

5 Manufacturing

5.1 INTRODUCTION

During the last half century the importance of manufacturing industry in most European Union Member States has greatly diminished in terms of both production and employment. However, protection remains high and widespread especially in sectors such as textiles and consumer products. This chapter analyses the issues surrounding the impact of the EU's trade barriers in industrial products.

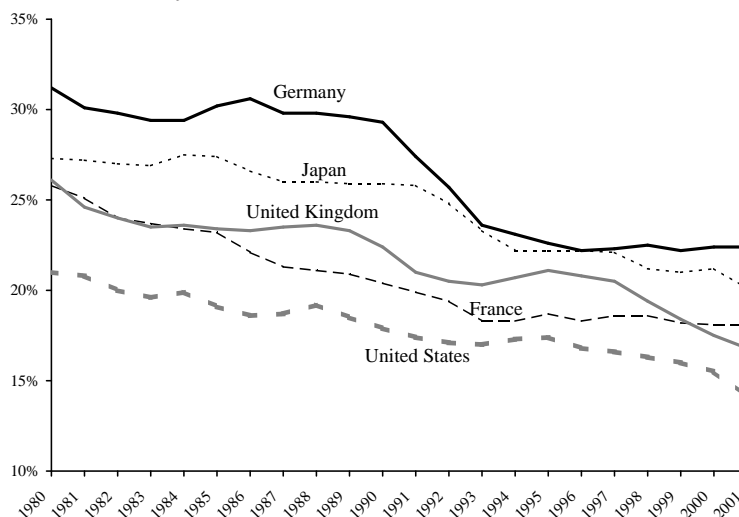
Section 5.2 discusses the significance of manufacturing for output and employment in the EU and the US. Section 5.3 reviews the pattern and direction of trade in manufacturing goods. The level and evolution of barriers to trade in goods in recent years are discussed in section 5.4. Section 5.5 presents estimates of trade barriers which take into account both tariff and non-tariff barriers. Section 5.6 outlines the main empirical findings concerning the welfare effects of trade liberalisation.

5.2 ROLE OF MANUFACTURING IN THE ECONOMY

Over the last three decades the share of manufacturing production in GDP has continuously declined in the US and the EU Member States, with the exception of Luxembourg and Spain (Figure 5.1).¹

¹Although the relative decline in manufacturing's share of output is real, its extent may have been overstated. Some sectors that used be classified as manufacturing are now classified as services. For example, if software design is outsourced it is classified as a service. If it is done in-house, it is classified

UK manufacturing output as a proportion of GDP fell from 26 per cent in 1980 to 17 per cent at present. In the same period it declined from 21 to 14 per cent in the US and from 31 to 22 per cent in Germany.



Source: UNCTAD (2003)

Figure 5.1: Manufacturing value added as per cent of total value added

In the EU the largest decline was recorded in the steel, petroleum and textile fibre sectors. Technology-driven industries grew at the fastest rate between 1985 and 1998, followed by marketing-driven industries, with pronounced growth in the media, publishing, printing and sports goods industries. In the UK over the last decade, the chemical (including pharmaceutical), electrical and optical sectors – which include IT and communications – have all grown faster than the economy as a whole. Certain industries, such as basic steel, shipbuilding, textiles and clothing, suffered from their competitive advantage moving to less developed countries and experienced a decline in manufacturing capacity and employment. In the US leading industries include motor vehicles, aerospace, telecommunications, chemicals, electronics and comput-

as part of the manufacturing sector.

ers.

As the share of manufacturing in total output has tended to decline across all the leading economies, the proportion of workers employed in the manufacturing sector has also fallen. During the last three years (2000–2002) around 400,000 manufacturing jobs were lost in the UK, accounting for a 10 per cent reduction in the sector's workforce (TUC, 2002). Manufacturing jobs now account for 14 per cent of total jobs compared to 17 per cent three years ago. Manufacturing has some of the lowest skilled sectors in the economy; almost 40 per cent of workers in the clothing sub-sector do not possess any educational qualifications. However, this low average hides some of the highest skilled sub-sectors, such as computers.

5.3 TRADE IN MANUFACTURING

Measured by the volume of merchandise trade, the world economy has become increasingly integrated in the years since the Second World War. The volume of world merchandise trade is today 18 times what it was in 1950, a period during which the value of world output increased by a factor of six (OECD, 2001b). Associated with this trend there has been a substantial rise in import penetration across all OECD countries, particularly in manufacturing goods: whereas in the largest four European countries manufacturing imports as a percentage of GDP moved from an average of 8.4 per cent in 1970 to 16 per cent in 1999, they rose from 2.7 per cent to 9.7 per cent during the same period in the US.

The EU continues to be the world's largest exporter of merchandise trade (20 per cent of world exports in 1998) and is the second largest importer (19 per cent of the total). The US is the EU's largest trading partner with shares of 21.3 per cent and 22 per cent in 1998 in imports and exports respectively. Among the Member States, Germany is the largest trading nation, followed by the UK and France. Among the manufacturing sectors, exports of telecommunications and office equipment overtook those of automotive products in the 1990s, growing from a little less than 9 per cent of total exports to 15 per cent, while automotive sector exports remained relatively constant at just over 9 per cent. Exports of garments and textiles slowed in the 1990s, with textiles in

Table 5.1: Merchandise export expansion by region and level of technology, 1980–2000 (average annual percentage change)

	Primary products	Resource based man.	Low- tech man.	Medium- tech man.	High- tech man.
North America	2.2	5.1	8.4	7.0	9.1
Latin American	5.1	5.1	11.8	14.8	21.0
Western Europe	3.5	4.2	4.8	5.5	9.3
EU 15	2.9	4.1	4.6	5.5	9.4
Developed countries	3.2	4.5	5.1	5.9	9.5
Developing countries	2.4	6.3	10.4	13.7	19.8
World	3.2	5.2	6.7	6.8	11.3

Source: Bacchetta and Bora (2003)

particular growing at a slower rate than total merchandise exports.

During the 1980s and 1990s, the EU has lagged behind North America in the of growth of low and medium technology manufacturing exports (Table 5.1). Within the EU exports of high-technology goods as a proportion of total goods exports have been higher in the UK than in France and Germany. This partly reflects the UK's strength, vis-à-vis other European countries, in pharmaceuticals and aerospace. Although there is some concern about a possible shift of pharmaceutical R&D to the US, the factors that have supported the growth of this industry in the UK – a favourable regulatory regime, a high level of public support for scientific research and the strength of British universities in life sciences – seem likely to persist. On the aerospace side UK production is dominated by two large companies, Rolls-Royce and BaeSystems.

The IT hardware sector, including computers and communication equipment, is also a strong performer; exports of these products, as a proportion of total exports of manufactures, is higher in the UK than in Germany or France. Most of these exports derive from foreign-owned companies, which are also large importers.

These companies may be using the UK as a relatively cheap production base in the EU.

As for the sectoral composition of imports, between 1980 and 2000 high-tech imports grew at a faster rate than low- and medium-tech imports in the EU. In the US, however, the growth rate of imports of low-tech goods was the highest, mainly due to a significant increase in imports of textiles, toys and similar labour-intensive goods from Asia, particularly China (Table 5.2).

