

INTEGRATION AND THE MANUFACTURING INDUSTRY

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This chapter studies the effects of European Union (EU) integration on the manufacturing sector.¹ The first section describes the main developments in Turkey's trade regime and trade performance, and the second examines the structure of protectionism. Market access issues emphasizing contingent protectionism and the issues related to technical barriers to trade are the subjects of the third and fourth sections. The fifth section analyzes conditions of competition, and the final section offers conclusions.

Main Developments in Turkey's Trade Regime

In 1994 Turkey signed the agreement establishing the World Trade Organization (WTO), and a customs union was created between Turkey and the EU as of January 1, 1996. According to the Customs Union Decision (CUD) of 1995, all industrial goods, except products of the European Coal and Steel Community (ECSC), that comply with the European Community norms could circulate freely between Turkey and the EU as of January 1, 1996. For ECSC products, Turkey signed a free trade agreement (FTA) with the EU in July 1996, and as a result, ECSC products have received duty-free treatment between the parties since 1999.²

The Customs Union Decision required Turkey to implement the European Community's Common Customs Tariffs (CCTs) on imports of industrial goods from third countries as of January 1,

1996, to adopt by 2001 all of the preferential trade agreements the EU has concluded over time, and to implement on the commercial policy side measures similar to those of the European Community's commercial policy. Adhering to the stipulations of the Customs Union Decision, Turkey maintained rates of protection above those specified in the CCT for certain "sensitive" products until 2001. In order to adopt EU's preferential trade agreements, Turkey signed FTAs with the European Free Trade Association countries, Israel, and the Central and Eastern European (CEE) countries. FTAs are being discussed with the Mediterranean countries. As for export subsidies, Turkey joined the Tokyo Round Agreement on Subsidies and Countervailing Duties of the General Agreement on Tariffs and Trade (GATT), agreeing to eliminate export subsidies by 1989. Recently, Turkey eliminated most of the export incentives that were introduced during the 1970s and 1980s. Within this context, GATT legal subsidies such as research and development subsidies and subsidies to facilitate the adaptation of plants to new environmental regulations were introduced in 1995.

Basic data on Turkey's merchandise trade are shown in table 3.1. The table reveals that in 2003 Turkish merchandise exports amounted to US\$47.2 billion and merchandise imports to \$69.3 billion.³ Exports to the EU15 made up 49.7 percent of total exports, and imports from the EU made up 42.8 percent of total imports.⁴ The table further

TABLE 3.1 Exports and Imports, Turkey, 1990–2003

SITC	Commodity	Total Exports, 2003 (US\$ millions)	Percentage Distribution, Total Exports	Annual Growth Rate of Exports, 1990–2003 (percent)	Exports to the EU, 2003 (US\$ millions)	Percentage Distribution, Exports to EU	Share of Exports to EU of Sectoral Exports	Annual Growth Rate of Exports to EU, 1990–2003 (percent)
	<i>Agricultural products</i>							
0 + 1 + 4 + 22	Food	4,735	10.03	2.01	1,949	8.31	41.17	2.32
2 – 22 – 27 – 28	Agricultural raw materials	522	1.11	2.56	220	0.94	42.24	0.41
	<i>Mining products</i>							
27 + 28	Ores and other minerals	572	1.21	4.23	246	1.05	42.95	2.56
3	Fuels	980	2.08	7.93	211	0.90	21.53	–0.31
68	Nonferrous metals	457	0.97	8.64	222	0.94	48.45	9.03
	<i>Manufactures</i>							
67	Iron and steel	3,342	7.08	5.12	939	4.00	28.09	16.52
	<i>Chemicals</i>							
51	Organic chemicals	171	0.36	1.53	107	0.46	62.55	4.28
57 + 58	Plastics	545	1.15	9.20	112	0.48	20.50	5.40
52	Inorganic chemicals	230	0.49	5.99	80	0.34	34.68	5.38
54	Pharmaceuticals	220	0.47	10.28	72	0.31	32.64	17.99
53 + 55 + 56 + 59	Other chemicals	726	1.54	10.19	65	0.28	8.97	4.00
6 – 65 – 67 – 68	Other semimanufactures	4,143	8.77	12.52	1,645	7.01	39.70	12.21
	<i>Machinery and transport equipment</i>							
71 – 713	Power generating machinery	246	0.52	24.80	85	0.36	34.47	22.77
72 + 73 + 74	Other nonelectrical machinery	1,566	3.32	18.16	537	2.29	34.29	17.73
75 + 76 + 776	Office machines and telecommunications equipment	1,978	4.19	17.99	1,569	6.68	79.30	17.27
77 – 776 – 7783	Electrical machinery and apparatus	2,076	4.40	16.83	999	4.26	48.14	14.64
78 – 785 – 786 + 7132 + 7783	Automotive products	4,928	10.44	24.42	3,139	13.38	63.70	29.30
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	1,542	3.27	20.70	853	3.63	55.31	23.07
65	Textiles	5,262	11.14	10.14	2,340	9.97	44.48	7.50
84	Clothing	9,962	21.10	7.21	7,079	30.17	71.07	5.94
8 – 84 – 86 – 891	Other consumer goods	2,675	5.67	16.37	954	4.06	35.66	12.44
9 + 891	<i>Other products</i>	335	0.71	30.17	44	0.19	13.02	16.10
Total		47,211	100	9.01	23,466	100	49.70	8.56

