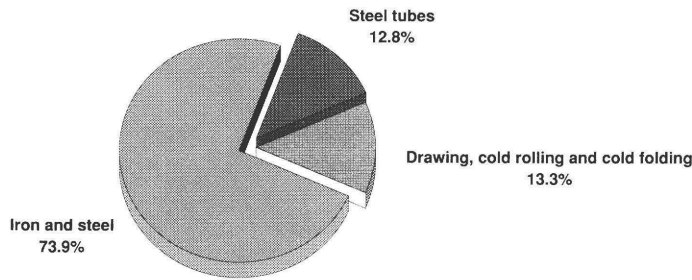


Figure 1
Ferrous metals
Composition of the industry, 1989
(in % of production)



Source: Eurostat

- electrical machinery;
- the transport equipment sector;
- the construction sector.

Investigations have shown that the main consumers of ferrous metals contribute to nearly half of total national value added in many EC countries.

International comparisons are difficult due to lack of data on ferrous metals production. Taking crude steel as an indicator, it can be seen from figure 3 that the EC is the biggest producer in the world, followed by Japan and the USA. EC production changed very little in the period 1980-89; in the same time crude steel production in Japan fell by 3% and in the USA by more than 12%. The main reasons for the cut-back in US production were the decrease in domestic consumption and lack of competitiveness, which was reflected in growing steel imports. Japan's downturn in production is due to a considerable decrease in steel exports, while domestic con-

sumption increased by 18% in 1980-89.

Production and consumption

Since 1987 there has been an overall revival in production and consumption of ferrous metals, especially in the European Community. In 1988 EC production of ferrous metals - in terms of constant prices - increased by 10% (table 2). The high production level achieved in 1988 was followed in 1989 by a further growth of 2.5%. This favourable development was the result of a strong growth of domestic demand, and of a recovery in exports. Consumption increased strongly due to the improvement in the activity level of ferrous metals consuming industries such as construction, the car industry and mechanical engineering. In addition, strong stockpiling on the part of producers, traders and consumers had a positive impact on domestic demand.

The recovery in the ferrous metals indus-

try took place after a long period of crisis. From 1980 to 1987 real production within the Community fell almost continuously (at a yearly average of -2.1%). However, the origins of this crisis go back to the 1970s and the first oil shock. Most of the ferrous metals consuming sectors went through difficult times in the course of the second half of the 1970s and in the first half of the 1980s, reducing their consumption of intermediate products.

Nonetheless, other factors of a structural nature may be added to those above. These include the emergence of substitute products, such as plastics, and the emergence of new competitors, particularly in the newly industrialised countries. Finally, the necessary modernisation of the EC industry was undertaken fairly late, having only begun at the end of the 1970s. This explains why the return to profitability only dates to the second half of the 1980s. The modernisation and restructuring was reflected in a number of mergers and acquisitions, for example the merger between Usinor and Sacilor in France, the creation of Ilva in Italy and the rationalisation agreement between Krupp and Mannesmann in Germany. In 1989 more than half of EC crude steel production was produced by only six steel companies (shares of production in total EC crude steel output in brackets):

1. Usinor-Sacilor (F) (16.4%)

Table 1
Ferrous metals
Main indicators, 1980-89

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Apparent consumption	61 341	59 934	64 050	64 976	73 415	77 701	70 860	67 151	78 756	87 743
Net exports ⁽¹⁾	6 868	10 793	8 899	8 036	10 740	12 015	8 330	7 752	8 343	8 600
Production	68 209	70 727	72 948	73 012	84 155	89 716	79 190	74 903	87 099	96 344
Employment (1000)	1 094	1 009	941	910	844	796	745	693	657	646

(¹) 1980: EC 9; 1981-85: EC 10
 Source: Eurostat (Inde, Comext)

2. British Steel (UK) (10.2%)
3. Thyssen (D) (8.3%)
4. Ilva (I) (8.1%)
5. Hoogovens (NL) (3.9%)
6. Krupp (D) (3.3%)

Finally it should be noted that a product diversification is taking place. Steel companies are reducing their supply of ordinary, mass-produced steel products - such as concrete reinforcing bar or wire rod - in favour of more sophisticated products.

Thus the development of high-yield point sheet steels and coated sheets, for the car industry in particular, have enabled the steel industry to increase unit prices and value added. Furthermore, special alloyed and non-alloyed steels are becoming more and more important.

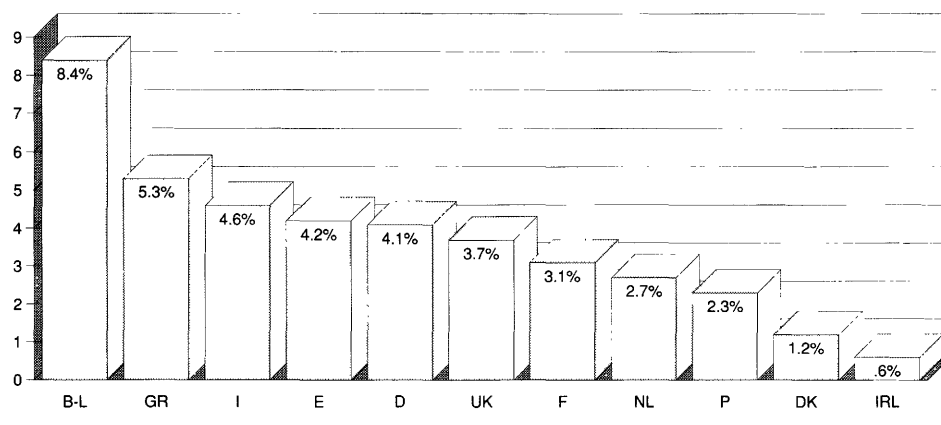
Foreign trade

Ferrous metals account for 4.2% of total EC exports of goods and 2% of imports.

The trade balance of the sector shows a large surplus. The EC has a trade deficit with EFTA and the Eastern European countries and a trade surplus with North America, the USSR and the rest of the world.

EFTA, North America and the USSR account for about 60% of total EC exports of ferrous metals. Between 1985 and 1989 imports have, on average, increased by nearly 8% per year, while exports have fallen over the same period by almost 2% per year (see table 3). Consequently, the surplus in the EC trade balance of ferrous

Figure 2
Ferrous metals
Share of production of ferrous metals, 1989
(in total manufacturing production)



Source: Eurostat

metals declined to 8.6 billion ECU in 1989, compared with 12 billion ECU in 1985. These figures retain their significance, even though they are slightly biased by the entry of Spain and Portugal into the EC.

The market share of foreign competitors in the EC internal market increased from 7.6% in 1985 to 9.1% in 1989. Newly industrialised countries won market shares thanks to lower production costs.

On the other hand, the export rate of the European Community has declined from 20% in 1985 to 17.2% in 1989. This reduction was due to a weakening in world demand for ferrous metals as well as to an intensification of international competition.

Finally, the strong growth in trade among Member States between 1980 and 1989 is easily explained by the already long-standing existence of an integrated European market in this field.

Employment

As a consequence of restructuring measures, especially in the EC iron and steel industry, employment in the ferrous metals sector decreased significantly. In the period from 1980 to 1989 the number of employees dropped by 41%, a rate of 5.7% per year (see table 1). Productivity - measured as production in constant prices per employee - rose constantly from the beginning of the decade, with the exception of 1982 and 1986, during which the fall in production was too sizeable for cutbacks in the labor force to keep pace with. Over the whole period from 1980 to 1989, productivity improved by an average growth rate of 5.7% per year.

Discarding inefficient production capacities, investing in rationalisation programmes and constant technical research have achieved these productivity gains. This was necessary for the EC ferrous metals

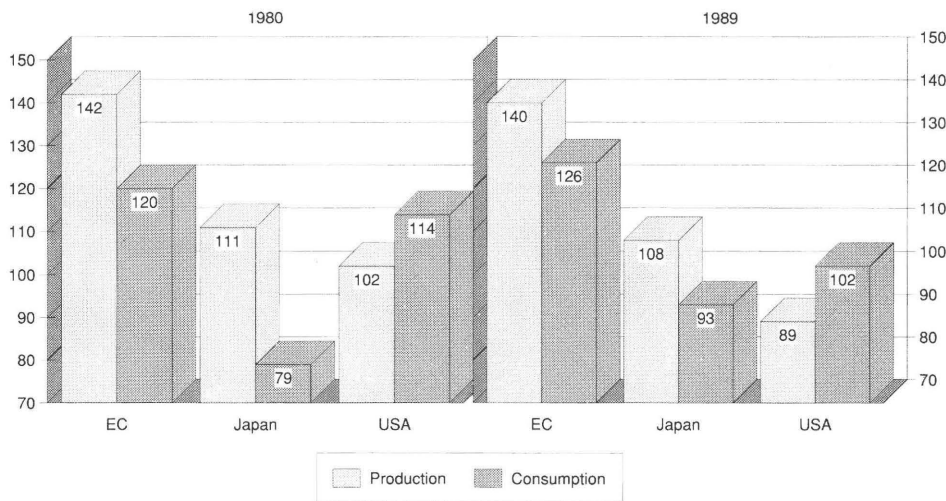
Table 2
Ferrous metals
Production and productivity

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Production in current prices	68 209	70 727	72 948	73 012	84 155	89 716	79 190	74 903	87 099	96 344
Production in constant prices	91 272	91 175	84 509	83 524	89 975	89 716	80 074	78 490	86 399	88 586
Productivity (ECU)(¹)	83 427	90 320	89 806	91 787	106 587	112 713	107 499	113 304	131 443	137 027

Source: Eurostat (Index)

(¹) production at constant prices divided by employment (Ecu/employee)

Figure 3
Ferrous metals
EC production and consumption compared to Japan and the USA
(in million tonnes crude steel)



Source: IISI

sector to regain competitiveness.

Geographical features

The distribution of ferrous metals production among Member States does not closely reflect the ranking in terms of GNP. In 1989 the ranking of the main producers, from which almost 80% of the production originates, was as follows: the Federal Republic of Germany ranks at the top with around 31% of real production, followed by Italy (19%), the United Kingdom

(around 15.5%) and France (14%).

The development of ferrous metals production was similar in most EC countries in the course of the 1980s and the share of each Member State in total production changed very little over this period. There are however some exceptions. The share of France decreased significantly, whereas that of Belgium and Luxembourg increased. Italy took second place from France in this decade. Figure 4 also

shows the production shares of ferrous metals industries in smaller EC countries.