Table 5.2: Merchandise import expansion by region and level of technology, 1980–2000, (average annual percentage change)

	Primary products	Resource based man.	Low-tech man.	Medium-tech man.	High-tech man.
North America	3.0	6.5	102.0	9.1	13.7
Latin American	10.5	12.4	16.0	13.3	17.7
Western Europe	1.0	3.6	5.3	6.4	9.6
EU 15	0.8	3.5	5.2	6.3	9.6
Developed countries	1.6	4.3	7.0	7.3	11.1
Developing countries	6.7	7.9	10.1	9.0	15.6
World	2.7	5.1	7.7	7.9	12.3

Source: Bacchetta and Bora (2003)

As for the US, merchandise trade amounted to \$1.87 trillion in 2001, with exports of \$730 billion and imports of \$1142 billion. Of the \$177 billion increase in goods exports since 1994, capital goods accounted for 48 per cent of the increase, industrial materials and supplies accounted for 19 per cent and consumer goods accounted for 14 per cent. In 2002 manufacturing exports accounted for 88 per cent of total goods exports. High technology exports, a part of manufacturing exports, accounted for 26 per cent (Table 5.3).

Since 1980 the US has experienced an important shift in its exports away from traditional European markets toward Asia and Mexico. During 2000–01 the top five US merchandise trade part-

Table 5.3: US goods exports

Exports	1999	2000	2001	2002 p	01–02 p	94–02 p
Total (BOP basis)	Billions of dollars				% change	
Agriculture	48.2	52.0	55.2	54.3	–1.6	17.3
Manufacturing	611.8	689.5	640.2	604.0	–5.7	40.1
High Technology	200.3	227.4	199.6	177.9	–10.9	47.3

Note: p – Provisional estimate.

Source: USTR (2003)

ners (in terms of total trade) were Canada, China, the EU, Japan and Mexico (Table 5.4). Over 85 per cent of US trade with NAFTA countries is in manufactured goods. This sector grew over 66 per cent between 1993 and 1998. In contrast, US manufacturers' export growth to the rest of the world from 1993 to 1998 was less than 47 per cent. In 2002 Canada was the largest US export market, accounting for 23 per cent of exports, followed by the EU, accounting for 21 per cent of aggregate US exports.

Since 1994, US imports of consumer goods have more than doubled, while imports of autos and auto parts, industrial supplies and materials, and capital goods have increased 72 per cent, 62 per cent, and 52 per cent respectively. Both general manufacturing and high-tech imports have risen substantially since 1994 (Table 5.5). Increasing import categories included foods, feed and beverages (up 10 per cent), consumer goods (up 9 per cent), and autos and auto parts (up 11 per cent). Imports from the EU have increased 86 per cent since 1994 and accounted for 19 per cent of total US imports in 2002 (Table 5.6). Imports from its NAFTA partners declined 1 per cent in 2002, but were up 127 per cent on 1993, the year prior to the implementation of NAFTA. NAFTA imports accounted for 30 per cent of aggregate US goods imports in 2002, up from 27 per cent in 1994.

Manufacturing intra-industry trade has risen in most OECD countries including the US and the EU since the 1980s. In the US it rose from 64 per cent of total manufacturing trade in 1988–91 to 69 per cent between 1996–2000. In several countries, like Austria, France and the UK, manufacturing intra-industry trade

Table 5.4: US goods exports to selected countries/regions

Exports to	1999	2000	2001	2002 p	94-02 p
	Billions of dollars				% change
Canada	166.6	178.9	163.4	159.7	39.6
European Union	151.8	165.1	158.8	143.5	33.1
Japan	57.5	64.9	57.5	51.2	-4.4
Mexico	86.9	111.3	101.3	97.2	91.1
China	13.1	16.2	19.2	22.2	138.6
Pacific Rim	103.2	121.5	104.8	104.7	23.1
(except Japan and China)					
Latin America	55.2	59.3	58.2	51.3	23.1
(except Mexico)					

Note: p – Provisional estimate.

Source: USTR (2003)

Table 5.5: Total US imports (BOP basis)

Imports to	1999	2000	2001	2002 p	94-02 p
	Billions of US\$				% change
Agriculture	36.7	39.2	39.5	41.6	60.2
Manufacturing	882.7	1013.5	950.7	963.3	72.9
High technology	181.2	222.1	195.2	193.6	97.3

Note: p – Provisional estimate.

Source: USTR (2003)

Table 5.6: US goods imports from selected countries/regions

Imports to	1999	2000	2001	2002 p	94–02 p % change
	Billions of US\$				
Canada	198.7	230.8	216.3	208.5	62.4
EU	195.2	220	220.1	222.1	85.9
Japan	130.9	146.5	126.5	119.0	–0.2
Mexico	109.7	135.9	131.3	134.1	171
China	81.8	100	102.3	122.4	215.5
Pacific Rim (except Japan and China)	147.1	171.5	147.3	145.2	40.7
Latin America (except Mexico)	58.5	73.3	67.4	68.4	77.8

Note: p – Provisional estimate.

Source: USTR (2003)

has been in the 70–75 per cent range for over a decade (Turner and Richardson 2003).

5.4 BARRIERS TO TRADE IN GOODS

Tariffs: European Union

After the successive tariff cuts during the various GATT rounds, average MFN tariffs on manufactures are rather low, with the US and the EU both among the low-tariff regions (Table 5.7). The average EU tariff on non-agricultural products was 4.1 per cent in 2001, down from 4.5 per cent in 1999; the decline is explained by lower tariffs on certain paper and paperboard, chemical, textile, iron and steel products, and toys.

Despite this, tariff protection in some sectors remains high and, in some cases such as chemicals, maximum tariffs increased after 1995. Many developed countries including the EU continue to levy higher tariffs on consumer goods than on capital goods. For example, tariffs on consumer goods are more than five times higher than

Table 5.7: Imports and tariff peaks, 1999

	US	EU 15	Japan	Canada
Number of tariff peak products				
All products	311	317	233	732
Agricultural products	48	290	178	85
Industrial Products	263	27	55	647
Tariff peak products as percentage of all tariff lines	6.1	6.2	4.6	14.3
Average tariff rates (unweighted)				
Tariff peak products	20.8	40.3	27.8	30.5
All products	5.0	7.4	4.3	8.3
Maximum tariff rate (%)	121.0	251.9	170.5	342.7
Imports of tariff peak products (in billions of US\$)	42.1	27.1	15.8	8.7
Imports of tariff peak products (as per cent of all imports)	4.6	3.4	4.9	4.6

Notes: Applied tariff rates; Excludes all intra-EU trade in world totals.

Source: Hoekman et al. (2002).

on capital goods (DTI, 2004) and tariff peaks occur in footwear and automotive industries. The sectors with higher rates than the average include video recording instruments, certain type of radio cassette-players, radio-broadcast receivers, reception apparatus for colour television and video monitors. In the transport equipment sector, the EU imposes higher than average tariffs on bicycles and motor vehicles including buses, cars, and trucks as well as on motor vehicle chassis. Tariff protection for passenger cars remains at 10 per cent and is substantially higher than the USA (2.5 per cent) and Japan (0 per cent). Vehicles with large engine capacity and used for passenger transport face a tariff of 16 per cent while the majority of transport vehicles face a tariff of 22 per cent. In addition, all such motor vehicles are subject to special taxes, VAT

or registration fees at the Member State level. High tariffs also apply to 40 lines in electrical equipment (all at 14 per cent), 20 in vehicles (of which 10 are at 22 per cent) and 5 in organic chemicals and alcoholic solutions (WTO, 2002).

Textiles

The EU has long maintained restrictions on imports of textile and clothing products from a number of developing countries and transition economies. Tariffs well above the average apply to textiles and clothing products with articles of apparel and clothing having average tariff rates above 12 per cent. In fact, out of 402 lines with tariff rates in excess of 12 per cent, 337 are in textiles and clothing.