SITC	Commodity	Total Imports, 2003 (US\$ million)	Percentage Distribution, Total Imports	Annual Growth Rate of Imports, 1990–2003 (percent)	Imports from EU, 2003 (US\$ million)	Percentage Distribution, Imports from EU	Share of Imports from EU of Sectoral Imports	Annual Growth Rate, Imports from EU, 1990–2003 (percent)
0 + 1 + 4 + 22 2 – 22 – 27 – 28	<i>Agricultural products</i>							
	Food	2,789	4.03	3.29	548	1.85	19.65	1.70
	Agricultural raw materials	2,471	3.57	6.42	894	3.01	36.19	6.76
	<i>Mining products</i>							
27 + 28	Ores and other minerals	2,262	3.26	4.58	670	2.26	29.61	–0.05
3	Fuels	11,575	16.71	8.06	460	1.55	3.97	7.71
68	Nonferrous metals	1,411	2.04	9.55	308	1.04	21.80	4.23
	<i>Manufactures</i>							
67	Iron and steel	3,282	4.74	5.46	1,232	4.15	37.53	1.91
	<i>Chemicals</i>							
51	Organic chemicals	2,102	3.03	7.39	1,059	3.57	50.39	6.83
57 + 58	Plastics	2,837	4.09	12.80	1,645	5.54	58.00	11.57
52	Inorganic chemicals	543	0.78	2.82	178	0.60	32.78	0.99
54	Pharmaceuticals	2,302	3.32	17.09	1,546	5.21	67.14	17.05
53 + 55 + 56 + 59	Other chemicals	2,643	3.82	7.00	1,560	5.26	59.03	7.65
6 – 65 – 67 – 68	Other semimanufactures	3,489	5.04	8.27	2,245	7.56	64.33	7.66
	<i>Machinery and transport equipment</i>							
71 – 713	Power generating machinery	758	1.09	12.52	382	1.29	50.34	12.44
72 + 73 + 74	Other nonelectrical machinery	7,250	10.46	5.21	4,607	15.52	63.54	4.18
75 + 76 + 776	Office machines and telecommunications equipment	4,166	6.01	10.95	1,618	5.45	38.83	12.15
77 – 776 – 7783	Electrical machinery and apparatus	2,065	2.98	6.82	1,175	3.96	56.93	5.75
78 – 785 – 786 + 7132 + 7783	Automotive products	6,209	8.96	11.67	5,150	17.35	82.95	13.91
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	1,012	1.46	1.80	711	2.40	70.29	4.88
65	Textiles	3,441	4.97	13.03	1,185	3.99	34.43	13.49
84	Clothing	422	0.61	24.93	204	0.69	48.26	21.68
8 – 84 – 86 – 891	Other consumer goods	3,540	5.11	10.07	1,910	6.44	53.96	9.27
9 + 891	<i>Other products</i>	2,714	3.92	27.10	391	1.32	14.42	18.75
Total		69,283	100	8.27	29,678	100	42.84	8.06

Note: SITC = Standard International Trade Classification.

Source: The authors.

reveals that the three export commodities with the highest shares of total exports were clothing, 21.1 percent; textiles, 11.1 percent; and automotive products, 10.4 percent. The three import commodities with the highest shares of total imports were fuels, 16.7 percent; other nonelectrical machinery, 10.5 percent; and automotive products, 9 percent. Similarly, the three export commodities with the highest shares of exports to the EU were clothing, 30.2 percent; automotive products, 13.4 percent; and textiles, 10 percent. The three commodities with the highest shares of imports from the EU were automotive products, 17.4 percent; other nonelectrical machinery, 15.5 percent; and other semi-manufactures, 7.6 percent.

During the period 1990–2003, Turkey's total exports grew at an annual rate of 9 percent and total imports at a rate of 8.3 percent. The export commodities with the highest annual growth rates were other products, 30.2 percent; power generating machinery, 24.8 percent; and automotive products, 24.4 percent. The import commodities with the highest growth rates were other products, 27.1 percent, clothing, 24.9 percent; and pharmaceuticals, 17.1 percent. Similarly, the export commodities to the EU with the highest growth rates were automotive products, 29.3 percent; other transport equipment, 23.1 percent; and power generating machinery, 22.8 percent. The imported commodities from the EU with the highest growth rates were clothing, 21.7 percent; other products, 18.8 percent; and pharmaceuticals, 17.1 percent.

A look at the EU's share of total sectoral exports reveals that the highest shares of exports to the EU are held by office machines and telecommunications equipment, 79.3 percent; clothing, 71.1 percent; and automotive products, 63.7 percent. Among the sectors considered, other chemicals, other products, and plastics have the lowest shares. The three sectors with the highest EU shares of sectoral imports are automotive products, 83 percent; other transport equipment, 70.3 percent; and pharmaceuticals, 67.1 percent. Among the sectors considered, fuels, other products, and food have the lowest EU shares of sectoral imports.

Table 3.2 shows similar information for the EU. It reveals that in 2001 the EU's merchandise exports amounted to ECU (European currency unit) 982.6 billion and merchandise imports were ECU 1,028 billion. Exports to Turkey made up 2 percent

of total EU exports, and imports from Turkey were also 2 percent of total EU imports. The table further reveals that the three export commodities with the highest shares of total EU exports were other nonelectrical machinery, 12.1 percent; other consumer goods, 10.3 percent; and automotive products, 10 percent. The three import commodities with the highest shares of total EU imports were office machines and telecommunications equipment, 14.3 percent; fuels, 14.1 percent; and other consumer goods, 10.3 percent. During the period 1990–2001, total EU exports grew at an annual rate of 8.2 percent and total imports at the rate of 7.5 percent. The export commodities with the highest growth rates were office machines and telecommunications equipment, 15.4 percent; pharmaceuticals, 14.2 percent; and organic chemicals, 11 percent. The three import commodities with the highest growth rates were pharmaceuticals, 12.4 percent; electrical machinery and apparatus, 12.1 percent; and office machines and telecommunications equipment, 11.8 percent. Examination of Turkey's share of total sectoral EU exports reveals that the highest shares of exports to Turkey are held by ores and other minerals, 5.7 percent; plastics, 5 percent; and agricultural raw materials, 4.6 percent. Among the sectors considered, food, clothing, and fuels have the lowest shares of exports to Turkey. The three sectors with the highest shares of imports from Turkey of sectoral EU imports are textiles, 11.7 percent; clothing, 11.2 percent; and iron and steel, 6.4 percent. Among the sectors considered, fuels, pharmaceuticals, and other chemicals have the lowest shares of imports from Turkey of sectoral EU imports.