Outlook

At the end of 1989 ferrous metals producers were confronted with a weakening in demand, which intensified in the course of 1990. This was particularly true for the iron and steel industry and the steel tube sector. A slowdown in production growth of consuming industries as well as a turn in inventory cycle are the reasons for the decline in demand on the internal market. In addition, EC exports to third countries are falling considerably, especially in the steel tube sector. This is due to the strong reduction of demand from the USSR and China. According to these trends in domestic and foreign demand, EC production is expected to drop by 3% in 1990. The prospects for 1991 are hardly better. Although the general economic growth in the Community will be fairly favorable, domestic consumption of ferrous metals is expected to shrink slightly, due to a slight reduction in demand from the consuming

Table 3
Ferrous metals
Production and external trade

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Exports extra-EC ⁽¹⁾	11 206	14 309	13 822	12 869	16 014	17 909	14 111	13 081	14 694	16 581
Imports extra-EC ⁽¹⁾	4 338	3 516	4 923	4 832	5 274	5 894	5 781	5 329	6 351	7 981
X/M	2.6	4.1	2.8	2.7	3.0	3.0	2.4	2.5	2.3	2.1
Import rate (%) ⁽²⁾	7.1	5.9	7.7	7.4	7.2	7.6	8.2	7.9	8.1	9.1
Export rate (%) ⁽³⁾	16.4	20.2	18.9	17.6	19.0	20.0	17.8	17.5	16.9	17.2
Trade intra-EC ⁽⁴⁾	12 534	12 039	13 371	13 241	15 519	17 197	19 196	18 483	21 726	26 528
Share of total (%) ⁽⁵⁾	53.8	46.0	50.1	51.2	49.6	49.6	58.5	59.0	59.8	61.7

⁽¹⁾ 1980: EC 9; 1981-85: EC 10

⁽²⁾ Share of extra-EC imports in apparent consumption

⁽³⁾ Share of extra-EC exports in production

⁽⁴⁾ Intra-EC imports

⁽⁵⁾ Share of intra-EC imports in total exports

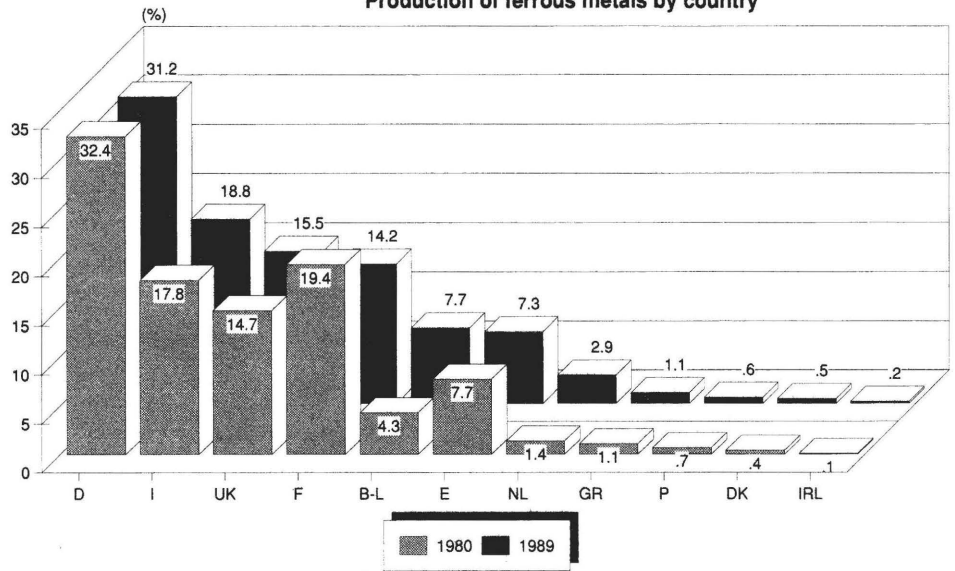
Source: Eurostat (Inde, Comext)

sectors, especially in the car industry. Because of the Gulf war and the economic problems in Eastern Europe, EC exports are likely to continue to decline, whereas EC imports will increase. Production of ferrous metals therefore is expected to decrease in 1991 by 2%.

In 1992 however, a recovery of ferrous metals production seems possible. Domestic consumption is expected to increase, owing to a stronger overall economic growth. Moreover, exports and the development of stocks are no longer thought to have a negative influence on demand. Production of ferrous metals therefore is likely to increase by 2 to 3% in 1992.

As far as the mid-term prospects for the development of EC ferrous metals industry are concerned, they are much more favorable than they were some years ago. The reason for this positive assessment is especially the expected overall economic growth for the EC of more than 3% an-

Figure 4
Ferrous metals
Production of ferrous metals by country



Source: Eurostat

nually for the period 1988 to 1994. This growth should allow the continuing trend of declining consumption of ferrous metals over the past 15 years to be replaced by a positive development. Positive impacts are also expected from the opening of Eastern countries.

Revised by: Ifo - Institut für
Wirtschaftsforschung, based on the Panorama
'90 report by DRI

In 1989 the production and consumption of steel in industrial countries exceeded the record levels achieved in 1988.

Production of finished products in the European Community increased by 3% compared to 1988. This result was mainly fostered by the high activity level of steel-based industries. However, steel industries in the industrial countries suffered serious set-backs between 1974 and 1987 owing to reduced production in steel-based industries, a decrease in the quantity of steel required to produce given products, and increased competition from newly industrialised countries.

A major restructuring effort was undertaken in the European Community during the 1980's which led to large capacity cuts and important productivity gains, and allowed European companies to take advantage of the favourable economic climate since 1988.

Description of the sector

The steel industry encompasses steel production from raw-material processing to the production of finished and final rolled steel products. Contrary to accepted practice in most other parts of the world, tube manufacture is not considered to be part of the steel industry, but is classified as a primary processing industry.

This restriction is no doubt due to long tradition, reinforced by the limits which the Treaty of Paris imposes on the powers of the ECSC. Steel and coal were the subject of the first European agreement in 1952 and the special provisions governing these two products remained in force after the two administrative bodies of the Com-

munity were merged.

The steel industry as defined by the Community covers the following operations:

- ❖ coke manufacture (except when coke is purchased from coal-industry or independent coking plants);
- ❖ ore preparation, especially by manufacture of briquettes;
- ❖ pig-iron processing in blast furnaces;
- ❖ steel processing from pig iron in converters;
- ❖ steel processing from scrap in electric furnaces;
- ❖ continuous casting and/or hot rolling of semi-finished products;
- ❖ hot rolling of long and flat products;
- ❖ cold rolling of flat products;
- ❖ metal and organic coatings.

Table 1
Iron and Steel - Main Indicators, 1980-90 (1) Finished products

(million tonnes)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990(2)
Apparent consumption	86	82	77	76	80	79	89	90	104	112	110
Net exports	13	17	10	10	14	17	14	15	11	6	6
Production	99	99	87	86	94	96	103	105	115	118	116
Employment (thousands)	598	549	514	479	450	426	457	424	408	395	382

(1) 1980 EC9; 1981-85 EC10

(2) Estimated

Source: Eurostat (Sidr, Soci)

The finished and final products of the steel industry, including ordinary, special and alloyed steels, are as follows:

(i) Hot-rolled:

- ❖ flat products: coils, rolled strip or strip cut from coils, heavy or medium plate, rolled or cut from coils;
- ❖ long products: heavy sections, light sections, including reinforced concrete rounds, wire rod.

(ii) Cold-rolled:

- ❖ thin sheet steels and coated sheet steels (tinplate, galvanised, electro-galvanised, lead-covered, aluminium-coated, plastic-coated, pre-painted, etc).

Current situation

Since 1987 there has been an overall increase in the consumption and production of steel in the industrial world.

The basis of this positive development was the improvement in the activity level of most industrial sectors and in particular steel-consuming sectors such as construction, the car industry and mechanical engineering.

This is particularly true in the European Community. In 1988, the production and consumption of steel reached record levels. Production of finished products for the Community as a whole rose to 115 million tonnes in 1988, an increase of 10% in comparison with production in 1987.

In 1989, these levels were exceeded by a further 3% growth. The effect of the restructuring undertaken since 1980 has been

positive, leading to a progressive reduction of the production capacity of the European steel industry. The financial results of the

steel companies were also positively affected and their position was strengthened to the point where they could take advantage of the favourable economic climate. It must be noted that while exports in this period declined, due to the necessity of servicing the exceptionally high demand in domestic markets, imports, even if relatively stable in terms of tonnage tended to be concentrated in particular products. The industry had a 395 000 strong workforce in 1989 - a reduction of 3,4% in comparison with 1988. This is a continuation of the trend that between 1980 and 1989 resulted in a personnel cutback of over 33%.

Production and consumption

Despite the sharp increase in demand in most developed countries in 1988, there

Table 2
Iron and Steel - International comparison of production, exports and imports of steel

(million tonnes)	1980			1988			1989		
	Prod. crude steel	Exports finished products	Imports finished products	Prod. crude steel	Exports finished products	Imports finished products	Prod. crude steel	Exports finished products	Imports finished products
Total	718.6	140.0	140.0	797.0	114.3	116.4	783.0	N/A	N/A
EC (1)	127.7	22.2	9.0	137.1	21.0	9.7	139.0	14.0	8.0
USA	104.0	3.2	9.7	92.7	1.6	15.3	88.0	4.0	4.0
Japan	111.4	22.6	1.0	105.7	17.7	6.4	108.0	20.0	7.0
Other	375.5	92.0	120.3	461.5	74.0	85.0	448.0	N/A	N/A
of which, USSR (%)	148.0	7.0	9.0	163.0	7.9(2)	8.4(2)	161.0	N/A	N/A
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
EC (1)	18.0	16.0	6.0	17.0	18.0	8.0	18.0	N/A	N/A
USA	15.0	2.0	7.0	12.0	2.0	16.0	11.0	N/A	N/A
Japan	16.0	16.0	1.0	13.0	19.0	6.0	14.0	N/A	N/A
Other	52.0	69.0	86.0	58.0	61.0	70.0	57.0	N/A	N/A
of which, USSR	20.0	5.0	6.0	20.0	7.0	7.0	20.5	N/A	N/A

(1) 1980 EC9

(2) estimates

Source: Eurostat (Sidr)

Table 3
Iron and steel - Final consumption of steel (¹) (crude steel equivalent)

(million tonnes)	1980	1981	1982	1983	1984	1985	1986	1987	1988
Final consumption	97.8	89.0	84.5	82.3	85.0	85.6	97.4	97.7	111.5
Consumption per capita (kg)	362.0	328.0	311.0	303.0	313.0	315.0	302.0	301.0	343.3
Direct net exports	15.8	20.4	11.3	11.8	16.8	18.8	15.5	17.4	13.9
Indirect net exports	15.0	20.3	17.4	16.2	17.5	16.3	14.3	12.3	11.9
Stock variation	-0.7	-3.4	-1.6	-0.6	1.0	0.2	-1.3	-1.2	0.3
Scrap consum. in rolling mills	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2
Total community production	127.7	126.1	111.4	109.5	120.1	120.6	125.6	126.0	137.4

(¹) 1980 EC9; 1981-85 EC10
Source: Eurostat (Sidr)

Table 4
Trends in Community production by product, 1980-89 (¹)

(million tonnes)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Pig iron	89	88	77	74	83	86	85	86	93	95
Crude steel	127	126	111	110	120	121	126	126	137	139
Hot-rolled products	102	101	90	90	98	100	107	109	119	122
Finished products	99	99	87	86	94	96	103	105	115	118

(¹) 1980 EC9; 1981-85 EC10
Source: Eurostat (Sidr)

are a number of factors that caused a drop in the share of the European Community (and of industrialised countries in general) in world steel production in recent years. These include:

- ❖ a reduction in the tonnage consumed, which has affected all industrialized countries. This is due to recession-related production cuts carried out in a number of steel-based industries, and to a decrease in the quantity of steel required to produce a given product. This drop can be attributed to major improvements in the quality, properties and performance of steel products themselves, which mean less tonnage is required for the same consumption levels;
- ❖ a substantial increase in production levels in newly industrialized countries, resulting not only in their breaking into Community markets but also in a reduction in EC producers' share of the international market, where large quantities are often dumped at prices that bear no relation to production costs.