Trade in textiles and clothing products continued to be subject to a special regime under the multilateral trade rules until 1 January 2005. Until that time a significant share of world trade in textiles and clothing was distorted by the complex set of quantitative restrictions inherited from the Multi-Fibre Agreement (MFA). To date, the EU has lifted restrictions on 20 per cent of products restricted in 1990, leaving the elimination of the remaining 80 per cent of restricted imports 'back-loaded' for the final stage at the end of 2004. The EU has also delayed removing restrictive quotas from textiles and clothing exports from developing countries. The Uruguay Round commitments are less dramatic than has been often said because EU tariff reductions have been concentrated on already low tariffs. It is estimated that in 1997 EU consumers paid roughly ECU 25 billion (1.8 per cent of GDP) more than the world price for textile and clothing products due to quotas, tariffs and indirect effects (Francois and Glismann, 2000).

Tariffs: United States

In July 2002 the US announced a proposal to eliminate all tariffs on consumer and industrial goods worldwide by 2015. Prior to this, in 1997 tariffs were eliminated on all semiconductors, computers, computer peripherals and computer parts, electronic calculators, telecommunication equipment, electronic components (capacitors, resistors, printed circuits), semiconductor testing and manufacturing equipment and certain consumer electronic items.

Despite the substantial reduction and elimination of tariffs

agreed in the Uruguay Round by the US, a number of significant duties and tariff peaks remain in various sectors including food products, textiles, footwear, leather goods, jewellery and certain transport equipment such as trucks, railway cars and bicycles. There are products of importance for EU trade which continue to face high tariffs. These include hotel and restaurant ware, on which the duty rates currently are 30 per cent if made of porcelain or china and 31.5 per cent for others, and certain drinking glasses and other glassware on which the duty rates currently are 33.2 per cent and 38 per cent respectively. In the textile and leather sector for certain woollen fabrics and articles of apparel duty rates in 2002 reached 27.6 per cent plus a specific rate of 9.7 cents/kg in certain fabrics and 32.5 per cent for some apparel and several footwear products for which the current duty rates are 48 per cent, or 37.5 per cent plus a specific rate of 90 cents/pair. The US jewellery sector is protected by an average tariff of 6 per cent with the highest tariff after the Uruguay Round being 13.5 per cent. The corresponding EU rates stand between 2.5 per cent and 3 per cent. Furthermore, the US maintains significant import duties on certain semi-finished products made of precious metals. The high raw material cost in this sector means that even modest tariff barriers reduce significantly the access to the US jewellery market. A customs duty of 25 per cent was placed on vehicles for the transport of goods with a weight greater than 5 tonnes but less than 20 tonnes.

In October 2001 the USITC ruled that steel imports during January 1996 and June 2001 had injured domestic industry and in March 2002 the US imposed safeguard tariffs. Duties ranging from 8–30 per cent were imposed in the first year and the rates were scheduled to fall to 7–24 per cent and 6–18 per cent respectively, in the subsequent two years. A broad range of products were exempted as were all imports from Canada, Mexico and many developing countries. According to the Consuming Industries Trade Action Coalition (CITAC) those steel tariffs imposed in 2002 were largely responsible for the loss of nearly 200,000 American jobs (BBC, 5 Feb, 2003). The effect of protection has been to raise the price of steel and some steel consuming companies have switched to suppliers outside the US.

In sum, although average tariff rates have fallen in recent years, tariff peaks and tariffs dispersion remain significant in the EU and

the US.

Tariff Escalation

Tariff escalation occurs when relatively high rates of tariff are levied on processed commodities compared to those on unprocessed commodities or raw materials. This results in higher 'effective' tariffs expressed as a fraction of value added after deducting intermediate inputs from product value. For example, suppose a country chooses not to impose a tariff on the import of raw leather, but a positive tariff on the import of leather manufactures such as shoes, garments or accessories. The domestic leather manufactures enjoy a higher rate of protection than the nominal tariff would suggest. Table 5.8 shows the incidence of tariff levels in Quad countries (Canada, the EU, Japan and the US) by technology-based product categories. The highest tariff dispersion in the EU is found in automotive and textiles, followed by electronic products. These are also the industries with the highest maximum rate in the EU.

The structure of tariffs in terms of stage of processing continues to show evidence of tariff escalation for the EU, notably for food, beverage and tobacco products, as well as textile products. Whereas raw textile materials show the average rate of 1 per cent, semi-processed items have an average rate of 8.2 per cent while fully processed items show an average tariff of 10 per cent and clothing 11.6 per cent. Further, Messerlin (2001) notes that there has been a continuous reshuffling of the tariff schedule since 1995. This makes possible tariff increases on new products, especially when the EU is having difficulties in following a fast transition to the latest technological progress. For example: before 1983, CD players were considered as 'record players' with a 9 per cent tariff. In 1984, they were granted a specific tariff line in the EU schedule with a tariff increase to 16.5 per cent.

The EU applies preferential rates, providing for elimination or partial elimination of tariffs to the countries with whom the EU has entered into preferential or free-trade agreements. The normal tariff rates are applied to most countries including Australia, Canada, the US, Japan, New Zealand, and since May 1998 to Hong Kong, Singapore and the republic of Korea. As a result the import share of EU trade under the normal tariff schedule increased from 35 per cent in 1990 to 39 per cent in 1999.

Table 5.8: MFN tariff peaks in manufactures, by technology-based product groups, 2000

Product group		Canada	EU	Japan	United States
Low technology	Standard deviation	7.67	3.60	6.61	7.44
textile/fashion cluster	Domestic peaks*	0.75	0.00	0.08	0.87
	International peaks*	0.40	0.02	0.09	0.15
	Maximum rate	22.50	17.00	37.5	48.00
Low technology manufactures, n.e.s	Standard deviation	3.6	2.14	1.85	4.03
	Domestic peaks*	0.66	0	0	0.67
	International peaks*	0.01	0	0	0.02
	Maximum rate	18	12	17	38
Medium technology, automotive products	Standard deviation	3.12	5.85	0	5.25
	Domestic peaks*	n.a.	0	0	0.56
	International peaks*	n.a.	0.16	0	0.04
	Maximum rate	13	22	0	25
Medium technology, process industries	Standard deviation	5.27	3.41	3.7	4.58
	Domestic peaks*	0.59	0	0	0.74
	International peaks*	0.12	0	0	0.07
	Maximum rate	20.5	12	27.2	23.1
Medium technology, engineering Industries	Standard deviation	3.77	2.03	1.17	2.14
	Domestic peaks*	0.37	0	0	0.38
	International peaks*	0.01	0	0	0
	Maximum rate	25	14	8.4	14
High-tech electronic/electrical products	Standard deviation	2.87	3.37	0.42	2.22
	Domestic peaks*	0.36	0	0	0.48
	International peaks*	0	0	0	0
	Maximum rate	9.5	14	3.3	15
High technology n.e.s.	Standard deviation	2.35	1.75	0.28	2.2
	Domestic peaks*	0.27	0	0	0.38
	International peaks*	0	0	0	0
	Maximum rate	11	7.7	3.9	16

Note: * – As a share of total number of lines

Source: UNCTAD (2003)

Non-tariff Barriers (NTBs): European Union

As tariffs are lowered other impediments to trade become more apparent. The use of NTBs is difficult to monitor because these instruments are generally less transparent than tariffs. Most indicators focus on the incidence or frequency of use of NTBs (Table 5.9) and do not capture the restrictiveness of such measures. In general, however, the EU and the US seem to have a more restrictive NTB regime than the other countries.

Table 5.9: Frequency of core NTBs of selected countries

	1993	1996
Australia	0.7	0.7
Mexico	2.0	14.1
Canada	8.3	7.3
US	23.0	16.7
EU	22.1	13.0
Japan	11.4	9.9

Note: The frequency ratio is the proportion of national tariff lines that are affected by a particular non-tariff barrier (NTB) or by a specified group of NTBs, irrespective of whether the products affected are actually imported.