As noted earlier, as of January 1, 1996, Turkey and the EU entered a customs union. Table 3.3 shows the evolution of Turkish trade with the EU over the period 1990–2003. The data reveal that with the formation of the customs union, the share of imports from the EU of total imports went up from 47.2 in 1995 to 53 percent in 1996, but then began to decrease, reaching 45.4 percent in 2003. Comparison of the growth rate of Turkish imports from the EU prior to formation of the customs union with that observed after formation of the customs union shows that the average growth rate of imports from the EU has even declined, from 9.1 percent during 1990–95 to 1.5 percent during 1996–2003. On the other hand, annual average

TABLE 3.2 Exports and Imports, EU, 1990–2001

SITC	Commodity	Total Exports, 2001 (thousands of ECU)	Percentage Distribution	Annual Growth Rate of Exports, 1990–2001 (percent)	Exports to Turkey, 2001 (thousands of ECU)	Share of Exports to Turkey of Sectoral Exports, 2001	Total Imports, 2001 (thousands of ECU)	Percentage Distribution	Annual Growth Rate of Imports, 1990–2001 (percent)	Imports from Turkey 2001 (thousands of ECU)	Share of Imports from Turkey in Sectoral Imports, 2001
0 + 1 + 4 + 22	<i>Agricultural products</i>										
	Food	54,042,390	5.50	4.80	378,968	0.70	66,571,904	6.48	4.52	2,094,348	3.15
2 – 22 – 27 – 28	Agricultural raw materials	10,740,870	1.09	7.48	491,794	4.58	23,074,732	2.24	1.14	228,864	0.99
	<i>Mining products</i>										
27 + 28	Ores and other minerals	4,860,506	0.49	5.76	275,558	5.67	17,659,307	1.72	5.50	270,064	1.53
3	Fuels	23,892,389	2.43	7.25	311,131	1.30	144,980,806	14.10	5.81	246,383	0.17
68	Nonferrous metals	11,936,772	1.21	6.99	197,170	1.65	23,351,448	2.27	6.51	239,103	1.02
	<i>Manufactures</i>										
67	Iron and steel	19,976,063	2.03	2.97	667,511	3.34	14,075,992	1.37	4.47	905,075	6.43
	<i>Chemicals</i>										
51	Organic chemicals	33,838,441	3.44	11.04	676,813	2.00	20,696,334	2.01	9.25	89,717	0.43
57 + 58	Plastics	20,724,369	2.11	7.67	1,027,062	4.96	10,758,582	1.05	4.68	114,084	1.06
52	Inorganic chemicals	5,388,087	0.55	4.72	81,981	1.52	6,264,051	0.61	7.71	128,624	2.05
54	Pharmaceuticals	43,908,279	4.47	14.16	915,569	2.09	22,620,592	2.20	12.37	42,924	0.19
53 + 55 + 56 + 59	Other chemicals	38,460,679	3.91	7.48	1,229,805	3.20	17,193,103	1.67	7.44	44,913	0.26
6 – 65 – 67 – 68	Other semimanufactures	87,731,435	8.93	8.24	1,509,193	1.72	68,710,081	6.68	5.46	1,509,363	2.20
	<i>Machinery and transport equipment</i>										
71 – 713	Power generating machinery	34,903,182	3.55	9.54	595,281	1.71	24,777,213	2.41	11.57	92,876	0.37
72 + 73 + 74	Other nonelectrical machinery	118,584,299	12.07	6.77	2,719,502	2.29	53,724,194	5.23	6.99	404,780	0.75
75 + 76 + 776	Office machines and telecommunications equipment	96,408,088	9.81	15.37	1,909,617	1.98	146,734,704	14.27	11.75	1,005,984	0.69
77 – 776 – 7783	Electrical machinery and apparatus	50,751,415	5.17	10.10	896,479	1.77	47,678,281	4.64	12.06	845,547	1.77
78 – 785 – 786 + 7132 + 7783	Automotive products	97,777,703	9.95	9.16	1,920,099	1.96	50,701,618	4.93	8.21	1,892,016	3.73

TABLE 3.2 (Continued)

SITC	Commodity	Total Exports, 2001 (thousands of ECU)	Percentage Distribution	Annual Growth Rate of Exports, 1990–2001 (percent)	Exports to Turkey, 2001 (thousands of ECU)	Share of Exports to Turkey of Sectoral Exports, 2001	Total Imports, 2001 (thousands of ECU)	Percentage Distribution	Annual Growth Rate of Imports, 1990–2001 (percent)	Imports from Turkey 2001 (thousands of ECU)	Share of Imports from Turkey in Sectoral Imports, 2001
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	63,162,827	6.43	10.38	972,860	1.54	56,327,638	5.48	10.78	706,280	1.25
65	Textiles	24,739,564	2.52	6.07	978,099	3.95	19,178,029	1.87	5.02	2,242,208	11.69
84	Clothing	17,559,440	1.79	4.29	218,928	1.25	53,910,204	5.24	8.05	6,060,245	11.24
8 – 84 – 86 – 891	Other consumer goods	101,086,773	10.29	7.32	1,443,680	1.43	106,259,111	10.34	8.11	867,501	0.82
9 + 891	<i>Other products</i>	22,106,890	2.25	2.54	398,968	1.80	32,781,100	3.19	2.83	124,630	0.38
Total		982,580,462	100	8.23	19,816,069	2.02	1,028,029,024	100	7.48	20,155,528	1.96

Note: SITC = Standard International Trade Classification; ECU = European currency unit.

Sources: Data provided by Eurostat; the authors.

TABLE 3.3 Trade with EU, 1990–2003

	Total Imports (US\$ millions)	Imports from EU (US\$ millions)	Growth Rate of Total Imports (percent)	Growth Rate of Imports from EU (percent)	Share of Imports from EU of Total Imports	Total Exports (US\$ millions)	Exports to EU (US\$ millions)	Growth Rate of Total Exports (percent)	Growth Rate of Exports to EU (percent)	Share of Exports to EU of Total Exports	Trade Balance with EU (US\$ millions)	Real Exchange Rate
1990	22,302	9,898	—	—	44.38	12,959	7,177	—	—	55.38	–2,721	99.67
1991	21,047	9,987	–5.63	0.90	47.45	13,594	7,348	4.90	2.38	54.05	–2,639	96.66
1992	22,870	10,656	8.66	6.70	46.59	14,719	7,937	8.28	8.02	53.92	–2,719	100.94
1993	29,429	13,875	28.68	30.21	47.15	15,348	7,599	4.27	–4.26	49.51	–6,276	91.59
1994	23,270	10,915	–20.93	–21.33	46.91	18,105	8,635	17.96	13.63	47.69	–2,280	124.35
1995	35,708	16,861	53.45	54.48	47.22	21,636	11,078	19.50	28.29	51.20	–5,783	116.72
1996	43,627	23,138	22.18	37.23	53.04	23,224	11,549	7.34	4.25	49.73	–11,589	116.67
1997	48,559	24,870	11.30	7.49	51.22	26,261	12,248	13.08	6.05	46.64	–12,622	110.32
1998	45,921	24,075	–5.43	–3.20	52.43	26,974	13,498	2.72	10.21	50.04	–10,577	100.42
1999	40,687	21,417	–11.40	–11.04	52.64	26,589	14,349	–1.43	6.30	53.97	–7,068	94.30
2000	54,509	26,610	33.97	24.25	48.82	27,775	14,510	4.46	1.12	52.24	–12,100	85.17
2001	41,399	18,280	–24.05	–31.30	44.16	31,334	16,118	12.81	11.08	51.44	–2,162	106.33
2002	51,554	23,321	24.53	27.57	45.24	36,059	18,459	15.08	14.52	51.19	–4,863	96.11
2003	69,340	31,496	34.50	35.05	45.42	47,253	24,350	31.04	31.92	51.53	–7,146	88.23
Average 1990–95			8.31	9.13	46.62			9.90	7.46	51.96		
Average 1996–2003			4.20	1.46	50.38			8.39	9.30	50.68		