Practices of this sort led to the sudden jump in imports from third countries, which rose from 5% to 11% of apparent consumption between 1975 and 1977.

The buoyant climate on the international market of 1974, when there was a steel shortage, and the relative openness of the EC market prepared the way for this increase, and the subsequent downturn in the economic situation confirmed it. Since 1978, however, imports have stabilised at around 10% of apparent consumption.

In response to this reduction in consumption induced by the structural and economic factors listed above, a massive restructuring effort took place in the 1980s. This was partly aided between 1980 and 1986 by assistance from national governments under the terms of the State Aids Code approved by the Council and the production controls regulated by Article 58 of the ECSC Treaty (the controls expired 30th June 1988).

As far as crude steel is concerned, this resulted in a 40 million tonnes reduction in

production capacity, which represents a 19% cut in capacity. Furthermore, by the end of 1988, 34 million tonnes of hot rolling capacity in the Community of 12 had been terminated, which amounted to an 18% decrease.

Investment

Major technological advances in production techniques accompanied the termination of production capacity, thereby enabling the remaining installations to operate with greatly reduced costs and enhanced efficiency. The proliferation of continuous-casting plants, whereby one step in the production process is eliminated and the requirements for crude steel consequently lowered, is one example of this.

The share of the continuous casting method in crude steel production rose from 35% in the Community of 10 in 1980 to 88% in 1989. In some countries, it is more than 90%, and in some companies it reaches 100%.

Employment

Workforce reductions have also taken

Table 5
Iron and steel production and external trade (1)

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 ⁽²⁾
Production										
Current value	32 000	35 000	35 000	41 000	43 000	43 000	43 000	44 000	53 000	57 000
Index	74	81	81	95	100	100	100	102	123	133
Constant value	44 000	44 000	39 000	45 000	44 000	43 000	46 000	47 000	51 000	53 000
Index	102	102	91	105	102	100	107	109	119	123
Productivity ⁽²⁾	73 579	80 146	75 875	93 946	97 778	100 939	100 656	110 849	125 000	134 177
Index	73	79	75	93	97	100	100	110	124	133
Imports extra-EC	2 950	2 227	3 321	3 298	3 514	3 906	3 813	3 390	3 990	5 078
Index	76	57	85	84	90	100	98	87	102	130
Exports extra-EC	7 010	8 274	7 438	7 525	9 774	11 298	8 773	8 254	8 770	9 716
Index	62	73	66	67	87	100	78	73	78	86
X/M	2.4	3.7	2.2	2.3	2.8	2.9	2.3	2.4	2.3	1.9

(1) 1980 EC9; 1981-85 EC10

(2) Production in constant value divided by employment (Ecu/Employee)

(3) Estimated

Source: DGIII, Eurostat (Comext)

place, due principally to plant closures and lower production in those plants which remained open. To keep production costs down, major productivity gains were necessary. Discarding inefficient production methods, investment in rationalisation programmes and constant technical research have achieved these gains. Staff reduction is extremely expensive for companies in the short term, so support schemes have been organised, based on a broad interpretation of the ECSC provisions with respect to redeployment. These have helped to alleviate the worst social effects by introducing early retirement, job-creation projects and vocational training programmes for redundant workers. These measures, like those introduced for mine workers, have been mainly financed from funds drawn directly or indirectly from the contributions paid by steel companies and, to a lesser extent, mining companies.

Industry structure

Steel producers can be classified according to a number of different criteria:

Manufacturing methods

- ❖ The first category is made up of integrated companies which account for 70%

of production. These companies produce pig iron in their blast furnaces and convert it in oxygen-based steel works, using a certain tonnage of scrap to maintain the temperature of the molten steel. The proportion varies from 5% to 35%, depending on the techniques used and the relationship between the price of pig iron and scrap. Companies using this method are usually geared to the production of flat products, including subsequent cold rolling into thin sheet steel which may be coated, and the production of heavy sections and wire rod.

- ❖ The second category is made up of companies with more specialised types of production. It includes small companies using electric furnaces to treat scrap from rolling-mill crops or other recycled steel. The cost of raw-material largely determines the price of the finished products. These include laminated commercial products, reinforced concrete rounds and wire rod.

Size

- ❖ Integrated factories often have large-scale production capacity ranging from 2 to 10 million tonnes of finished products.

They reap the benefits of economies of scale, thereby reducing costs, but they also enjoy very little production flexibility.

- ❖ Plants organised around an electric furnace usually have much smaller capacity, which allows them more freedom to adapt their production. Their production costs depend to a large extent on the cost of electricity, but the most important factor is the price of scrap, which is subject to wide fluctuations.

Production quality

- ❖ Ordinary, mass-produced steel products, which consist of two broad categories: long products and flat products. The manufacture of flat products is becoming more and more important with the movement towards more sophisticated products, in response to market developments, such as coated sheet.
- ❖ Special alloyed and non-alloyed steels, whose importance is growing even though they account for only a very low tonnage compared with ordinary steels. In 1980 they represented 16% of crude-steel output. Their share is now 21%.

Location

- ❖ There are steel plants throughout the

Table 6
Production of crude steel and employment by country

	B	DK	D	GR	E	F	IRL	I	L	NL	P	UK
Production of crude steel (thousand tonnes)												
1980	12 321	734	43 838	1 067	12 643	23 172	242	26 501	4 619	5 272	659	11 278
1988	11 222	650	41 023	959	11 886	18 598	271	23 760	3 661	5 518	811	19 065
1989	10 894	624	41 073	957	12 765	18 690	324	25 171	3 721	5 681	736	18 782
Employment (thousands)												
1980	45.2	2.2	197.4	N/A	N/A	104.9	0.5	99.5	14.9	21.0	N/A	112.1
1988	28.3	1.6	131.1	4.0	41.4	55.3	0.6	61.3	10.7	18.4	5.5	55.2
1989	28.0	1.5	130.5	3.4	39.8	51.4	0.7	59.3	10.2	17.9	4.8	54.4

Source: Eurostat (Sidr, Soci)

European Community, with varying levels of production capacity. A number of them were built inland, usually near the coal or iron-ore fields from which they used to draw their supplies, or near steel consumers.

- ❖ Those built more recently are on the coast, where they have easy access to imported raw materials, without the cost of land transport. They are also better placed to capture international markets. The companies falling into this category represent about 25% of total production.

Financial structure

- ❖ Companies financed by private capital, which represented the vast majority before the 1974 crisis.
- ❖ Companies in which the State holds some or all of the capital. These grew in number due to the impact of the crisis on the steel industry in the late 1970s and early 1980s. In more recent years, as companies' profitability has been restored, a reverse tendency in State participation has begun to be noticed, particularly in the United Kingdom.

The impact of "1992"

In 1952 the ECSC Treaty created for coal and steel the necessary conditions for the "single market", which in 1992 should ex-

tend to all other industrial sectors. Consequently, for the Community steel industry, the formation of a single market is an imminent reality, and it can await with confidence this new stage in the progress towards a unified Europe. Such a situation can only be considered as a new opportunity for reinforcing open competition and the complete freedom of intra-Community exchanges.

The 1992 project should provide a windfall for the industry in other ways, with a "very considerable" effect on energy costs, and a possible reduction in financing costs of 10% at least. This should mean that steel prices can come down, without profits being squeezed.

A side effect of the 1992 dead-line is a new dynamism on the part of steel companies. Companies are also starting to do the right things to protect themselves against future downturns and strong competition from outside. These include: paying more attention to customer service and commercial investment; diversifying into areas other than steel; takeovers and mergers; specialising in high-quality products, and more intergrated production techniques.

Environmental protection

The steel industry is fully conscious of its responsibility with regard to environmental protection. In 1988 this sector consumed 61 million tonnes of steel scrap, the bulk of which was collected from discarded used steel-containing products. This recycling of scrap, which represents about 45% of total steel production, is one of the highest recycling rates for any industry. Efforts to further improve the extensive environmental-protection equipment already in existence are now under way. The restructuring of the industry in the 1980s has resulted in the closure of many older installations and their replacement by modern plants fully equipped with a whole range of pollution-control equipment, which upgraded these plants to the level of the best available technology in this field. European steel producers continue to work with the European Commission in the framework of the Environmental Protection Research Programme established under Article 55 of the Treaty of Paris.

Outlook

The boom in the EC steel industry in 1988 and 1989 was mainly fostered by the strong growth of steel consuming



industries. This is particularly true for mechanical engineering, motor vehicles, and construction. In addition steel producers as well as stockholders and steel consumers increased their stock levels considerably, due to increasing steel prices and to growing delivery periods.

The down turn in inventory cycle, induced by a weakening of production growth in steel consuming industries, is the main reason for the expected decline in demand of the internal EC steel market in 1990.

Apparent consumption of ECSC products (in crude steel equivalent) is expected to decrease by 2% although actual steel consumption is still growing. Since a compensation for the weakening domestic demand by increasing steel exports hardly seems possible, crude steel production in the EC will drop to less than 137 million tonnes in 1990, a decrease of 2% in comparison with 1989.

Although reduction of steel stocks is thought to continue in 1991, there will be no further negative impact on domestic demand. Production of crude steel in the EC therefore is expected to slightly decrease in 1991 to 135 million tonnes, the reason being a gradual further reduction in stocks, and a slight downturn in some major steel consuming sectors (housing, automotive) after several years of boom. Furthermore, there is no improvement foreseeable in exports or imports, as the EEC has become an area with strong currencies, and demand from some traditional export markets (US, USSR, China) is shrinking with more competitive suppliers appearing on the world market.

According to the expected growth of actual consumption an increase of production - up to 139 million tonnes - seems

possible in 1992.

As far as the mid-term prospects for the development of EC steel industry are concerned, it can be said, that they are much more favourable than they were some years ago. The reason for this positive assessment is especially the expected overall economic growth for the EC of more than 3% annually for the period 1988 to 1994. This growth should allow the continuing trend of declining steel consumption over the past 15 years to be replaced by a positive development. Accordingly, the decline in specific steel consumption in the past few years seems to have slowed down considerably. New or improved steel qualities have evidently improved the market position of steel in competition with other materials. In addition, there has been better marketing on the part of the steel industry by offering their customers more and more specific solutions in line with their needs. Apparent consumption of ECSE products - expressed in crude steel equivalents - therefore is expected to have a growth potential of the order of 1% per annum in the period until 1995.