Source: WTO (2001)

Quotas

The EU continues to impose quotas on imports from China of footwear, tableware and kitchenware (ceramic, porcelain and china), as well as surveillance on certain products. Upon the accession of China to the WTO, the EU made the commitment progressively to liberalise these quotas, removing them by 2005. Products from China that are subject to surveillance include glassware, toys, footwear and bicycles. The EU also maintains quotas on certain steel products imported from Kazakhstan, the Russian Federation and the Ukraine, and maintains surveillance on imports of certain steel products from these origins.

Anti-dumping duties

As tariffs and quotas on agricultural products and textile and apparel products are phased out, anti-dumping actions are emerging as the major form of trade restriction. The 1947 GATT agreement defines dumping as the practice whereby ‘the products of one country are introduced into the commerce of another country at less than normal value of the products’. It permitted dumping duties only if such actions caused ‘material injury’ to domestic industry. However, in the EU anti-dumping law the conditions under which the duties are allowed are not laid out clearly and the EC has considerable discretion in the choice of measures it can take (Tharakan, 1991). Further, the EU, like other countries, often tinkers with the rules to broaden the scope and availability of AD protection (Hindley and Messerlin 1996). Anti-dumping measures by the EU have become an important device of protectionism, thereby reducing consumer welfare and distorting the working of free markets. As Blonigen and Prusa (2001) note “antidumping is a trade policy where the institutional process surrounding the investigation and determinations has significant impacts beyond the antidumping duty we observe, and where the filing decision, the legal determination, and the protective impact are all endogenous with firms’ decisions in the market, leading to a wealth of potential strategic actions and distorted market outcomes.”

During the period 1990–1999 quotas and AD duties tended to be concentrated in the same sectors. The decline in quotas during this period has often been compensated for by expanding products under AD measures, in particular consumer electronics, textiles as well as fisheries and mining. The few sectors where NTBs have not been replaced by AD duties are cars and other transport equipment, which rely on lack of competition at the distribution level, subsidies, tied contract and public procurement as well as on some not-too-specific informal agreements that succeeded the formal ones when quota arrangements were lifted in 2000. The AD duty levels are significant. In the EU they are typically of the order of 25 per cent; the percentage for the US is slightly higher at about 30–35 per cent. Individual measures often exceed this percentage with AD duties of more than 100 per cent (Table 5.10). This suggests that anti-dumping measures are likely to have had a major impact upon trade. The average duty is consid-

erably higher than the level of tariff protection with the exception of agricultural goods and products such as tobacco and alcoholic drinks.

Table 5.10: Duty level of AD orders imposed by the European Union

Product	Against	Duty level
Television camera systems	Japan	200%
Woven polyolefin sacks	China	124%

Source: Neufeld (2001)

As of 1 January 2002, the EU had in place definitive anti-dumping measures (duties and/or undertakings) on 175 product categories, down from 192 in 1999. Tables 5.11 and 5.12 report AD initiations and final measures taken by the EU, Canada, the US and Mexico between 1995 and 2002. The EU is the second most frequent user of these measures, behind the US. Although some 40 per cent of the anti-dumping investigations initiated by the EU are terminated without measures being taken they are still protective in effect, because of the threat that they might be imposed. This threat induces foreign producers and their importers to raise prices, as in a cartel, to avoid AD duty. Also, needless to say, the amount of duty collected may be very small because of the duty's effect in preventing and discouraging trade.

Over the years certain broad patterns have emerged in terms of the countries being targeted by the EU. For periods during the early 1980s the countries of central and eastern Europe were generally the most frequently targeted. During the mid to late 1980s these were to a large extent replaced by Asian countries, initially Japan and then, in turn, South Korea, Thailand, Indonesia, Malaysia and so on. At present, it is India and China which are facing the largest number of complaints. Indeed, over the six year period 1993–1998, China has been the major target of EU anti-dumping cases with 26, followed by India (22), Korea (17) and Thailand (14). At the end of 2001 China was the most affected, with 34 cases, followed by Chinese Taipei, and Thailand, with 13 cases each. Since 2000 the EU has launched anti-

Table 5.11: AD sectoral distribution of initiations by reporting member – 01/01/95 to 31/12/02

Reporting member	VI	VII	XI	XV	XVI	Others	Total
EU	45	17	32	92	38	37	267
Mexico	10	4	5	20	4	8	59
US	26	20	3	190	14	7	292
Canada	4	0	0	73	2	15	107

Note:

VI Products of the chemical or allied industries

VII Plastics and articles thereof, Rubber and articles thereof

XI Textiles and textile articles

XV Base metals and articles of base metal

XVI Machinery and mechanical appliances, electrical equipment, parts thereof, sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles.

Source: WTO (2003)

Table 5.12: AD sectoral distribution of measures by reporting member – 01/01/95 to 31/12/02

Reporting member	VI	VII	XI	XV	XVI	Others	Total
Canada	1	0	0	48	1	7	67
EU	31	13	15	65	21	17	164
Mexico	9	4	2	28	1	4	55
US	20	6	2	131	7	6	192

Note: Categories as for Table 5.11

Source: WTO (2003)

dumping proceedings against electronic firms (CDs) from Taiwan and India as well as against Chinese colour television firms such as Xocoeco, Changhong, TCL, HiSense, Skyworth, Panda, Furi and Konka. When anti-dumping tariffs are applied, they are significant (Table 5.13 and Table 5.14).

As for sectoral distribution, four industries accounted for 80 per cent of all cases initiated by the EU between 1995 and 2003: base metal, textiles, chemical, and electrical and non-electrical machinery (Table 5.15). Further, around 70 per cent of all initiations resulted in the imposition of anti-dumping duties. The number of initiations of new investigations in 1999 rose three-fold to 66 and included items such as compact disc boxes and colour-television picture tubes. The EU also had 16 definitive countervailing measures in place, up from six in 1999, with products from India the most frequently affected. Safeguard action was taken in March 2002 on 15 steel products in response to the US safeguard action on steel imports. Supplementary duties are to be triggered if volumes rise above 2001 levels to prevent diversion of trade from the US market onto the EU market. The Commission also proposed the Council agree additional duties of between 8 per cent and 100 per cent on imported products from the US as 're-balancing' measures, given the failure of the two parties to agree compensation for the Article XIX measure on steel imposed by the US. The EU continues to make frequent use of the special safeguard mechanism under the WTO Agreement on Agriculture to impose 'snap-back' tariffs (whereby tariffs are raised in response to a surge in imports).