— Not available.

Note: An increase in the real exchange rate (RER) indicates depreciation of the RER.

Source: State Planning Organization (<http://www.dpt.gov.tr>); the authors.

growth rate of Turkish exports to the EU, which was 7.5 percent prior to formation of the customs union, increased to 9.3 percent over the period 1996–2003. Similarly, the share of exports to the EU of total exports increased from 51.2 percent in 1995 to 54 percent in 1999, but thereafter the share declined to 51.5 percent in 2003. Finally, table 3.3 reveals as well that Turkey has run a trade deficit with the EU during every year of the period 1996–2003 and that the deficit has been substantial by any standard. It reached \$12.6 billion in 1997 and \$7.1 billion in 2003.

These findings reveal that the formation of the customs union between Turkey and the EU did not lead initially to considerable increases in trade with the EU. Substantial increases in trade with the EU were achieved only during the period 2002–03. The reasons vary. First, the formation of the customs union did not lead to considerable reductions in trade barriers on the EU side, because the EU had abolished the nominal tariff rates on imports of industrial goods from Turkey on September 1, 1971, long before the formation of the customs union. But at that time certain exceptions were made. The European Community had retained the right to charge import duties on some oil products over a fixed quota and to implement a phased reduction of duties on imports of particular textile products. Moreover, the trade in products within the province of the ECSC have been protected by the Community through the application of nontariff barriers and, in particular, antidumping measures. With the formation of the customs union, quotas applied by the EU were abolished, but the EU retained the right to impose antidumping duties.

Second, not until 2003 did Turkey incorporate into its internal legal order the European Community instruments related to removal of technical barriers to trade that would allow Turkish industrial products to enter into free circulation in the EU.

Third, during the 1990s economic crises began to affect Turkey with increasing frequency. Periods of economic expansion alternated with periods of equally rapid decline. After a year of severe recession in 1994 when the gross national product (GNP) shrank by 6.1 percent, the economy went through a boom period of above-trend growth between 1995 and 1997. Then, in 1998, the economy was badly hit by the Russian crisis. In August

1999, the Marmara area of Turkey was hit by a severe earthquake, which was followed by a further large shock in the Bolu area in November 1999. As a result of these shocks, real GNP shrank by 6.1 percent in 1999. At the end of 1999, Turkey embarked upon a stabilization program, but a severe banking crisis arose in November 2000. Developments in February 2001 led to a total loss of confidence in the government's stabilization program and a serious run on the Turkish lira. With the floating of its currency, the country faced its severest economic crisis. The loss of income and wealth and the associated social and political stresses were unprecedented. As a result of these developments, the country saw substantial decreases in import demand during 1994, 1999, and 2001.

Fourth, with the substantial reductions in trade barriers on the Turkish side during 1996, the increase in imports was inevitable, so long as it was not accompanied by a real devaluation of the Turkish lira. As table 3.3 reveals, there was no change in the real exchange rate during 1996, and it then began to appreciate until the currency crisis of 2001. The real appreciation of the Turkish lira stimulated the import growth and hampered the growth of exports, leading to higher trade balance deficits. Also during the period 2001–03, the euro appreciated against the U.S. dollar, leading to increases in the dollar value of EU exports, which was then reflected in the higher dollar trade values of Turkish imports from the EU and of exports to the EU.

Table 3.4 shows the commodity composition of Turkish exports to the EU and imports from the EU, as well as the shares of Turkish exports to the EU of total EU imports and the shares of Turkish imports from the EU of total EU exports over the period 1995–2001. The table reveals that in absolute terms Turkey achieved large increases in exports for clothing, automotive products, textiles, other semimanufactures, office machines and telecommunications equipment, and iron and steel. For these commodities, Turkey experienced considerable increases in the shares of its exports to the EU of total EU imports. As for Turkish imports, again in absolute terms, large increases in imports were observed for chemicals, office machines and telecommunications equipment, automotive products, and other consumer goods. For those commodities, the shares of Turkish imports from the EU of total EU exports also increased.

TABLE 3.4 Effects of Customs Union between Turkey and EU, 1995–2001
(thousands of ECU)