On the other hand, net import demand in the NICs and developing countries, and also in Eastern Europe, has declined drastically in the past. The net exports of the two major exporters, i.e. Japan and the EC, fell from about 70 million tonnes (crude steel equivalent) in 1974 to 36 million tonnes in 1988. Since in the medium term no change can be expected in this development and since competition will even intensify, net EC steel exports for 1994 are expected to be only 10 million tonnes (crude steel equivalent).

These forecasts are well in line with those published by the European commission in

their "General Objectives Steel - 1995".

According to these forecasts crude steel production in the Community will be about 138-143 million tonnes in 1995.

Given the developments in the second half of 1990, it seems unlikely that the favourable scenarios underlying this forecast, more in particular for the oil price and exchange rates, will be met, and therefore the lower forecast for production is likely to be the more realistic.

EUROFER: Association Européenne de la Sidérurgie; Address: Square de Meeus 5, Bte 9, B-1040 Brussels; tel: (32 2) 512 98 30; fax: (32 2) 512 01 46

Reviewed by: IFO - Institute für Wirtschaftsforschung

Mini-mills comprise those enterprises whose sole operation is electric steelworks/continuous casting plant/rolling mill. Steel producers belonging to E.I.S.A. are all independent private enterprises which operate their own steelworks and process steel into finished rolled products. Their annual capacity ranges from 150 000T to 1 200 000T, employing around 300-1,000 persons/mill.

The continuous casting method, which has been a major innovation in the steelmaking process during the last 25 years, is ideal for producing light weight long products such as sections, concrete reinforcing bars and wire rods as well as merchant bars. Mini-mills are located throughout the EC. The highest concentration is found in Italy and Spain. Other producers are Germany, Belgium, Greece and the United Kingdom.

Current situation

The success of mini-mills, even in the past years of crisis in the steel sector, is explained by their flexibility and greater freedom to adapt production to market demand. Non-integrated producers were much less affected by production and workforce reductions through all these years. Today there are about 80 mini-mills operating in the EC.

In the USA there are about 55 mini-mills and in Japan, 59 mini-mills.

The electric arc process accounts for 29.7% of total EC crude steel production, in 1989. The electric arc furnace share is expected to stabilise at about one third of the total crude steel production by 1991.

In the last few years, we have witnessed

a global competitive evolution in mini-mills due to improvements in operating efficiency in the vital production units (electric arc furnace, continuous caster, rolling mill).

Consequently, there has been a general productivity increase. Today, in many cases, investment costs per ton have been reduced to \$200-300/T.

The future strategy of the steel industry will concentrate on further reducing production costs, higher quality and greater flexibility.

Production quality

Because of the above technological and quality improvements in steel making, today mini-mills are producing more and more quality steel grades such as engineering steel, stainless steel, forging steel

grades, which were once exclusively produced by integrated steel mills.

The production increase of electric-arc furnaces as well as improved quality control have forced the producers to use even more treated scrap.

Nowadays, there are mini-mills which install scrap screening and cleaning equipment to increase E.A.F. (electric arc furnace) productivity and steel quality, thereby decreasing energy, electrode and refractory consumption.

Environment

Mini-mills, converting scrap into a quality product, play a considerable role in the management of industrial waste (alone one company can handle as much as 600 000T per year).

Scrap from car bodies, industrial demolition or from sheet cuttings and turnings of the metalworking shops is converted by mini-mills into rolled quality steel.

This is then used reinforcing bar, reinforcing mesh and small and medium-sized sections for the construction industry, as well

Table 1
Steel mini mills
Share of electric arc process (EAF) in crude steel production in EC, USA and Japan, 1989

	EC	USA	Japan
Crude steel production (million tones)	139,1	88,4	107,9
Oxygen (%)	70,3	59,9	69,4
E.A.F. (%)	29,7	35,5	30,6

Source: EISA

as merchant bar and wire rod used widely in manufacturing, notably in the automobile industry. Investment in environmental technology will continue to be high.

Outlook

With the end of the anti-crisis measures, in 1988, the return to free market conditions and the minimising of the subsidies granted in the past by Governments to their industry, and on the assumption that developing countries will rationalise their production and both free and fair conditions of trade are established in the GATT negotiations, mini-mills are expected to take an increasing market share in long products. However some companies have started to implement projects to produce flat products, until now the exclusive

preserve of integrated companies.

The iron and steel sector has for a long time been international in terms of its market, sources of raw materials and technology, and the single market can certainly contribute to its further internationalisation. The European harmonisation (for example, with regard to transport and energy policies, including harmonisation and transparency of electricity rates) cannot but have a favourable impact on production costs and thus improve the competitiveness of steel mini-mills.

EISA: European Independent Steelworks Association; Address: rue Belliard 205, Bte 18, B-1040 Brussels; tel: (32 2) 230 79 62; fax: (32 2) 230 01 36

The steel tube industry has faced a severe downturn since 1981 due to overcapacity.

Seamless tubes and welded tubes with an outside diameter of over 406.4 mm in particular were deeply influenced by the oil crisis, by the quotas imposed by the USA on its competitors to limit imports, and more recently the low exchange rate of the dollar, which is impairing the competitive position of EC manufacturers.

The EC has maintained its leading position on the world market, ahead of the USA and Japan, due to continuous productivity gains achieved over the last few years by restructuring.

However, foreign trade has been steadily deteriorating and competition from newly industrialised and developing countries has been strengthening.

Description of the sector

The steel tube industry is of major interest to a number of sectors. Its products are marketed either on a mass consumption basis or for use in plant and investment. The energy markets, i.e. oil, gas, nuclear, steam generation industries, as well as the car industry, machines, structural steel works and construction are some of the main users of steel tubes.

The activity of NACE-sector 222 includes the manufacture of steel tube fittings and compressed gas cylinders in addition to the manufacture of steel tubes. In order to concentrate only on facts relevant to the steel tube industry, reference has only been made to figures produced by surveys

conducted by professional organisations located in the Member States.

The steel tube manufacturing branch covers three product categories which differ considerably in their manufacturing procedures, the raw materials they use and the amount of investment they require.

These categories are classified in the following subheadings of Chapter 73 of the Harmonised Commodity Description and Coding System:

- ❖ No 73.04: seamless steel tubes;
- ❖ No 73.05: welded steel tubes of circular cross-section over 406.4 mm in outside diameter;
- ❖ No 73.06: welded steel tubes of circular cross-section up to and including (uti)

Table 1
Steel tubes
Main Indicators, 1980-89 (1)

(thousand tonnes)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Apparent consumption	8 917	8 386	7 622	6 850	8 140	8 417	8 221	8 378	9 677	9 877
Net exports	3 821	6 041	5 222	5 269	6 223	6 044	4 911	4 246	3 652	3 031
Production	12 738	14 427	12 844	12 119	14 363	14 461	13 132	12 624	13 329	12 908
Employment (thousands)	109	107	104	99	100	95	88	75	75	75

(1) 1980 EC9; 1981-89 EC10
Source: CDL

406.4 mm in outside diameter and welded steel tubes of non-circular section of any perimeter.

The market trends for each of these product areas vary widely because they are used in different sectors.

Current situation

In 1989 the EC steel tube industry did not

maintain the production level of the previous year. Although the economic situation (especially investment activity) was favourable in most Western countries, world output of steel tubes in 1989 decreased by 1% compared to 1988, affected by the decline in world demand.

Although apparent consumption in the EC

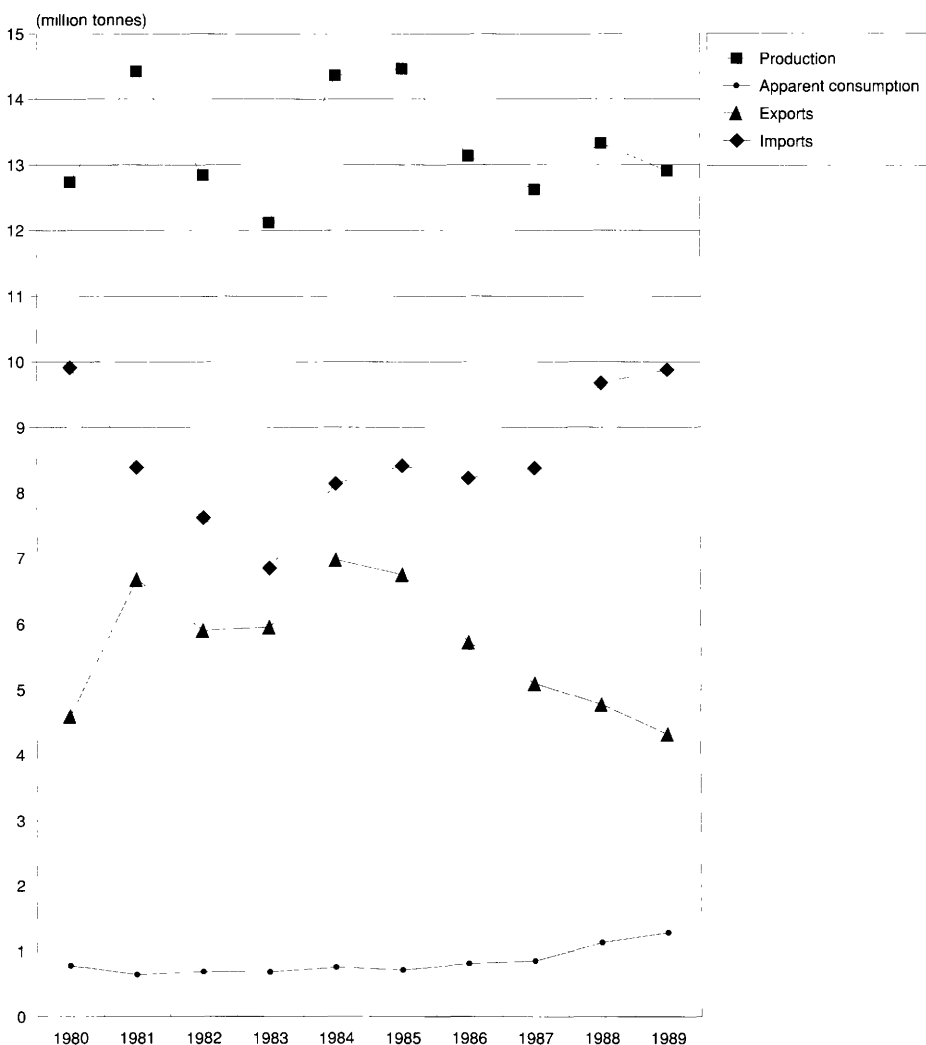
rose to almost 9.9 million tonnes in 1989, an increase of 2% in comparison with 1988, EC production of steel tubes dropped by 3.2% (table 1) due to a further deterioration in the EC external trade. Extra-EC exports of steel tubes decreased by 10% in 1989, hit by the reduced demand in the USSR and China (two of the most important EC trade partners), while extra-EC imports increased by 13.5%. Imports from third countries have reached a share of 13% of EC consumption in 1989 whereas the export rate fell to 33.4% in comparison with nearly 50% in 1983.

Production trends

EC production of steel tubes in 1989 of 12.9 million tonnes, corresponds to 18.4% of world production. In world ranking, the EC is ahead of Japan (10 million tonnes) and the USA (3.6 million tonnes). Top of the list is the Soviet Union with 20.6 million tonnes (figure 2).