AD duties impose significant costs on the economy. Domestic and foreign firms alter their pricing behaviour to influence the outcome of potential AD investigations (Blonigen and Prusa, 2003) typically raising prices in order to avoid an AD duty. This effectively transfers AD revenue to the foreign firm via a cartel-style benefit. Analysing a case where four Japanese exporters were alleged to be selling a chemical product in the EU at a price below the competitive market price (dumping), Lloyd et al. (1998) find that the unwarranted imposition of an AD measure increased the cost to consumers by 35 per cent of the import bill. EU producers initiated a case against four Japanese exporters on 24 June 1981 and an AD measure was imposed on 18 June 1982. While the product is a minor one – polypropylene film (PPF), a bulk thermoplastic polymer used in packaging and as a structural material

Table 5.13: EU Anti-dumping tariffs on Taiwanese companies

Company	Tariff (%)
Ritek, Prodisc, Auvistar, Unidisk	18.8
Acer Media, Digital Storage, Gigastorage, Lead Data Megamedia, Po Hsin Multimedia	20.1
Princo	29.9
All others	39.5

Source: DigiTimes (2001)

Table 5.14: EU Anti-dumping duties against Japanese consumer electronics and office machinery imports

	Investigation started	Definitive measures	Duty levels (%)	Date of repeal
Typewriters	1984	1986	17–35	16.06.1993
Copiers	1985	1987	7–20	04.10.1997
CD players	1987	1989	8–32	24.08.1993
Computer printers	1987	1988	5–47	17.11.1993
Videorecorders	1987	1989	13	16.02.1994
Halogen lamps	1989	1991	36–47	20.01.1996
Audiocassettes	1989	1991	2–26	04.05.1996

Source: Belderbos (2003)

Table 5.15: Anti-Dumping sectoral distribution of initiations and measures, 1995–2003

Anti-dumping sectoral distribution of initiations									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Total
EU	45	20	9	34	92	39	12	23	274
US	43	20	2	6	200	17	2	39	329

Anti-dumping sectoral distribution of measures									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Total
EU	35	13	7	17	71	26	3	15	187
US	24	9	1	2	134	7	2	26	205

Notes:

- (1) Products of the chemical or allied industries
- (2) Plastics and articles thereof; rubber and articles thereof
- (3) Wood and articles of wood
- (4) Textiles and textile articles
- (5) Base metals and articles of base metal
- (6) Machinery, mechanical appliances; electrical equipment
- (7) Miscellaneous manufactured articles
- (8) Others

Source: WTO (2004b)

(a substitute for wood, paper, metals and plastic) – and the absolute amounts are low, the implications are that EU anti-dumping measures can impose a high cost to consumers.

There are further non-tariff measures which the EU imposes on certain sectors. The most burdensome regime of all concerns the pharmaceutical sector. It remains among the few with price controls in the EU resulting in wide differences between prices among Member States. Foreign pharmaceutical companies encounter consistent market access problems throughout the EU due to the price, volume and access controls placed on medicines by national governments and Member States's public health authorities. As a result, since controlled prices vary greatly from one Member State

to another, intermediaries engage in parallel trade (profiting at pharmaceutical companies' expense by buying drugs in countries where the price is lower and selling them in Member States where the price is set at a higher level). It is estimated that parallel trade within the EU increased in the 1990s – from approximately 1 per cent to 1.4 per cent of the total market value between 1990 and 1997 (European Communities, 1997). In the Netherlands the share of parallel trade rose from 5 per cent in 1990 to 14 per cent in 1997, and for certain products in some Member States the market penetration rate of parallel trade is as high as 50 per cent (European Communities, 1997). Another impediment stems from the EU policy of testing each batch of pharmaceuticals imported from the US for quality at the point of entry. The testing obligation is costly and time-consuming, delays market access and increases market costs. It places US-based pharmaceutical manufacturers at a competitive disadvantage. Each EU Member State still maintains widely differing standards, testing and certification procedures for some pharmaceutical products.

State Aid

State aid is another way, though not always visible, of protecting domestic industries. Although state aid to manufacturing relative to value added fell in the majority of Member States between 1995 and 2000, EU-wide aid granted to manufacturing in 2000 still amounted to a significant € 24 billion or 1.6 per cent of value added in this sector. During the period of 1997–99 grants were the leading form of state aid to manufacturing (61 per cent), followed by tax exemptions (22 per cent). Among the Member States, over 90 per cent of state aid is provided in grant form in Greece, Luxembourg, Spain and the United Kingdom, while less than one-third is provided in this form in France and Ireland. As a share of value added Greece had the highest level of manufacturing sector assistance (4.3 per cent) between 1997–99, followed by Italy (2.7 per cent), Denmark (2.6 per cent) and Germany (2.4 per cent). The lowest proportion of state aid at 0.6 per cent of value added during the same period was in the UK (Figure 5.2). In February 2002, the Commission issued a new framework for regional aid to large investment projects to apply to all sectors for the period 2004–09, and to the motor vehicle and synthetic fibre industries as of 2003.

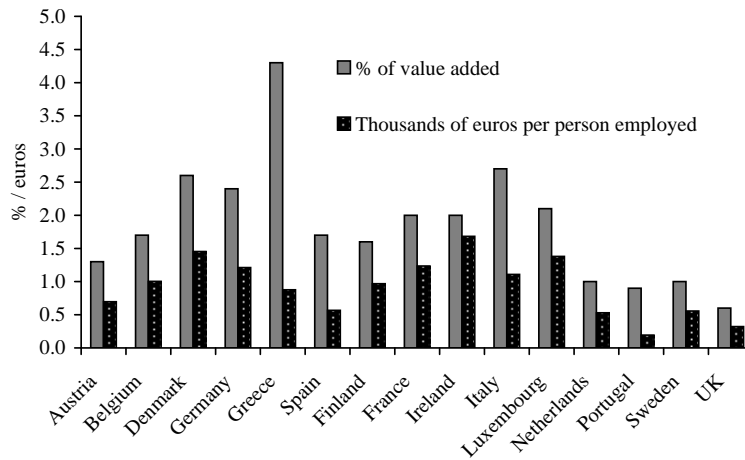


Figure 5.2: State aid to the manufacturing sector – annual averages 1997–99 in constant prices (1998)

Source: EC (2001)

As a result, the Community framework on state aid to the motor vehicle industry granted as regional assistance was extended until 31 December 2002, with a transitional mechanism in place for 2003.

Aid to shipbuilding was to be discontinued but its prolongation has been proposed on a ‘defensive’ basis. Aid to the coal mining industry will continue until 2010. Although most EU mines cannot compete with imported coal, the industry that remains in four Member States has long been assisted on social and regional grounds. In 2000, the Commission authorised €6.8 billion in state aid to coal under the current framework, mainly to cover operating losses, averaging €192 per tonne, or €76,405 for each of the 89,000 workers employed in the industry.

Non-tariff Barriers: United States

Quantitative import restrictions in the US are imposed mainly under the Agreement on Textiles and Clothing. Quotas apply to over half of clothing imports and 32 per cent of textile imports. Over 1000 quotas are applied to 45 countries, including 37 WTO

members. These measures are combined with relatively high MFN tariffs.

Tax breaks are another form of NTB used by the US. The WTO last year gave the EU permission to impose tariffs, ruling that the US offers generous but illegal tax breaks to big American exporters such as Boeing Co. The Commission initiated a safeguard investigation on 21 steel products on 27 March 2002, and took provisional action on the same date on 15 steel products in response to the US safeguard action on imports of steel, effective on 20 March 2002; a dispute settlement proceeding was also initiated on 13 March 2002. Supplementary duties of between 14.9 per cent and 26 per cent are to be triggered by volumes rising above levels of trade set at 2001 levels (the average reached for 1999–2001 plus 10 per cent), to prevent diversion of third-party trade from the US market onto the EU market.

The US along with the EU continues to be the major user of anti-dumping actions. Lindsey and Ikenson (2003) show how healthy competition is termed ‘unfair’ and punished with high antidumping duties in the US. According to them the US antidumping law, as it currently stands, has nothing to do with maintaining a ‘level playing field’ and for years US companies have used the antidumping law to see off competition from foreign firms that give consumers a lower price. The US continues to make active use of AD and countervailing (CV) measures, mainly in the steel sector. Assistance to non-agricultural sectors, notably fisheries, lumber and timber, aeronautics and shipbuilding, is provided mainly in the form of tax incentives.

To sum up the evidence on NTBs, both the EU and the US make use of non-tariff barriers in manufacturing. However, compared to the EU the US imposes relatively fewer non-tariff controls on manufactured imports (OECD, 1997a). The protected sectors now occupy relatively insignificant roles in both production and employment in the EU as well as in the US as these economies have graduated to higher value added sectors in high-tech manufacturing and services. However, trade in manufacturing continues to be stifled by a combination of import quotas and anti-dumping duties.