SITC	Commodity	Turkish Exports to EU						
		1995	1996	1997	1998	1999	2000	2001
	<i>Agricultural products</i>							
0 + 1 + 4 + 22	Food	1,488,476	1,551,769	1,812,357	1,780,063	1,907,213	1,841,607	2,094,348
2 – 22 – 27 – 28	Agricultural raw materials	179,233	205,765	216,488	210,663	213,382	213,457	228,864
	<i>Mining products</i>							
27 + 28	Ores and other minerals	221,117	212,143	237,159	239,314	243,109	322,824	270,064
3	Fuels	128,412	122,060	125,193	81,415	127,553	191,871	246,383
68	Nonferrous metals	86,544	97,097	99,635	157,722	152,601	216,471	239,103
	<i>Manufactures</i>							
67	Iron and steel	294,209	229,501	371,900	545,231	592,639	791,231	905,075
5	Chemicals	237,583	198,285	258,291	274,909	297,999	386,476	420,262
6 – 65 – 67 – 68	Other semimanufactures	572,754	638,208	776,036	879,443	979,327	1,234,435	1,509,363
	<i>Machinery and transport equipment</i>							
71 – 713	Power generating machinery	31,551	48,097	73,328	81,867	86,265	89,163	92,876
72 + 73 + 74	Other nonelectrical machinery	106,447	129,455	175,601	211,566	261,858	330,166	404,780
75 + 76 + 776	Office machines and telecommunications equipment	167,685	214,597	388,026	688,309	671,934	936,482	1,005,984
77 – 776 – 7783	Electrical machinery and apparatus	301,881	386,368	449,078	574,577	614,099	714,463	845,547
78 – 785 – 786 + 7132 + 7783	Automotive products	270,766	357,760	301,337	389,917	995,122	1,212,181	1,892,016
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	391,498	625,377	485,647	670,554	665,531	675,812	706,280
65	Textiles	1,013,714	1,110,291	1,440,550	1,663,269	1,774,158	2,041,595	2,242,208
84	Clothing	3,434,992	3,636,313	4,175,655	4,632,190	4,808,707	5,576,756	6,060,245
8 – 84 – 86 – 891	Other consumer goods	271,714	347,685	403,340	442,251	582,351	679,154	867,501
9 + 891	<i>Other products</i>	45,150	48,420	54,352	75,862	69,906	74,247	124,630
	Total	9,243,725	10,159,191	11,843,971	13,599,124	15,043,754	17,528,392	20,155,528

TABLE 3.4 (Continued)

SITC	Commodity	Turkish Imports from EU						
		1995	1996	1997	1998	1999	2000	2001
	<i>Agricultural products</i>							
0 + 1 + 4 + 22	Food	615,174	607,284	632,062	605,447	501,142	579,811	378,968
2 – 22 – 27 – 28	Agricultural raw materials	393,666	459,321	589,606	447,182	379,080	533,469	491,794
	<i>Mining products</i>							
27 + 28	Ores and other minerals	487,556	528,444	462,002	269,811	152,588	261,142	275,558
3	Fuels	119,124	227,392	264,755	271,988	387,760	763,082	311,131
68	Nonferrous metals	183,778	228,589	260,355	224,136	180,355	253,115	197,170
	<i>Manufactures</i>							
67	Iron and steel	586,834	694,789	845,798	641,451	479,250	880,515	667,511
5	Chemicals	2,043,193	2,441,128	3,184,322	3,213,593	3,465,937	4,569,685	3,931,231
6 – 65 – 67 – 68	Other semimanufactures	978,841	1,339,036	1,568,580	1,567,096	1,400,645	1,912,605	1,509,193
	Machinery and transport equipment							
71 – 713	Power generating machinery	178,837	252,654	393,062	555,062	442,280	545,555	595,281
72 + 73 + 74	Other nonelectrical machinery	2,372,464	3,786,516	3,994,368	3,678,348	2,596,553	3,538,331	2,719,502
75 + 76 + 776	Office machines and telecommunications equipment	765,742	1,023,595	1,523,088	1,995,757	2,799,791	4,055,137	1,909,617
77 – 776 – 7783	Electrical machinery and apparatus	546,930	769,613	1,065,654	1,226,264	1,059,906	1,300,772	896,479
78 – 785 – 786 + 7132 + 7783	Automotive products	1,237,308	1,909,360	3,201,332	2,866,472	2,304,918	5,568,748	1,920,099
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	690,618	1,214,031	968,872	941,586	946,855	1,032,438	972,860
65	Textiles	584,726	786,038	997,564	946,855	859,326	1,063,715	978,099
84	Clothing	64,034	122,894	171,487	205,098	174,845	248,766	218,928
8 – 84 – 86 – 891	Other consumer goods	808,246	1,041,430	1,324,120	1,391,441	1,331,107	1,750,501	1,443,680
9 + 891	<i>Other products</i>	690,158	514,377	185,256	447,875	406,893	567,749	398,968
	Total	13,347,228	17,946,494	21,632,282	21,495,462	19,869,232	29,425,136	19,816,069

SITC	Commodity	Share of Imports from Turkey of EU Imports						
		1995	1996	1997	1998	1999	2000	2001
	<i>Agricultural Products</i>							
0 + 1 + 4 + 22	Food	2.955	2.948	3.225	3.075	3.327	2.966	3.146
2 – 22 – 27 – 28	Agricultural raw materials	0.871	1.151	1.067	1.058	1.099	0.850	0.992
	<i>Mining products</i>							
27 + 28	Ores and other minerals	1.767	1.718	1.597	1.650	1.778	1.798	1.529
3	Fuels	0.198	0.155	0.147	0.132	0.163	0.129	0.170
68	Nonferrous metals	0.531	0.719	0.586	0.885	0.889	0.855	1.024
	<i>Manufactures</i>							
67	Iron and steel	2.942	2.754	4.000	4.424	5.813	5.454	6.430
5	Chemicals	0.552	0.447	0.501	0.495	0.506	0.542	0.542
6 – 65 – 67 – 68	Other semimanufactures	1.490	1.578	1.688	1.816	1.827	1.861	2.197
	Machinery and transport equipment							
71 – 713	Power generating machinery	0.349	0.438	0.529	0.497	0.439	0.360	0.375
72 + 73 + 74	Other nonelectrical machinery	0.371	0.413	0.500	0.529	0.605	0.618	0.753
75 + 76 + 776	Office machines and telecommunications equipment	0.245	0.290	0.440	0.681	0.584	0.581	0.686
77 – 776 – 7783	Electrical machinery and apparatus	1.251	1.530	1.491	1.736	1.632	1.392	1.773
78 – 785 – 786 + 7132 + 7783	Automotive products	1.278	1.555	1.024	1.073	2.309	2.506	3.732
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	1.797	2.549	1.458	1.665	1.407	1.219	1.254
65	Textiles	7.796	8.397	9.287	10.134	11.041	10.800	11.692
84	Clothing	11.049	10.863	10.768	11.306	10.999	10.878	11.241
8 – 84 – 86 – 891	Other consumer goods	0.487	0.580	0.578	0.589	0.702	0.662	0.816
9 + 891	<i>Other products</i>	0.282	0.284	0.300	0.332	0.310	0.217	0.380
	Total	1.695	1.749	1.761	1.914	1.929	1.696	1.961