While the EC, the USA and Japan suffered setbacks of shares in world production in the 1980s, the newly industrialised countries (NICs) and the developing countries (DCs) were the winners. These countries continued to expand their production because the industries in these countries often receive public aid. This group of countries includes Yugoslavia, Romania, Turkey, Mexico, Venezuela, Brazil, Argentina, Taiwan, the Republic of Korea and Thailand.

Figure 1
Steel tubes
EC steel tube market, 1980-89



Source: CDL

EC production of steel tubes had reached its record level in 1981. In the years 1982/83 and 1986/87 steel tubes output suffered serious setbacks owing to a sharp decline in demand, especially for steel tubes for the oil industry. Production development differed considerably by tube category (figure 3).

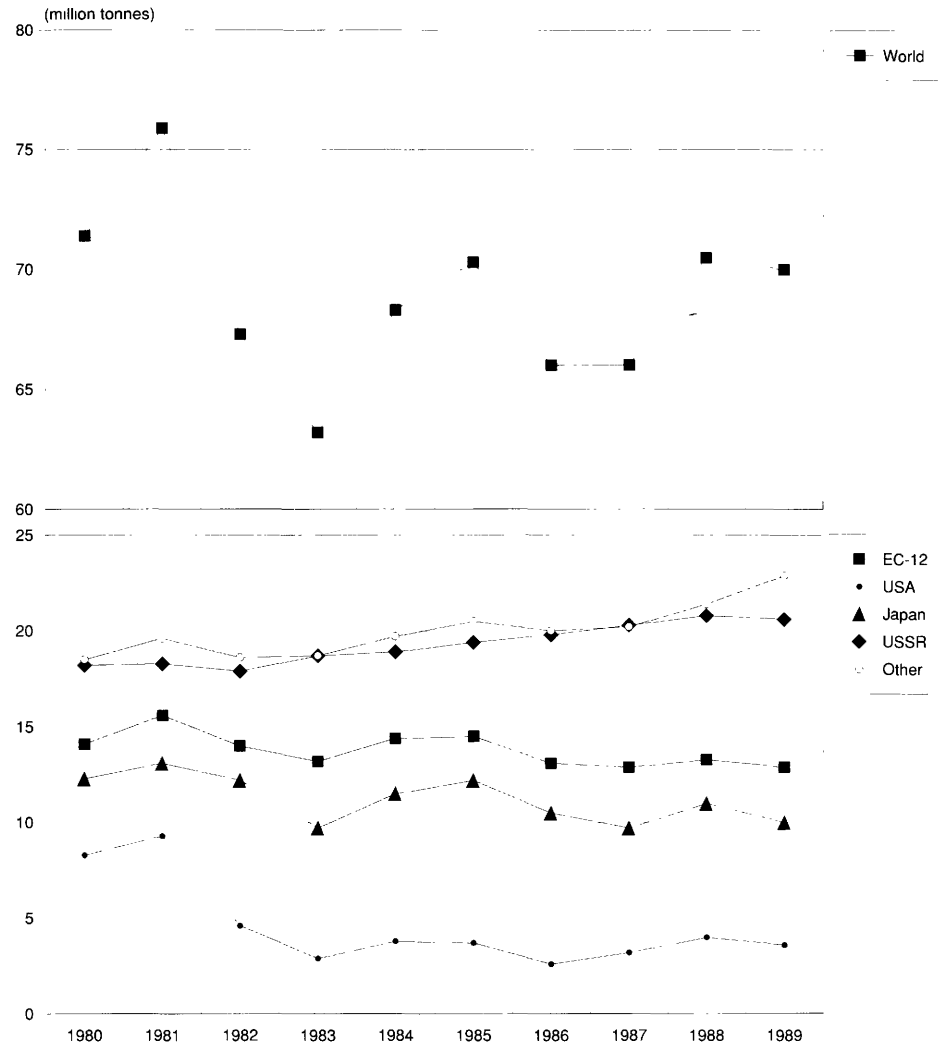
EC output of seamless tubes dropped by 15% between 1984 and 1989. The seamless tube industry is deeply influenced by the oil and gas industry and the drop in oil price had a disastrous effect. In addition, the United States have maintained protectionist policies imposing import quotas on their foreign competitors. Last but not least, some countries, such as Brazil and Yugoslavia, have developed their means of production to a very great extent, thus limiting the EC's export opportunities in the Third World.

Welded tubes over 406.4 mm in outside diameter suffered an even sharper drop in this period. Due to a decrease in investments in oil and gas pipelines, the main outlets for this category of tube, production fell by 37% between 1984 and 1989. Welded tubes over 406.4 mm in diameter and welded tubes of square, rectangular and other sections have been hit severely by competition from NICs and DCs, which have developed their production capacity and sell at very competitive prices, due to public aid in some cases. However, in contrast to the other tube categories, production of this category of tubes has risen by 6% in the years 1984 up to 1989, following the steady recovery recorded in a number of industries, especially the automotive and the structural steel-work industries.

Consumption trends

Apparent consumption of steel tubes in

Figure 2
World production steel tubes 1980-89



Source: CDL

the EC amounted to 9.9 million tonnes in 1989. Welded tubes over 406.4 mm accounted for the largest part of consumption with 6.6 million tonnes. Consumption of seamless tubes amounted to 2.4 million tonnes whereas consumption of welded tubes over 406.4 mm was relatively small (0.9 million tonnes).

Between 1984 and 1989, apparent consumption of steel tubes registered an annual average rise of 4.0%.

The corresponding market share of imports was 13.0% in 1989, compared with 9.3% in 1984 (table 2).

Apparent consumption of seamless tubes rose at an annual rate of 3.5% between 1984 and 1989. The share of imports was

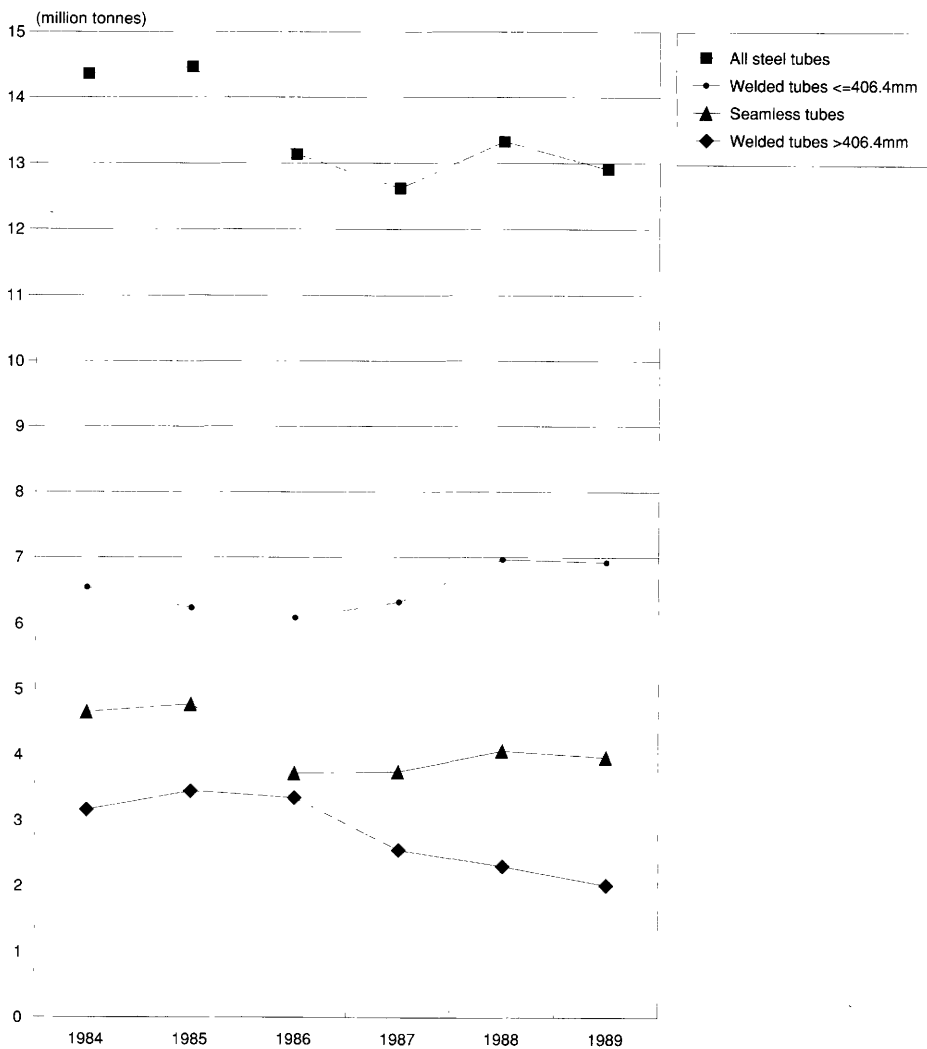
as high as 19.7% in 1989, compared with 12.7% in 1984.

Consumption of welded tubes over 406.4 mm was practically the same in 1988 as in 1984, but rose sharply in 1989. The share of imports decreased from 12.7% in 1984 to 9.2% in 1989. Consumption of welded tubes over 406.4 mm rose at an annual rate of 3.7% between 1984 and 1989. In the same period, the share of imports increased to 11.1% in 1989, compared with 7.7% in 1984.

External trade

A study of extra-Community trade and export/import ratios shows a serious deterioration in the EC external trade between

Figure 3
Steel tubes
EC production by tube category, 1984-89



Source: CDL

1984 and 1989.

The EC's trade balance, nevertheless, remains in surplus, but the latter shrunk from 3871 million ECU in 1984 to 2436 million ECU in 1989. Extra-EC imports amounted to 1141 million ECU in 1989 compared with 642 million ECU in 1984. In the same time extra-EC exports dropped from 4513 million ECU to 3577 million ECU (table 3).

Since 1985 there has been a progressive increase in imports of seamless tubes.

The pattern for welded tubes over 406.4 mm has been very irregular. Imports of welded tubes uti 406.4 mm and welded tubes of other sections have increased

steadily from year to year except for a drop in 1985 and 1986. This increase is also due to the fact that NICs and DCs have expanded their means of production for this category of tubes, which require far lower levels of investment than seamless and welded tubes over 406.4 mm. As far as extra-EC exports are concerned, it should be kept in mind that EC steel tube industry is extremely export orientated. In 1984 almost half of EC production of steel tubes went to third countries. Since 1984 there has been a steady decrease in export rate. Up to 1989 the export rate, derived from quantity data, had dropped to 33.4% (table 4).

Exports of seamless tubes, which accounted for 47% of total extra-EC exports in 1989, dropped by 30% between 1984 and 1989. The reasons for this decline were over capacities all over the world, a reduction of demand, especially of steel tubes for the oil industry, and the import quotas imposed by the USA. Welded tubes over 406.4 mm suffered an even sharper drop. Due in particular to a serious decline in demand from the USSR and China, exports of this tube category, accounting for nearly 30% of total extra-EC exports in 1989, fell by more than 50% between 1984 and 1989. Welded tubes uti 406.4 mm also decreased between 1984 and 1989. But the impact on EC production was much smaller in comparison with the other tube categories because of the export rate amounting only to 14.8% in 1989 against 51.6% in the case of seamless tubes and 61.6% in the case of welded tubes over 406.4 mm.