5.5 QUANTIFYING ‘OVERALL’ BARRIERS TO TRADE IN MANUFACTURING PRODUCTS

As we have just seen, the considerable reduction of tariffs in recent years has rendered other forms of protection more important including quotas, voluntary export restraints (VERs), anti-dumping duties, subsidies and biased government procurement.

How does the EU raise prices above world prices using such non-tariff barriers?

Manufacturing is a declining industry in the West: it is uncompetitive for obvious reasons, because we have emerging markets like China that undercut it so massively. What is left is in specialised, high-technology and niche areas. In our economy we have largely let market forces take effect, with generally favourable results for employment and growth; as a result we have let manufacturing go where it was essentially uneconomic. That has not happened to the same extent on the continent. As a result we find there a great deal of protectionist pressure. The EU is accordingly a customs union: for raising tariffs externally on manufactured imports, so that prices are kept up inside the European Union for manufactures. The evidence of this systematic raising of prices above world levels is widespread and striking – as Tables 5.17–5.19 of this chapter clearly show. In addition to tariffs, now generally quite small, the European Union protects manufacturing through quotas in certain areas like textiles, but mainly through anti-dumping measures and equivalent measures. Anti-dumping operates both through explicit duties and through the threat of levying them, which often results in importers raising their prices instead. The latter action is more costly to us because not only do our consumers pay higher prices, the excess revenues resulting do not go to EU governments including the UK but rather to foreign non-EU producers.

Measures with an equivalent effect to anti-dumping threats are formal and informal agreements within industries to restrict external trade – for example, the agreement between EU and Japanese producers over cars which limited Japanese imports in return for permission to the Japanese to invest in the EU. This agreement has formally expired; but there has been no effective action to bring prices down to world levels since it expired. It would seem that in industry after industry the EU authorities have allowed or encouraged effective cartels to flourish; any foreign producer wishing

to break into the market is either persuaded to do so at existing EU prices or else is discouraged from entering at all. EU competition authorities make great play with investigations of 'domestic competition' to establish that prices are no higher than other EU prices; but they make no effort to ensure that prices come down to world levels through effective international competition. The result of this neglect is to be seen in the high margins by which EU prices exceed world prices.

Why does the EU not ensure that full competition prevails in the EU market? The reason is likely to be job losses, given the high levels of unemployment already prevailing in the EU. The EU Commission is already unpopular with member governments and their client industries for preventing public subsidy of favoured sectors and firms. Imagine how this unpopularity would grow were the Commission to force down prices to world levels, thus reducing employment and output in EU industries. Consumers in these countries should applaud; but their voices are not powerful at the EU level because of the EU's 'democratic deficit'. It is only governments by and large that wield power at the EU level and they are most beholden to their industries' representatives. It is no doubt for this reason that the EU Competition authorities devote their time to attacking foreign firms' 'monopoly' actions in the EU market – the most notable recent example being Microsoft whose products have greatly benefited EU consumers.

The EU domestic market in manufactures has thus become one in which there are no prizes for undercutting the prevailing cartel level of prices. A foreign producer breaking into this market with lower prices to gain a substantial share would face retaliation from existing suppliers; this would frustrate its plans in spite of its no doubt substantial marketing costs. The cost meanwhile to the much-larger dominant cartel would be simply a loss of revenue equal to the incursor's price advantage times its attempted volume of sales. It is well-known that such tactics pay a cartel and are likely to lead to a settlement in which the incursor either goes away or else agrees to limit its share and raise its prices to the cartel level.

For international competition to prevail it would be necessary for the EU Competition Office to protect foreign producers in their efforts to enter the home market; they should penalise any retaliation by home producers and break up home cartels. Of such

actions however there is no sign.

Measuring 'overall' barriers to trade which take into account all NTBs such as discussed above is not straight forward. Messerlin (2001) estimates 'overall' protection taking into account all the key trade barriers – the study estimates and then combines the ad valorem tariff equivalents of the NTBs (for the manufacturing sector, for example, these include essentially import quotas and voluntary export restraints together with tariffs). His results suggest that the level of protection for industrial goods in the EU economy was roughly 10 to 11 per cent from 1990 to 1995 and continued to be at around 8 per cent in 1999, almost two times higher than the conventional estimate. Further, the most heavily protected sectors such as textiles and apparel and consumer electronics exhibit almost constant rates of protection between 1990 and 1997, and a limited decline from 1997 to 1999. Most of this protection will remain unchanged at least until 2005, when the dismantling of the quota regime in textiles and clothing is to take place. The rate of overall protection was over 10 per cent for one-fourth of the industrial sector, over 20 per cent for almost one-sixth, and more than 30 per cent for the clothing sector. AD duties contribute 13 per cent to the rate of overall protection where they occur. Labour-weighted rates of overall protection are higher than corresponding simple averages, suggesting that the EU overall protection is concentrated in labour-intensive sectors where unions are powerful.

Price Gaps as a Measure of Protection

With so many barriers to trade it seems that the only way to account for all of them is to exploit the information on prices of the similar goods in different countries. Free trade should eliminate (quality-adjusted) price disparities in traded goods apart from a margin for transportation, distribution and marketing.

Before we review the evidence on price disparities within the EU and the US, it should be noted that there has been a rising trend in the seizures of counterfeit goods in the EU (Table 5.16) which could be attributed among other reasons, to relatively high prices in the EU of original brand goods. In 1999, fraud amounted to €377 million (2.7 per cent of total import duty revenue collected); cigarettes and dairy produce were the two leading products. With respect to counterfeit and pirated goods, the customs administra-

Table 5.16: Seizures of counterfeit and pirated goods in EU Member States, 1999–2000 (Number of cases)

	EU	D	E	F	I	P	UK
1999	4694	2173	159	252	129	5	866
2000	6253	3185	144	435	174	15	1179

Note: D: Germany; E: Spain; F: France; I: Italy; P: Portugal; UK: United Kingdom

Source: WTO (2002)

tions recorded an increase of one-third in seizures from 1999 to 2000, under legislation implementing the TRIPS Agreement at the border. About half of the 6253 cases concerned clothing and accessories, followed by books and audio/video material (16 per cent). The trend continued in 2001 with a further increase of 27 per cent in the number of cases.

Evidence on international price differences between the EU and the US is provided by three recent surveys: 1) the Arthur Andersen survey (1999) for electrical goods, 2) ACNielsen (2000) survey for food products, and 3) the Bradford and Lawrence study (2004) for food and manufacturing products.

The Arthur Andersen study confirms that electrical goods prices are higher in the EU compared with the US: between 21 per cent and 80 per cent in 1998. There are two clear findings (Table 5.17). First, the US is significantly cheaper than the EU, notably for brown goods. Second, the UK is in about the middle of the pack of European countries.

ACNielsen on behalf of the UK government (ACNielsen, 2000) undertook a study to compare prices of a large number of goods in the UK, US, France and Germany. The comparisons were based on the price spread rather than the average price. The study originally collected 21,023 prices for 106 items in four countries. For their final report, Nielsen was forced to drop 10,374 price observations for lack of comparability and lack of availability of goods. Almost all consumer durables such as fridges, washing machines,

Table 5.17: Percentage deviation from the US price

	PCs ^a	Brown Goods ^b	White Goods ^c	Small Domestic Appliances ^d
US Price (£)	647	799	854	103
UK	24.0	66.3	11.2	55.3
Belgium	69.6	102.3	36.4	23.3
Sweden	38.9	118.8	47.3	14.6
France	27.0	74.1	18.9	68.0
Germany	8.2	77.0	32.9	37.9
Italy	38.9	65.8	-0.4	9.7
Spain	-3.2	64.6	0.1	5.8
European Average	29.1	81.3	21.0	30.7

Notes:

^a PCs: notebooks and desktops,

^b Brown goods: Audio home systems, cameras, camcorders, TVs and VCRs,

^c White goods: refrigerators, dishwashers and washing machines,

^d Small domestic appliances: Irons, toasters, vacuum cleaners.