TABLE 3.4 (Continued)

SITC	Commodity	Share of Exports to Turkey of EU Exports						
		1995	1996	1997	1998	1999	2000	2001
	<i>Agricultural Products</i>							
0 + 1 + 4 + 22	Food	1.488	1.399	1.296	1.286	1.078	1.101	0.701
2 – 22 – 27 – 28	Agricultural raw materials	4.901	5.835	6.835	5.484	4.259	4.812	4.579
	<i>Mining products</i>							
27 + 28	Ores and other minerals	14.852	15.620	10.797	8.375	4.228	5.376	5.669
3	Fuels	0.893	1.469	1.544	1.941	2.337	2.564	1.302
68	Nonferrous metals	2.635	3.061	3.021	2.716	2.190	2.122	1.652
	<i>Manufactures</i>							
67	Iron and steel	3.532	3.959	4.475	3.625	3.204	4.515	3.342
5	Chemicals	2.781	3.081	3.414	3.349	3.250	3.529	2.762
6 – 65 – 67 – 68	Other semimanufactures	1.764	2.225	2.327	2.339	1.998	2.247	1.720
	Machinery and transport equipment							
71 – 713	Power generating machinery	1.139	1.427	1.815	2.232	1.723	1.808	1.706
72 + 73 + 74	Other nonelectrical machinery	2.889	4.141	3.951	3.663	2.744	3.225	2.293
75 + 76 + 776	Office machines and telecommunications equipment	1.825	2.169	2.550	3.143	3.913	4.014	1.981
77 – 776 – 7783	Electrical machinery and apparatus	1.945	2.417	2.899	3.228	2.715	2.700	1.766
78 – 785 – 786 + 7132 + 7783	Automotive products	2.339	3.306	4.764	4.075	3.220	6.166	1.964
79 + 785 + 786 + 7131 + 7133 + 7138 + 7139	Other transport equipment	1.966	3.280	2.153	1.945	1.918	1.729	1.540
65	Textiles	3.480	4.376	4.947	4.667	4.269	4.532	3.954
84	Clothing	0.561	0.953	1.235	1.450	1.275	1.565	1.247
8 – 84 – 86 – 891	Other consumer goods	1.354	1.611	1.781	1.865	1.701	1.833	1.428
9 + 891	<i>Other products</i>	6.328	3.878	1.296	2.557	1.965	2.486	1.805
	Total	2.328	2.866	3.000	2.931	2.614	3.126	2.017

Note: For abbreviations, see table 3.2

Source: Data provided by Eurostat; the authors.

Structure of Protection

To study the structure of applied tariffs, we consider tariff and tariff-like charges on imports in trade with the EU, with countries with whom the EU has free trade agreements, and with third countries. In each case, we use the 12-digit Harmonized Commodity Description and Coding System (HS) data on customs duties and the mass housing fund tax.⁵ Let t_c^i denote the rate of customs duty on commodity i and t_{is} the ad valorem equivalent of the mass housing fund tax rate. The relation between domestic prices and foreign prices is written as $p_i = (1 + t_c^i + t_{is}) E p_i^{\$}$, where p_i denotes the domestic price of commodity i , $p_i^{\$}$ the foreign price of commodity i , and E the nominal exchange rate. To calculate the ad valorem equivalent of the mass housing duty, we let M_i denote the CIF (cost, insurance, freight) value of the import of commodity i measured in Turkish liras; m_i the quantity of the import of commodity i measured in units (the U.S. dollar-denominated housing fund tax is reported); $FUND_1^i$ the U.S. dollar-denominated mass housing fund tax rate on commodity i ; $FUND_2^i$ the ad valorem housing fund tax rate on commodity i ; and E the exchange rate (Turkish lira per U.S. dollar).

The base of the customs duty is the CIF price. Therefore, this duty is calculated as $t_c^i M_i$. The mass housing fund tax levy is usually specific. For those taxes, the ad valorem equivalents of the specific rates must be calculated. Given the foreign price of the commodity, $p_j^{\$} = \frac{M_j}{m_j E}$, the Turkish lira equivalent of the U.S. dollar-denominated levy is calculated as $FUND_1^i m_i E = (M_i (FUND_1^i / p_i^{\$}))$. The ad valorem mass housing fund tax rate is given by $FUND_2^i M_i$. The sum total of all the above taxes and surcharges is denoted by

$$(3.1) \quad t_i = \left(t_c^i + \left(FUND_1^i / p_i^{\$} \right) + FUND_2^i \right)$$

Next we consider the tradable sectors in the 1996 input-output table. The average applied tariff in sector j is then calculated as

$$(3.2) \quad applied\ tariff_j = \sum_{i=1}^k t_i^j \left(M_i^j / M^j \right)$$

where t_i^j denotes the applied tariff rate on commodity i of sector j , M_i^j the import of commodity i into

sector j , M^j total imports of sector j , and k the number of commodities in sector j ($j = 1, \dots, 68$).

Table 3.5 shows the nominal and effective protection rates for the 68 tradable sectors of the 1996 input-output table prepared by Turkey's State Institute of Statistics. The table reveals that the weighted average nominal protection rate (NPR) during 2002 in trade with the EU is 1.95 percent; in trade with Romania, a representative country among the economies with which Turkey has free trade agreements, 1.76 percent; and in trade with third countries, 5.3 percent. By contrast, the weighted average effective protection rate (EPR) is 11.24 percent.⁶

Table 3.6 shows the frequency distribution of the NPRs and EPRs. Forty-eight out of 68 sectors have zero NPRs in trade with the EU and in trade with the countries with which Turkey has FTAs. In trade with the EU, five sectors have NPRs larger than 50 percent, and seven sectors have NPRs of between 10 percent and 50 percent. Similar considerations apply for NPRs in trade with countries with which Turkey has FTAs. The NPRs in trade with third countries are larger than 50 percent in seven sectors, between 10 percent and 50 percent in 10 sectors, and positive but less than 5 percent in 38 sectors. Concomitant with the relatively low NPRs are the low EPRs. Six sectors have EPRs above 50 percent, and six sectors have EPRs between 10 percent and 50 percent. In 20 sectors the EPRs are negative but larger than -100 . The EPR is less than -100 in only one sector.