Employment

Total staff in the EC steel tube industry in 1989 was 25% lower than in 1984 (table 5). This sharp reduction in the number of employees is the direct result of restructuring in the steel tube sector in the Member States. This led to a gradual growth in productivity, the rise being particularly high in 1987 and 1988.

Investment

No significant investment has taken place in recent years owing to the reductions in capacity imposed by difficulties on the market since 1985. Contrary to the beginning of the 80s where some investment was aimed at expanding capacity, current investments relate to improvements in productivity and quality (mainly in small diameters).

Table 2
Steel tubes
Trends in apparent consumption and import penetration rate ⁽¹⁾ ⁽²⁾

(thousand tonnes)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
All steel tubes										
Consumption	8 916.6	8 386.3	7 621.5	6 849.8	8 140.0	8 417.1	8 220.9	8 377.6	9 677.3	9 876.6
Index	N/A	N/A	N/A	N/A	97	100	98	100	115	117
Imports (%)	8.7	7.6	9	10	9.3	8.4	9.9	10.1	11.7	13
Seamless tubes										
Consumption	2 541.0	2 151.0	2 018.2	1 671.9	2 010.6	2 283.7	1 907.2	1 903.2	2 334.1	2 394.5
Index	N/A	N/A	N/A	N/A	88	100	84	83	102	105
Imports (%)	9.3	12.1	11.8	13.8	12.7	12.5	14.5	17.3	17	19.7
Welded tubes OD >406.4 mm										
Consumption	987.4	877	874.8	272.8	602.7	667.8	735.3	479.4	598.6	848.5
Index	N/A	N/A	N/A	N/A	90	100	110	72	90	127
Imports (%)	12.2	2.8	2.5	12.7	12.6	3.2	17.8	4.6	4.5	9.2
Welded tubes OD ≤ 406.4 mm ⁽³⁾										
Consumption	5 397.2	5 358.3	4 728.5	4 905.1	5 526.7	5 465.6	5 578.4	5 995.0	6 744.6	6 633.6
Index	N/A	N/A	N/A	N/A	101	100	102	110	123	121
Imports (%)	7.9	6.6	9	8.5	7.7	7.4	7.2	8.3	10.5	11.1

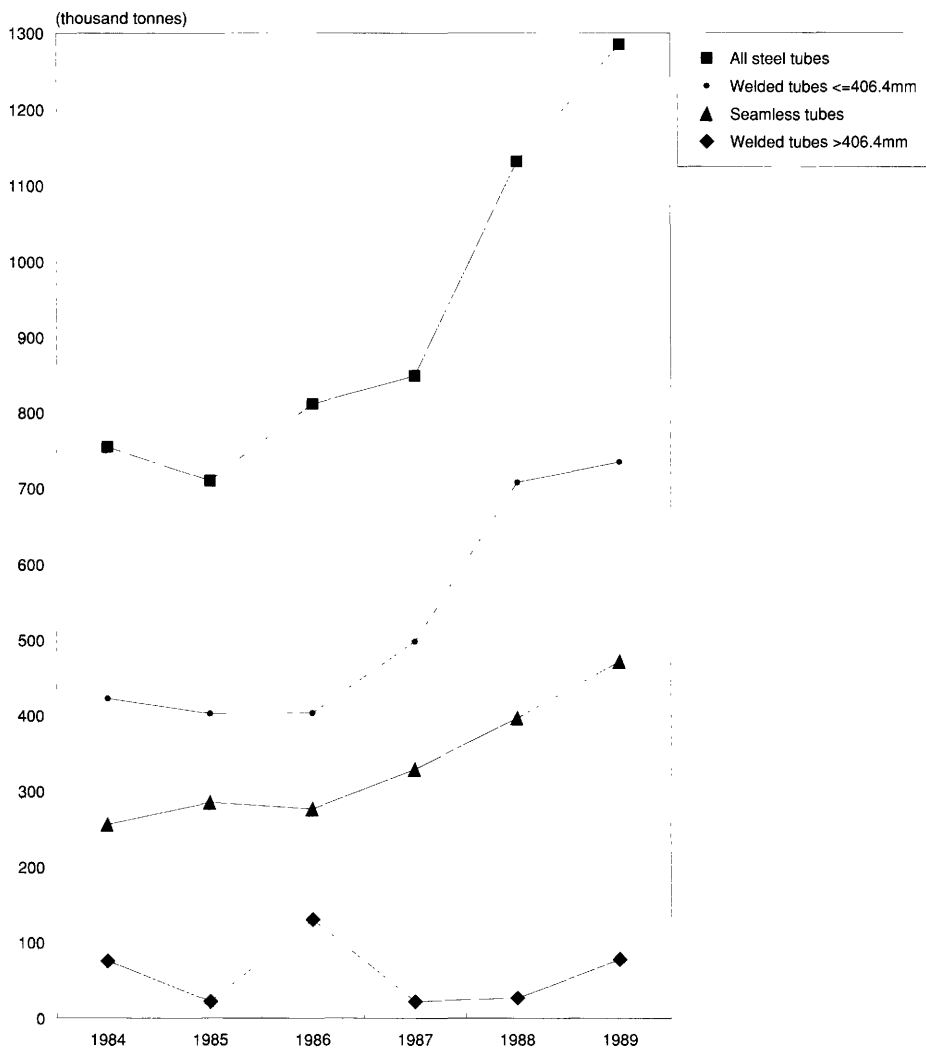
⁽¹⁾ As a percentage of apparent consumption
⁽²⁾ 1980 EC9; 1981-83 EC10
⁽³⁾ Includes tubes of non-circular cross-section
Source: CDL

Table 3
Steel tubes
Turnover and external trade, 1980-89 ⁽¹⁾

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Turnover										
Current value	N/A	N/A	N/A	N/A	9 475.9	10 383.8	8 562.5	8 177.8	9 412.2	10 047.3
Index	N/A	N/A	N/A	N/A	91.0	100.0	82.0	79.0	91.0	97.0
Constant value	N/A	N/A	N/A	N/A	10 167.3	10 383.8	8 394.6	8 370.3	8 837.7	8 891.4
Index	N/A	N/A	N/A	N/A	98.0	100.0	81.0	81.0	85.0	86.0
EC trade in current value										
Exports extra-EC	2 517.5	4 475.3	4 897.2	4 002.9	4 513.1	4 789.1	3 538.9	2 971.2	3 294.1	3 576.8
Index	N/A	N/A	N/A	N/A	94.0	100.0	74.0	62.0	69.0	75.0
Imports extra-EC	518.0	472.9	580.8	536.7	642.5	681.2	714.0	682.5	903.6	1 140.7
Index	N/A	N/A	N/A	N/A	94.0	100.0	105.0	100.0	133.0	167.0
X/M	4.9	9.5	8.4	7.5	7.0	7.0	5.0	4.3	3.6	3.1
Trade intra-EC	1 293.9	1 475.2	1 809.7	1 294.9	1 763.2	1 991.4	1 911.6	1 724.2	2 239.2	2 695.5
Index	N/A	N/A	N/A	N/A	89.0	100.0	96.0	87.0	112.0	135.0
Share of total (%)	34.8	25.1	31.7	24.5	28.3	29.1	35.0	36.8	40.5	43.0

⁽¹⁾ 1980 EC9; 1981-83 EC10
Source: CDL

Figure 4
Steel tubes
Extra-EC imports by tube category, 1984-89



Source: CDL

Environmental protection

Costs arising from environmental protection are considerable. They are to a large extent due to costs incurred by the treatment of smoke emissions from raw material production units and by reheating furnaces, treatment of waste water from the pickling installations and noise control in the production units.

These costs can amount to as much as 50 ECU per tonne, or 1% of the turnover of some EC firms.

The impact of '1992'

The impact of the single market will be low for the steel tube sector, because

today there are very few barriers to trade in the steel tube sector.

Nearly 3 million tonnes of tubes move among Member States every year, representing about 30% of apparent consumption. Owing to similar production techniques throughout the EC, products are of a comparable quality.

This fact is confirmed by the well advanced harmonisation of EC standards in the steel tube sector.

Eastern Europe

USSR is the world's largest steel producer but its foreign trade is characterised by weak exports and strong imports. Traditionally, the EC has been its most important

supplier.

This pattern is not expected to change in the near future. However, since 1986 EC deliveries have been considerably reduced as a consequence of the bad economic situation in the USSR.

EC exports have dropped from 2.7 million tonnes in 1986 and 1987 to 2.1 million tonnes in 1988 and to 1.4 million tonnes in 1989.

As for the other countries of Eastern Europe, they have shipped substantial quantities of ordinary steel tubes to the EC during the past years and will probably continue to do so in the near future.

However, EC steel tube producers are expected to benefit from the opening of Eastern Europe as considerable investments will be required in the medium and long term to modernise and restructure the industry in these countries and reduce over-capacities. Furthermore it can be expected that steel tube users requiring tubes of higher quality will partly substitute trade between eastern countries with Western supplies.

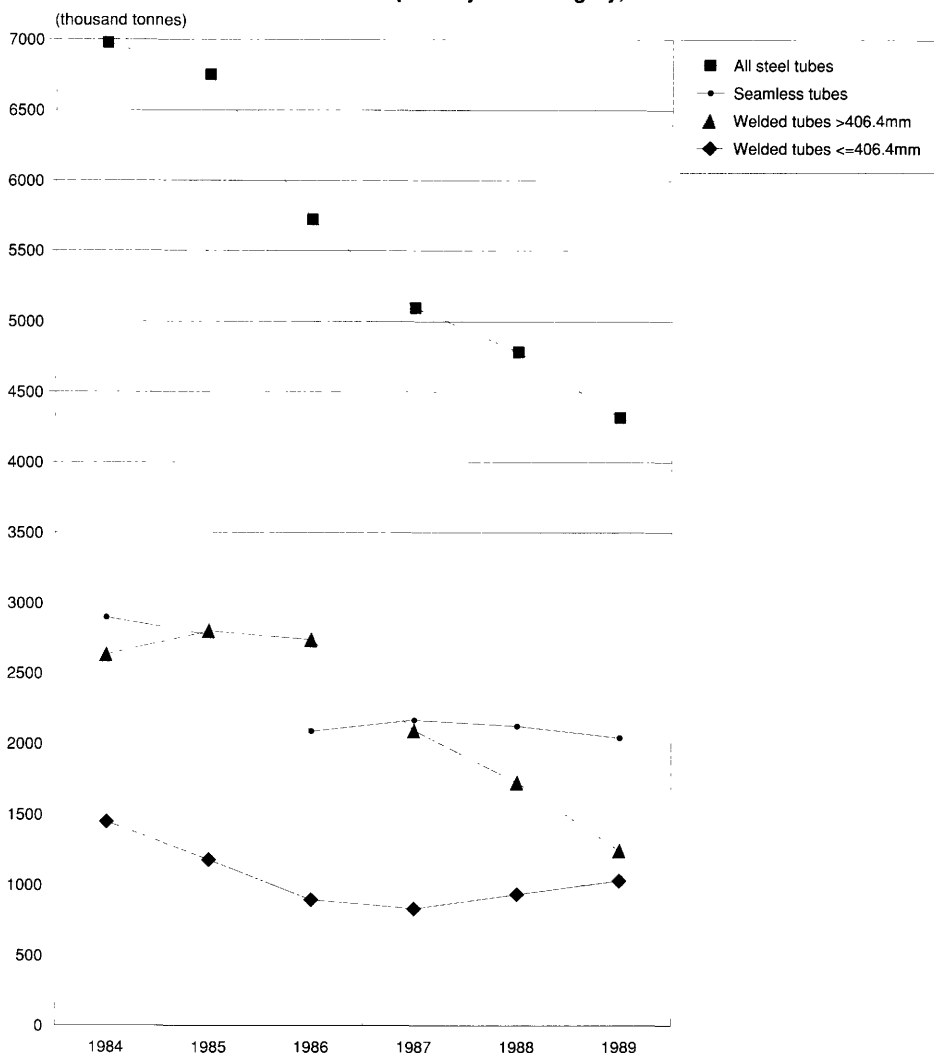
Industry structure

The steel tube industry is a primary steel processing industry with a highly concentrated structure: four countries - Germany, Italy, France and the United Kingdom - account for more than 80% of EC steel tube output. The industry is also highly concentrated within each country: in Germany, France and the United Kingdom, a single company accounts for some 50% or more of national output.