Source: The Arthur Andersen study reported in Haskel and Wolf (2002)

cameras and camcorders were discarded since they were ‘genuinely non-comparable’ (ACNielsen, 2000). A large number of items were also excluded, citing high within-country price variations. For 45 out of their remaining 56 goods the study found an overlap between the spread of prices in two countries. Hence, it was concluded that there were no significant differences between countries for the bulk of the products. Eleven goods showed significant price difference among countries, eight of which were significantly more expensive in the UK and three were significantly cheaper in the UK (Table 5.18). The survey concluded that the results do not provide much support for the ‘rip-off Britain’ hypothesis. The results indicate that the difference between the UK and the rest of the EU are minor relative to the difference between the EU and the US.

Table 5.18: ACNielsen survey: price comparison

	UK	Germany	France	US
More expensive in the UK				
Top 10 CDs	12.91	8.88	11.06	9.18
Sega Dreamcast	200.12	160.77	163.00	132.26
Coca-cola, 2l	1.31	0.85	0.82	0.80
Ground coffee	1.95	1.26	1.37	1.31
Non-branded lager	0.92	0.36	0.36	0.49
Dog food (800g equiv)	0.79	0.64	0.64	0.62
Shampoo, 250 ml equiv	2.18	1.35	1.56	1.13
Toilet paper	1.82	1.01	0.81	0.88
Less expensive in the UK				
Kellogg's Cornflakes 500g equiv	1.09	1.4	1.38	1.63
Chocolate chip cookies 200g equiv	0.62	0.99	0.72	0.84
Long-sleeved men's shirts	14.87	22.86	21.63	23.02

Source: ACNielsen (2000)

The most comprehensive and detailed study of price comparison between the US and Europe is by Bradford and Lawrence (2004) who analyse price data for food and industrial products. Effort is made to ensure comparability and to eliminate the effects of distribution margins. Results (Table 5.19) show that in 1999 consumer prices were relatively low in the US (Canada had the lowest). European consumer prices were lowest in Italy and highest in the UK. The absolute price differential between European countries averaged 17.5 per cent.

Based on imputed producer prices, which is a better way to measure the effect of trade barriers (it excludes distribution costs), again it is the US which had the lowest prices. European countries had significantly higher producer prices in 1993 with Italy having prices 85 per cent above the lowest in the sample and the UK with 72 per cent.

The information on price disparities within different markets

Table 5.19: Prices relative to the lowest price in the sample

	1990	1993	1999	1990	1993	1999
	Consumer prices			Producer prices		
Belgium	1.41	1.57	1.45	1.66	1.82	1.7
Germany	1.48	1.67	1.38	1.61	1.75	1.48
Italy	1.44	1.71	1.24	1.57	1.85	1.34
Netherlands	1.36	1.64	1.38	1.62	1.80	1.65
UK	1.38	1.54	1.61	1.60	1.72	1.78
US	1.16	1.13	1.21	1.19	1.16	1.24

Note: Data are expenditure weighted average ratios of goods prices to the lowest price in the sample.

Source: Bradford and Lawrence (2004)

Table 5.20: Fragmentation indices

	1990	1996	1999
Belgium	1.42	1.65	1.42
Germany	1.39	1.60	1.29
Italy	1.38	1.36	1.21
Netherlands	1.42	1.58	1.41
UK	1.41	1.41	1.50
US	1.16	1.14	1.15

Note: Data are expenditure-weighted average ratios of imputed producer prices to the landed prices of goods from the country with the lowest level of price in the sample.

Source: Bradford and Lawrence (2004)

presented above needs to be converted into an estimate of trade protection if it is to be used to measure welfare costs of trade barriers. Bradford (2003) uses OECD price data on 124 traded goods for eight countries – the US, the UK, Canada, Australia, Germany, Japan, Belgium and the Netherlands – to arrive at an estimate of price gap (adjusted for distribution and transport costs) as a measure of the extent of protection. The results are aggregated into 28 sectors – agriculture/fishery/forestry and 27 manufactured products. Bradford and Lawrence (2004) extend the work of Bradford (2003) to add Italy to the original eight countries and calculate implied tariff levels for 1996 and 1999 in addition to the 1993 estimates in the earlier paper. Input-output tables are used to eliminate distribution margins from final goods prices and thereby provide estimates of border and ex-factory prices. The results of protection measures confirm that the US consistently has the lowest level of protection between 1990 and 1999 (1.15 in 1999), suggesting that price competition in the US is greater than in European countries. Excepting Italy, the indices for European countries were high in 1999: Germany 1.29, the Netherlands 1.41; Belgium 1.42; and the UK 1.50 (Table 5.20). In the present study we have used a modified version (trade weighted averages) of the protection rates from Bradford (2003) to calculate welfare gains to the EU and the UK from liberalisation (Table 5.21).

Table 5.21: Protection estimates: ratio of domestic to world price (1993)

ISIC2 Code		US	Australia	Canada	Japan
1000	Agri, fisheries and Forestry	1.16	1.07	1.11	1.58
3110/ 3120	Processed Food	1.09	1.09	1.19	2.10
3130	Beverages	1.06	1.45	1.54	1.54
3140	Tobacco	1.06	1.47	1.96	1.00
3210	Textiles	1.05	1.11	1.16	1.48
3220	Apparel	1.16	1.26	1.18	1.38
3230	Leather and Products	1.14	2.94	1.24	1.33
3240	Footwear	1.11	1.66	1.42	2.29
3320	Furniture and fixtures	1.02	1.30	1.56	2.71
3410	Paper and Products	1.05	1.44	1.06	1.80
3420	Printing and publishing	1.01	1.12	1.21	1.19
3522	Drugs and Medicines	3.11	1.00	2.68	1.22
3529	Chemical Products	1.04	1.09	1.06	1.56
3540	Petroleum and Coal Products	1.01	2.13	1.32	3.36
3550	Rubber Products	1.03	1.22	1.02	2.02
3610	Pottery, China etc	1.07	1.73	1.15	2.38
3900	Other Manufacturing, Nec	1.17	1.43	1.33	1.98
3810	Metal Products	1.02	1.01	1.23	1.00
3825	Office and Computing Machinery	1.18	1.34	1.30	1.56
3829	Machinery and Equipment, nec	1.03	1.18	1.20	1.23
3832	Radio, TV, and Communication Equipment	1.07	1.54	1.32	2.11
3839	Electrical Apparatus, nec	1.00	1.28	1.11	1.20
3841	Shipbuilding and repairing	1.02	1.37	1.09	1.24
3842	Railroad Equipment	1.11	1.22	1.20	1.00
3843	Motor vehicles	1.06	1.23	1.25	1.00
3844	Motorcycles and Bicycles	1.00	1.19	1.08	1.02
3845	Aircraft	1.06	1.52	1.11	1.32
3849	Transport Equipment, nec	1.07	1.13	1.08	1.08
3850	Professional Goods	1.03	1.24	1.21	2.35

Source: Bradford, 2003

Table 5.21: Protection estimates: ratio of domestic to world price (1993) continued