Table 3.5 shows that NPRs in trade with the EU and with countries with which Turkey has FTAs are all zero for industrial commodities and positive for agricultural and processed agricultural commodities. For trade with third countries, the average NPRs are high for food products, 11.1 percent for iron and steel, 10.92 percent for wearing apparel, 10.28 percent for footwear, 7.01 percent for textiles, and 6.74 percent for plastics. The most protected sectors measured in terms of EPRs are the manufacture of sugar; manufacture of bakery products; processing and preserving of fruits and vegetables; growing of fruits, nuts, beverage and spice crops; and manufacture of cocoa, chocolate, sugar confectionary, and other food products. The sectors indicating a clear-cut comparative advantage include the manufacture of textiles; casting of metals; manufacture of fabricated metal products; manufacture of furniture; manufacture of office, accounting,

TABLE 3.5 Nominal and Effective Protection Rates, 2002
(percent)

I-O Code	Sector	NPR, EU	NPR, EU with FTAs	NPR, Other	EPR
01	Growing of cereals and other crops NEC	8.83	8.84	8.84	9.93
02	Growing of vegetables, horticultural specialties, and nursery products	14.37	16.00	16.00	17.74
03	Growing of fruit, nuts, beverage and spice crops	74.23	70.49	78.46	82.18
04	Farming of animals	2.33	2.29	2.74	-2.60
05	Agricultural and animal husbandry service activities, except veterinary activities	21.82	26.35	26.35	48.50
06	Forestry, logging, and related service activities	0.22	0.28	0.28	0.08
07	Fishing	30.10	12.80	56.06	50.42
08	Mining of coal and lignite	0.00	0.00	0.00	-0.17
09	Extraction of crude petroleum and natural gas	0.00	0.00	0.00	-0.17
10	Mining of metal ores	0.00	0.00	0.77	0.05
11	Quarrying of stone, sand and clay	0.00	0.00	0.00	-0.27
12	Mining and quarrying NEC	0.00	0.00	0.02	-0.16
13	Production, processing, and preserving of meat and meat products	1.51	1.52	1.52	-1.52
14	Processing and preserving of fish and fish products	14.25	9.48	28.48	19.92
15	Processing and preserving of fruit, and vegetables	55.54	46.79	65.09	90.68
16	Manufacture of vegetable and animal oils and fats	13.82	9.37	14.59	18.24
17	Manufacture of dairy products	107.61	107.46	109.49	a
18	Manufacture of grain mill products, starches, and starch products	21.71	17.12	24.78	46.99
19	Manufacture of prepared animal feeds	6.36	6.36	6.57	-0.08
20	Manufacture of bakery products	83.23	8.72	109.61	b
21	Manufacture of sugar	78.49	78.49	78.49	b
22	Manufacture of cocoa, chocolate, sugar confectionery and other food products NEC	34.64	12.16	55.61	54.49
23	Manufacture of alcoholic beverages	2.73	2.90	4.03	0.86
24	Manufacture of soft drinks; production of mineral waters	0.11	0.01	9.03	-5.47
25	Manufacture of tobacco products	2.01	17.29	17.29	11.37
26	Manufacture of textiles	0.00	0.01	7.01	-2.95
27	Manufacture of other textiles	0.00	0.00	3.02	-0.07
28	Manufacture of knitted and crocheted fabrics and articles	0.00	0.00	10.25	3.70
29	Manufacture of wearing apparel, except fur apparel	0.00	0.00	10.92	7.01
30	Dressing and dyeing of fur; manufacture of articles of fur	0.00	0.00	2.05	0.62
31	Tanning and dressing of leather; manuf. of luggage, handbags, saddlery, and harnesses	0.00	0.00	1.17	-0.85
32	Manufacture of footwear	0.00	0.00	10.28	8.87
33	Sawmilling and planing of wood	0.00	0.00	0.71	-0.41
34	Manufacture of wood and of products of wood and cork	0.00	0.00	4.95	3.23
35	Manufacture of paper and paper products	0.00	0.00	1.49	0.18
36	Publishing	0.00	0.00	1.53	0.55
37	Printing and service activities related to printing	0.00	0.00	2.18	0.88

TABLE 3.5 (Continued)

I-O Code	Sector	NPR, EU	NPR, EU with FTAs	NPR, Other	EPR
38	Manufacture of coke, refined petroleum products	0.00	0.00	2.91	1.96
39	Manufacture of basic chemicals, plastics in primary forms and synthetics rubber	0.01	0.01	6.31	2.79
40	Manufacture of fertilizers and nitrogen compounds	0.00	0.00	6.49	4.00
41	Manufacture of pesticides, other agrochemicals and paints, and varnishes	0.00	0.00	6.00	2.92
42	Manufacture of pharmaceuticals, medicinal chemicals, and botanical products	0.00	0.00	0.97	0.12
43	Manufacture of cleaning materials, cosmetics, and other chemicals and manmade fibers	0.01	0.02	4.29	1.07
44	Manufacture of rubber products	0.00	0.00	3.61	1.38
45	Manufacture of plastic products	0.00	0.00	6.74	3.30
46	Manufacture of glass and glass products	0.00	0.00	4.90	2.32
47	Manufacture of ceramic products	0.00	0.00	4.76	2.63
48	Manufacture of cement, lime, and plaster-related articles of these items	0.00	0.00	1.94	0.87
49	Cutting and finishing of stone and man. of other nonmetallic mineral products NEC	0.00	0.00	1.21	0.40
50	Manufacture of basic iron and steel	0.00	0.00	11.10	6.23
51	Manufacture of basic precious and nonferrous metals	0.00	0.00	3.40	1.54
52	Casting of metals	0.00	0.00	0.00	-1.89
53	Manufacture of fabricated metal products, tanks, reservoirs, and steam generators	0.00	0.00	2.29	-0.87
54	Manufacture of other fabricated metal products; metalworking service activities	0.00	0.00	2.55	-0.06
55	Manufacture of general-purpose machinery	0.00	0.00	2.53	0.16
56	Manufacture of special-purpose machinery	0.00	0.00	1.65	-0.06
57	Manufacture of domestic appliances NEC	0.00	0.00	2.55	0.61
58	Manufacture of office, accounting, and computing machinery	0.00	0.00	0.06	-0.35
59	Manufacture of electrical machinery and apparatus NEC	0.00	0.00	2.77	0.58
60	Manufacture of radio, television, and communication equipment and apparatus	0.00	0.00	2.95	1.25
61	Manufacture of medical, precision and optical instruments, watches, and clocks	0.00	0.00	1.81	0.32
62	Manufacture of motor vehicles, trailers, and semitrailers	0.00	0.00	4.33	1.71
63	Building and repairing of ships, pleasure and sporting boats	0.00	0.00	0.25	-0.22
64	Manufacture of railway and tramway locomotives and rolling stock	0.00	0.00	1.69	0.48
65	Manufacture of aircraft and spacecraft	0.00	0.00	0.00	-0.02
66	Manufacture of transport equipment NEC	0.00	0.00	4.03	1.60
67	Manufacture of furniture	0.00	0.00	1.14	-0.66
68	Manufacturing NEC	0.00	0.00	3.29	1.36
Average		1.95	1.76	5.30	11.24