As a consequence production is more or less centralised in one or two regions in most Member States.

In addition to the major steel tube manufacturers, who are mostly linked to steel

Figure 5
Steel tubes
Extra-EC exports by tube category, 1984-89



Source: CDL

producers, there exists a relatively large number of medium-sized and smaller firms. Among these companies there are some manufacturers often small in tonnage terms, operating in small high added value markets, specialised in the manufacture of special dimension tubes and grades according to customers specifica-

tions.

In the past, specialisation and concentration of tube manufacturing was a general trend in all tube producing companies and countries.

To strengthen the competitiveness of the industry consideration is now being given to cross-border cooperation followed by ca-

capacity reductions.

As for example in the current talks between the French steel company Usinor-Sacilor and the German Mannesmannröhren-Werke.

Outlook

At the end of 1989 steel tube producers were confronted with a weakening in foreign demand, which intensified in the course of 1990.

The main reason for this decline in total demand was the sharp reduction in demand from the USSR and China due to economic and political reasons.

The EC steel tube industry suffered a setback of 22.4% in exports for the first half of 1990. At the same time apparent consumption has increased by 10.4%, while imports have increased by 6.4% and stocks of merchants and steel tube users have been reduced. For the whole year 1990 EC production is expected therefore to decrease by around 5%.

The Gulf crisis caused a surge in oil prices. So far there is no sign of reinforced drilling activity which could lead to a return of demand in the oilfield sector. The oil industry appears to assume that the crisis will be of short duration followed by a downturn in oil prices.

Another serious problem of the EC steel tube industry is the continuous reevaluation of EC currencies against the US dol-

Table 5
Steel tubes
Employment, investment and productivity, 1980-89 ⁽¹⁾

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Employment (thousands)	108.9	107.0	103.9	99.4	99.9	94.8	87.8	74.7	74.9	74.9
Investment in current value (million Ecu) ⁽²⁾	250.0	216.0	445.0	356.0	235.0	329.0	325.0	250.0	N/A	N/A
Productivity (tonnes/empl.)	116.9	134.8	123.6	122.0	143.8	152.5	149.6	172.4	178.0	172.4

⁽¹⁾ 1980 EC9; 1981-83 EC10

⁽²⁾ EC 12

Source: CDL, Eurostat (Inde)

Table 4
Steel tubes
External trade by tube category, 1980-89 (1)

(%)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Import penetration rate (2)										
All tubes	8.7	7.6	9.0	10.0	9.3	8.4	9.9	10.1	11.7	13.0
Seamless	9.3	12.1	11.8	13.8	12.7	12.5	14.5	17.3	17.0	19.7
Welded tubes OD > 406.4mm	12.2	2.8	2.5	12.7	12.6	3.2	17.8	4.6	4.5	9.1
Welded tubes OD <= 406.4mm(3)	7.9	6.6	9.0	8.5	7.7	7.4	7.2	8.3	10.5	11.1
Export rate (4)										
All tubes	36.1	46.3	46.0	49.1	48.9	46.7	43.6	40.4	35.9	33.4
Seamless	42.6	60.7	58.5	61.3	62.3	58.1	56.2	57.9	52.3	51.6
Welded tubes OD > 406.4mm	70.0	74.1	73.2	92.1	83.3	81.3	81.9	82.1	75.1	61.6
Welded tubes OD <= 406.4mm(3)	15.0	20.9	19.9	16.7	22.1	18.9	14.7	13.1	13.4	14.8
X/M (5)										
All tubes	5.9	10.4	8.6	8.7	9.2	9.5	7.1	6.0	4.2	3.3
Seamless	7.3	11.1	10.5	9.9	11.3	9.7	7.5	6.6	5.3	4.4
Welded tubes OD > 406.4mm	16.5	100.7	104.6	79.9	34.7	129.2	20.9	94.7	63.4	15.9
Welded tubes OD <= 406.4mm(3)	2.1	3.8	2.5	2.1	3.4	2.9	2.2	1.7	1.3	1.4
X/M (6)										
All tubes	4.9	9.5	8.4	7.5	7.0	7.0	5.0	4.3	3.6	3.1
Seamless	5.2	9.2	9.3	7.5	7.4	6.9	4.8	4.7	4.4	3.8
Welded tubes OD > 406.4mm	12.5	112.1	85.8	72.3	26.8	103.1	23.7	88.0	58.2	18.6
Welded tubes OD <= 406.4mm(3)	2.3	4.0	2.8	2.4	3.1	2.7	2.0	1.7	1.4	1.5

(1) 1980 EC9; 1981-83 EC10*

(2) As a percentage of quantity consumed

(3) Includes tubes of non-circular cross-section

(4) As a percentage of quantity produced

(5) Derived from quantity data

(6) Derived from value data

Source: CDL

lar and the Japanese yen.

In addition the Latin American currencies are floating with the dollar.

These effects impair the competitive situation of the EC industries considerably.

Furthermore the opening of Eastern Europe will not produce additional demand for the EC mills in the near future.

A general economic recovery in these

countries can only be expected in a number of years.

Taking into account these market conditions, a positive development in foreign trade can hardly be expected.

Domestic consumption of steel tubes will depend on the economic growth in the EC. In 1991 steel tubes production should stay on the level of the previous year and

a 2-3% growth could be expected in 1992.

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Drawing, cold rolling and cold folding sectors enjoyed substantial growth in production in 1988 and 1989.

This was primarily a consequence of the strong economic recovery by their customers, in particular the building sector, the automotive industry and mechanical engineering.

Developments in the sectors of drawing, cold rolling and cold folding during prior years on the other hand were marked by decidedly weak growth rates due as much to slack demand at home as to an ongoing worsening in the foreign trade position. New suppliers from emergent industrial nations and competition from Eastern Europe made incisive inroads into the markets of the European Community, while Community exports to third countries receded simultaneously. One consequence of this unfavourable trend and of the resulting intensified rationalisation measures was a drop of almost 25% in the numbers employed in the sector under consideration between 1980 and 1989.

Definition of the sector

Drawing, cold rolling and cold folding are an essential part of the so-called first processing stage of steel, an area that usually includes forging and sometimes the steel tube industry. According to the NACE/NIPRO Classification Sector 223 encompasses the following activities: cold drawing - cold rolling - cold folding - wire drawing and the manufacture of finished wire products. Cold drawing includes the production of cold machined steel bar stock. The transformation of hot-rolled steel bar into so-called bright steel is achieved

primarily by two methods - drawing or reducing the material thickness (turning, scalping, grinding).

Cold-rolled strip steel (cold strip) is produced in rolling mills (outside the ECSC Treaty). This is done by secondary rolling out of hot-rolled strip stock on so-called strip mills. Cold-rolled strip steel can also be produced in rolls by splitting cold-rolled plate lengthways.

This so-called split strip also falls within the cold-rolling mill sector according to the NACE definition.

In cold folding mills, cold steel section is

Table 1
Drawing, cold rolling and cold folding of steel
Main Indicators, 1980-1990

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 ^(*)
Apparent consumption	8 143	7 578	8 614	9 148	10 067	9 586	9 757	9 523	10 522	11 519	11 961
Net exports ⁽¹⁾	988	1 172	1 043	1 077	1 376	1 490	1 225	1 151	1 197	1 322	1 073
Production	9 131	8 750	9 658	10 226	11 443	11 076	10 982	10 674	11 719	12 841	13034
Employment (1000)	146	134	130	123	116	109	107	105	107	110	N/A

(¹) 1980: EC9; 1981-85: EC10

(²) Estimated.

Source: Eurostat (Inde, Comext).

manufactured from flat steel products (hot-rolled wide strip, wide flat steel, steel strip or sheet metal). This is done either by bending on a press-brake or by roll forming to shape on a sheet bending machine. Two categories of cold section products are normally distinguished, the true sections on the one hand and the corrugated sheet, sectioned sheet or sandwich sheets on the other.

Wire drawing is a process in which the initial stock is stretched cold in so-called drawing machines until it assumes the shape of wire. The resulting cold drawn wire can then either be used direct or be processed to make so-called finished wire products. Important finished wire products include: welded reinforcement mats, grates and lattices, pins and nails, barbed wire, cables, ropes and braid.

Current situation

As the biggest industrial consumers of rolled steel products, drawing and cold rolling mills are heavily dependent upon prices and conditions ruling on the steel market. Like the steel industry itself, the drawing and cold rolling mills in the Community were able to record healthy growth rates in 1988 following several years of negative production growth. In 1988 the value of production at current prices rose to 11.7 billion ECU, 10% up on 1987. After adjustments for price increases, the real growth in production was still 5.5% (see Table 2). Production growth continued on into 1989. While production again went up by almost 10% at current prices, the real increase in production actually fell back to 2.3% in terms of production at constant prices. Growth in production in 1989 was particu-

larly strong in West Germany. While the real increase in output was still gathering pace, production in Belgium and the United Kingdom started to recede once again. Production stagnated in Italy and France in real terms.

The chief reason for the production upturn in the years 1988/89 was the strong recovery in the user industries, especially the construction industry, automotive and mechanical engineering.

A positive influence on the growth of production by the drawing and cold rolling mills in 1989 was exerted by the Community's trade with third countries.