ISIC2 Code		Belgium	Netherlands	Germany	UK
1000	Agri, fisheries and Forestry	1.16	1.53	1.08	1.65
3110/ 3120	Processed Food	1.37	1.45	1.30	1.20
3130	Beverages	1.44	1.77	1.33	1.69
3140	Tobacco	1.95	3.53	1.39	2.22
3210	Textiles	1.22	1.10	1.14	1.24
3220	Apparel	1.57	1.46	1.28	1.07
3230	Leather and Products	1.78	1.44	1.66	1.17
3240	Footwear	1.82	1.33	2.24	1.03
3320	Furniture and fixtures	1.96	1.39	1.47	2.17
3410	Paper and Products	1.66	1.61	1.97	1.78
3420	Printing and publishing	1.31	1.02	1.34	1.03
3522	Drugs and Medicines	1.69	2.64	3.35	1.85
3529	Chemical Products	1.14	1.11	1.08	1.06
3540	Petroleum and Coal Products	3.38	2.85	4.34	4.07
3550	Rubber Products	1.68	1.71	1.66	1.57
3610	Pottery, China etc	1.01	1.51	1.02	1.08
3900	Other Manufacturing, Nec	1.62	1.77	1.84	1.60
3810	Metal Products	1.51	1.45	2.10	1.67
3825	Office and Computing Machinery	1.68	1.33	1.52	1.39
3829	Machinery and Equipment, nec	1.56	1.30	1.43	1.24
3832	Radio, TV, and Communication Equipment	1.94	1.71	1.56	1.32
3839	Electrical Apparatus, nec	1.27	1.35	1.55	1.54
3841	Shipbuilding and repairing	1.31	1.40	1.51	1.50
3842	Railroad Equipment	1.35	1.32	1.65	1.68
3843	Motor vehicles	1.76	1.60	1.39	2.00
3844	Motorcycles and Bicycles	1.20	1.28	1.46	1.45
3845	Aircraft	2.03	1.89	2.07	1.92
3849	Transport Equipment, nec	1.57	1.38	1.37	1.59
3850	Professional Goods	1.81	1.86	1.64	1.42

Source: Bradford, 2003

5.6 COST OF TRADE PROTECTION

There have been a number of attempts to estimate in quantitative terms the potential gains from trade liberalisation. However, in recent years there have been only a few studies which concentrate on the manufacturing sector, some of which we review here. This is not surprising since the liberalisation of trade in industrial goods, especially reduction in tariff protection, is well advanced compared with agriculture and services in the developed countries.

Hufbauer et al. (2002) estimate the potential benefits to the world economy from attaining the degree of competition and market integration that currently exists within the US (Table 5.22). The study uses partial equilibrium analysis to assess the benefits from narrowing the worldwide price dispersion to the range now observed in the US. The potential benefits of price convergence for selected regional groups are larger for the ASEAN free trade area and the Southern Cone Common Market than for the NAFTA and the EU.

Table 5.22: Potential Benefits at Regional Level (% of GDP) of attaining US level of competition and market integration

	Market exchange rates	EIU PPP rates
EU 11	0.75	0.59
NAFTA	0.13	0.14
AFTA	4.54	6.05
Mercosur	7.11	1.73

Source: Hufbauer et al. (2002)

Using a CGE model, Gallaway et al. (1999) estimate the net cost of hundreds of AD/CV orders at around 0.06 per cent of GDP in 1993 for the US. This figure is substantially higher than if AD duties were just standard tariffs. They found that if one only estimates the effect of the AD duties that are observed in 1993, the net welfare loss to the US is \$209 million annually. However, when one takes into account the previous recalculations that had occurred through administrative reviews, the welfare loss for the

US is of a larger magnitude, with a range of 0.03 to 0.06 per cent of GDP annually. Of this loss, changes in rent transfers account for roughly half of the impact, with the remaining portion attributable to efficiency gains and relative price effects.

Using a trade gravity model Wall (1999) estimates the total effect of US protection on US merchandise imports, and ROW protection on US merchandise exports for 1996. A gravity model relates trade to the size ('gravity') of economies as well as their distance from each other (reflecting transport costs). US protection decreased its merchandise imports from non-NAFTA countries by 15.4 per cent or about 1.7 per cent of US GDP. Including trade with Mexico and Canada, US protection decreased its imports by 10.4 per cent, whereas ROW protection decreased US exports by 17 per cent. As for welfare costs Wall (1999) estimates that on average, a \$1 decrease in imports due to import protection translates into a \$2 decrease in consumer surplus. Also, of each \$1 that consumers lose, \$0.49 is transferred to producers, and \$0.11 is deadweight loss (that is, loss of welfare). Applying these numbers to the estimates above, import protection in 1996 cost US consumers \$223 billion or 3.3 per cent of GDP. Of this, \$109 billion was transferred to producers, and \$24 billion (0.3 per cent of GDP) was welfare loss. The remainder consists of tariff revenue and quota rents. Using the Hufbauer and Elliott (1994) estimate of an average decrease of 9 per cent in the world prices of protected goods, the terms of trade gain to the US from its tariffs was \$1.5 billion, making the net welfare cost of protection to the US 1.43 per cent of GDP in 1996.

As for the gains from EU integration, Gasiorek et al. (2002) use a CGE model incorporating imperfect competition and increasing returns to scale to study the accession of the UK to the EC. The results suggest that the gains from European integration are rather small – in the order of 1 per cent of GDP. Significant costs are however, imposed by the protection measures imposed by the EU on the rest of the world. Messerlin (2001) estimates that costs of protection (including NTBs) for European consumers in agriculture and industrial goods amounted to € 93 billion or 2.2 per cent of GDP in 1990. The costs are reduced to € 71–74 billion if the effects of only tariffs are taken into account. Messerlin (2001) notes that these estimates are larger than the costs of tariff protection for the US estimated by Hufbauer and Elliott (1994) at € 55 billion (at

the 1990 exchange rate) or 1.25 per cent of US GDP. In the manufacturing sector, costs of protection represents almost one-fifth of the value added of these sectors (Messerlin, 2001).

In a recent study Bradford and Lawrence (2004) calculate the effects of eliminating these barriers using the CGE model of Harrison et al (1995) for three scenarios:

1. Unilateral removal of barriers in each of the countries considered against all other countries worldwide.
2. Multilateral removal of barriers by all 8 countries at once.
3. A preferential trade agreement between the eight countries, with barriers on the Rest of the world.

Table 5.23: Gains from removal of protection (% of GDP)

	Unilateral liberalisation	Multilateral liberalisation*	FTA*
Germany	1.28	2.26	1.96
Italy	1.97	3.46	4.61
Netherlands	3.84	7.71	9.38
UK	3.21	4.29	2.79
US	0.40	1.02	1.35

Note: *Other countries included here are Australia, Canada and Japan.

Source: Bradford and Lawrence (2004)

As Table 5.23 shows, the relatively low trade barriers in the US and its low ratio of trade to GDP result in relatively small gains to the US (0.4 per cent of GDP from unilateral opening and 1 per cent from multilateral opening). At the other end, the Netherlands gains 3.8 per cent and 7.7 per cent of GDP from unilateral and multilateral liberalisation respectively. The UK benefits 3.2 per cent and 4.3 per cent of GDP from the UK and multilateral opening respectively. The simulations confirm that substantial benefits will accrue to European Union countries from trade competition.

5.7 CONCLUSION

Contrary to widely-held belief trade protection remains high in certain manufacturing industries in the EU, notably labour-intensive products and consumer goods. With a decline in tariffs over the past few decades, their place has been taken by import quotas, anti-dumping penalties, state aid and other non-tariff barriers. Time and again, economic studies have shown that import restraints result in high costs to consumers and reduce economic welfare. It is clear that the potential gains from eliminating remaining trade barriers in manufacturing are considerable and the EU needs to undertake trade reforms for its own benefit.