Although the increase in imports that has been observed for some years continued unabated, exports also increased dramatically. Given an increase in imports - measured in contemporary prices - by some 25% in 1989 and a simultaneous

Table 2
Drawing, cold rolling and cold folding of steel
Production, value added and investment ⁽¹⁾

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 ^(*)
Production in current prices	9 131.0	8 749.8	9 657.7	10 225.6	11 443.3	11 075.9	10 982.1	10 674.3	11 718.9	12 841.3	13034
Index	82.4	79.0	87.2	92.3	103.3	100.0	99.2	96.4	105.8	115.9	117.7
Production in constant prices	12 152.1	11 110.4	11 263.2	11 569.8	12 169.4	11 075.9	10 986.6	10 831.6	11 424.2	11 684.6	11859
Index	109.7	100.3	101.7	104.5	109.9	100.0	99.2	97.8	103.1	105.5	107.0
Value added in current value	2 610.5	2 485.1	2 640.5	2 803.1	3 048.0	2 936.4	3 067.2	3 181.3	3 529.8	3 874.7	N/A
Index	88.9	84.6	89.9	95.5	103.8	100.0	104.5	108.3	120.2	132.0	N/A
Productivity (Ecu) ⁽²⁾	83 141.5	82 764.8	86 834.0	94 127.6	104 568.0	101 599.4	103 114.4	102 975.6	107 199.9	106 394.4	N/A
Index	81.8	81.5	85.5	92.6	102.9	100.0	101.5	101.4	105.5	104.7	N/A
Investment in current value	316.5	283.6	269.3	293.1	289.2	334.7	382.0	440.0	N/A	N/A	N/A
Index	94.5	84.7	80.5	87.6	86.4	100.0	114.1	131.4	N/A	N/A	N/A

(¹) 1980-89: EC 12

(²) Production in constant prices divided by employment (Ecu/employee)

(³) Estimated.

Source: Eurostat (Inde).

growth in exports of some 17%, the foreign trade balance of the drawing and cold rolling mills rose to 1.3 billion ECU compared with just under 1.2 billion in 1988 (see Table 4).

An increase in employment levels in 1988 and 1989 also followed in the wake of the appreciable production increase. The numbers employed by the industry rose in 1989 to 110 000 as against 105 000 in 1987. This halted the downward trend in employment in drawing and cold rolling mills for the first time during the Eighties (Table 1).

Production and consumption

In 1989 production by the drawing and cold rolling mills as measured in prices ruling at the time totalled 12.8 billion ECU,

representing an average annual growth rate of 3.9% compared with 1980. Although foreign trade in cold drawn and cold rolled products has assumed growing importance in recent years, the production curve is still largely determined by internal Community demand. Visible consumption - at contemporary prices - expanded from 1980 to 1989 at the same average growth rate per annum as production. Producers of bright steel and drawn wire saw their production dwindle, while manufacturers of cold-rolled steel strip and cold section were able to increase their output slightly, development tendencies that are also prevalent in the various product groups for visible consumption. Consumption of products during the period under review stagnated overall from

1980 to 1989.

Two factors hampered a more positive development in the consumption of drawn and cold rolled products in the Community. First the unfavourable trend in output among the most important user industries mentioned earlier. These industrial sectors sustained heavy production losses during the first half of the 1980s in particular.

Second the products from drawing and cold rolling mills were exposed to substitution competition from other materials. Wire and cold-rolled strip steel were forced to compete with plastic and aluminium to a certain extent. Bright steel and cold-rolled sections in particular were under threat from products of the steel industry. The enhanced properties and closer tolerances of

Table 3
Drawing, cold rolling and cold folding of steel
Production, consumption and foreign trade by product

(Index:1980=100) (1)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Bright steel bars										
Production (2)	100	93	85	82	92	92	91	93	85	
Consumption	100	91	88	84	91	90	90	92	81	
Imports (3)	100	85	130	107	114	121	87	93	112	
Exports (3)	100	111	82	78	113	127	111	111	157	
Cold-rolled strip										
Production (2)	100	94	90	92	96	95	96	97	102	
Consumption	100	95	94	99	100	98	104	106	112	
Imports (3)	100	92	108	124	133	140	144	178	206	
Exports (3)	100	90	79	75	89	95	76	77	83	
Cold-formed sections										
Production (2)	100	104	103	99	96	102	103	114	115	
Consumption	100	105	105	100	97	104	107	116	119	
Imports (3)	100	100	106	83	98	106	136	121	173	
Exports (3)	100	92	77	69	71	70	69	83	95	
Cold-drawn wire										
Production (2)	100	94	90	90	88	88	88	88	96	
Consumption	100	93	91	90	86	88	87	87	98	
Imports (3)	100	81	90	108	123	129	126	138	185	
Exports (3)	100	107	88	97	111	107	107	107	101	
All products										
Production (2)	100	95	90	90	91	92	92	93	97	
Consumption	100	94	92	91	91	92	93	95	99	
Imports (3)	100	87	109	109	120	126	120	132	166	
Exports (3)	100	99	82	83	99	102	91	93	100	

(1) Derived from quantity data

(2) EC excluding Spain, Portugal, Greece, Ireland and Denmark

(3) 1980: EC 9; 1981-85: EC 10

Source: Eurostat (steel statistic)



Table 4
Drawing, cold rolling and cold folding of steel
EC trade in current value (1)

(million ECU)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 ⁽⁷⁾
Exports extra-EC Index ⁽²⁾	1 507.8 63.9	1 632.2 69.2	1 626.5 69.0	1 684.8 71.4	2 118.6 89.8	2 358.5 100.0	2 038.0 86.4	1 972.6 83.6	2 152.2 91.3	2 522.7 107.0	2 253.5 95.5
Imports extra-EC Index ⁽²⁾	520.1 59.9	460.6 53.0	583.2 67.1	607.5 69.9	742.6 85.5	868.8 100.0	813.3 93.6	821.6 94.6	955.7 110.0	1 200.7 138.2	1 180.4 135.8
X/M	2.9	3.5	2.8	2.8	2.9	2.7	2.5	2.4	2.3	2.1	1.9
Import rate (%) ⁽³⁾	6.4	6.1	6.8	6.6	7.4	9.1	8.3	8.6	9.1	10.4	9.8
Export rate (%) ⁽⁴⁾	16.5	18.7	16.8	16.5	18.5	21.3	18.6	18.5	18.4	19.6	18.8
Trade intra-EC ⁽⁵⁾ Index ⁽²⁾	1 777.5 64.6	1 684.0 61.2	1 907.5 69.3	1 987.3 72.2	2 418.5 87.9	2 751.7 100.0	3 142.5 114.2	3 136.9 114.0	3 523.3 128.0	4 146.5 150.7	N/A N/A
Share of total (%) ⁽⁶⁾	55.0	51.0	55.2	55.5	55.2	55.7	62.8	63.3	64.6	63.8	N/A

(1) 1980: EC9; 1981-85: EC10

(2) Without taking into account changes in EC-membership

(3) Share of extra-EC imports in apparent consumption

(4) Share of extra-EC exports in production

(5) Intra-EC imports

(6) Share of intra-EC imports in total exports

(7) Estimated.

Source: Eurostat (Comext).

steel products enabled some processors to substitute steel bar and hot-rolled sections for bright steel and cold-rolled sections respectively, i.e. to opt for a cheaper initial material.

Foreign trade

The drawing and cold rolling mills achieved their best results in 1985 with an export surplus of nearly 1,5 billion ECU. Since then trends in foreign trade have moved noticeably against the European Community. While imports went up again by almost 40% from 1985 to 1989, exports for the same period suffered a downward tendency and only managed to slightly bet-

ter the 1985 level in 1989 (Table 4).

The percentage of foreign competitors supplying the internal market increased from around 6% at the beginning of the Eighties to a good 10% by 1989. Young industrial nations such as South Korea and Taiwan, offering production cost benefits compared with European suppliers, emerged as new suppliers on the European market.

The import pressure from Eastern European countries also toughened, especially given that their selling prices rarely reflect their true manufacturing costs. Another unfavourable factor affecting the drawing and cold rolling industries in the past has been

the fact that steel producers have shifted their export activities to products of the drawing and cold rolling mills in an effort to circumvent the obstacles set up by the crisis measures implemented to protect the ECSC steel industry.

The export quota of drawing and cold rolling mills in the Community fell from 21.3% in 1985 to 19.6% in 1989 as a result of the worldwide slump in demand coupled with intensified competition. Nevertheless all major producer countries still manage to show a plus balance in foreign trade with third countries.

Table 5
Drawing, cold rolling and cold folding of steel
Production and employment by country

	Production in current prices			Employment		
	million ECU		total change (%)	1 000 persons		Total change (%)
	1980	1989	1980-89	1980	1989	1980-89
EC 12	9 131	12 841	41	146.2	109.8	-25
BR Deutschland	2 920	4 253	46	41.3	34.2	-17
United Kingdom	1 676	2 233	33	35.3	23.3	-34
France	1 560	1 852	19	25.5	17.2	-33
Italia	1 426	1 994	40	16.7	12.5	-25
Belgique/Belgié	750	1 194	59	12.0	10.1	-16
España	253	505	99	6.2	4.1	-34
Other countries	546	810	48	9.2	8.4	-9

Source: Eurostat

Employment

In the past, investments by drawing and cold rolling mills have tended to concentrate on rationalisation with the main aim of saving labour. In 1989 the sector still employed 110 000 people, 36 000 or 25% fewer than in 1980. Labour saving measures caused productivity to strengthen from 1980 to 1989 by an average of 2.8% per annum as gauged from production at constant prices (see Table 2).

The impact of '1992'

The introduction of the Single European Market planned for 1992 will have only relatively minor effects on the drawing and cold rolling mill sector, given that trade among the various member countries is already virtually unimpeded today.

Products of the drawing and cold rolling mill industry to the value of approx. 4 billion ECU are exchanged every year within the Community. Thanks to comparable production techniques in all Member States the quality of these products is relatively consistent.

Geographical features

Germany is the biggest producer within the Community with around one third of production and employees, followed in descending order of importance by the UK,

Italy, France and Belgium. Together these five countries constitute some 90% of total EC production of products from drawing and cold rolling mills.

The relative shares in production of individual countries have changed little over the past ten years. Germany and Belgium have achieved minor percentage gains while the United Kingdom and France have seen their input diminish. These same two countries have also sustained the largest reductions in employment as a consequence.

Structure of the industry

As a typical supplier industry the drawing and cold rolling mills are in essence medium-sized enterprises. Most firms are independent private businesses and a considerable part of output - whose percentage varies among the member countries - is also manufactured by the subsidiaries of the major steel groups.

Outlook

We can expect the positive economic years of 1988/89 to be followed during the current year 1990 by a slowdown in growth rates in the drawing and cold rolling mill sector. The slackening pace of internal demand that became apparent in 1989 is due above all to the noticeably

lower production growth in the user industries. The rate of growth is especially sluggish in the really important consumer industries such as the building trade and automotive sector, and is further aggravated by a reversal in the stock cycle having negative effects on demand.

Given the export increases achieved in the past two years there is little prospect of the receding internal demand being offset by further continued export activities, with the result that production growth of 1 to 2% only can be expected for 1990.

The rate of increase in 1991 and 1992 will hardly differ from that for 1990. Although motor manufacturers and building firms predict continued economic slowdown, the resulting negative effects on demand could be made up by the gradual exhaustion of stockpiles.

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