Note: I-O = input-output table; NPR = nominal protection rate; FTA = free trade agreement; EPR = effective protection rate; NEC = not elsewhere classified.

a. Less than -100.

b. More than 100.

Source: Turkish State Institute of Statistics; the authors.

TABLE 3.6 Frequency Distribution of Protection Rates, 2002
(percent)

	NPR, EU	NPR, EU with FTAs	NPR, Other	EPR
> 50.00	5	3	7	6
10.01–50.00	7	7	10	6
5.01–10.00	2	5	8	4
0.01–5.00	6	5	38	31
0	48	48	5	0
–0.01–100.00	0	0	0	20
< –100.00	0	0	0	1
Total	68	68	68	68

Note: For abbreviations, see table 3.5.

Source: The authors.

TABLE 3.7 Nominal and Effective Protection Rates, 2002
(percent)

	NPR, EU	NPR, EU with FTAs	NPR, Other	EPR
<i>Commodity groups</i>				
Primary commodities	18.23	18.06	20.21	25.57
Mining and energy	0.00	0.00	0.08	–0.17
Manufacturing	3.07	2.07	6.11	4.50
<i>Trade categories</i>				
Export industries	11.64	10.06	22.26	21.54
Export- and import- competing industries	0.53	0.36	5.89	1.81
Import-competing industries	3.90	3.90	5.73	3.82
Non-import-competing industries	24.62	20.12	28.72	27.03

Note: For abbreviations, see table 3.5.

Source: The authors.

and computing machinery; manufacture of basic precious and nonferrous metals; manufacture of basic iron and steel; and mining products.⁷

Now we move from the structure of protection at the industry level to a more aggregate level. Table 3.7 presents the NPR and EPR for broad industry groups. In the upper part of this table, industries have been classified into three industry groups. In the lower part, they have been divided into four trade categories: export, export and import competing, import competing, and non-import competing.⁸

Calculations presented in the upper part of table 3.7 reveal that primary commodities receive the most protection, contrary to the tendency for protection to escalate from the lower to higher stages of fabrication. The lower part of the table shows that the most protected sectors are the export industries and the non-import-competing industries.

Contingent Protectionism

Article 36 of the Customs Union Decision of 1995 specifies that as long as a particular practice is

incompatible with the competition rules of the customs union as specified in Articles 30–32 of the decision and “in the absence of such rules if such practice causes or threatens to cause serious prejudice to the interest of the other Party or material injury to its domestic industry,” the European Community or Turkey may take the appropriate measures. Article 42 allows antidumping actions as long as Turkey fails to implement effectively the competition rules of the customs union and other relevant parts of the *acquis communautaire*. In such cases, Article 47 of the Additional Protocol signed in 1970 between Turkey and the European Community remains in force. According to the article, the Association Council, if it finds dumping, will address recommendations to the persons with whom such practices originate. The injured party may take suitable measures if the Council has made no decision within three months and if the dumping practices continue. In the event a party needs an immediate action, it may introduce an interim protection measure such as antidumping duties for a limited duration. But the Council may recommend the abolition of those interim measures. Finally, Article 61, which addresses safeguards, states that safeguard measures specified in Article 60 of the Additional Protocol will remain valid. According to Article 60, the Community or Turkey may take the necessary protective measures if serious disturbances occur in a sector of the economy of the Community or Turkey or if they prejudice the external financial stability of one or more member states or Turkey, or if difficulties arise that adversely affect the economic situation in a region of the Community or Turkey.

Table 3.8 shows the products that were subject to definitive antidumping and antisubsidy measures by both parties at the end of 1995 and those subject to antidumping and antisubsidy investigations during the period 1996–2002. The table reveals that at the end of 1995, eight products exported from Turkey were subject to definitive antidumping and antisubsidy measures by the EU. Ad valorem duties were imposed in five cases, a duty and “undertakings” were imposed in one case, and in the remaining cases undertakings were imposed. In undertakings, the Turkish firms must commit themselves to raising the export prices in the European Community market to agreed-on levels or to restrict the quantities exported to the Community to agreed-

on levels. These products were cotton yarn, polyester fibers and yarns, semifinished products of alloy steel, and asbestos cement pipes. After 1996, the EU opened new investigations involving Turkish exports of cotton fabrics, bed linen, iron and steel products, paracetamol, color television receivers, and hollow sections. By contrast, at the end of 1995 Turkey had imposed duties on three commodities: benzoic acids, printing and writing papers, and polyester. After 1996, Turkey opened two new investigations involving imports of ball bearings and polyvinyl chloride from the EU and imposed antidumping duties in the case of the latter.

Both the EU and Turkey have been active users of contingent protection measures, but the EU even more so. The results indicate that the formation of the customs union does not grant protection from antidumping by the European Community. The EU has continued to protect its sensitive sectors through contingent protection measures and has protected the sectors most where Turkish penetration measured by the share of Turkish exports of EU imports was highest (see table 3.2). With Turkey’s accession to the EU, the contingent protection measures will no longer be available to both parties.

Technical Barriers to Trade

Technical barriers to trade are said to exist as long as the EU and Turkey impose different technical regulations as conditions for the entry, sale, and use of commodities; as long as the two parties have different legal regulations on health, safety, and environmental protection; and as long as the parties have different procedures for testing and certification to ensure conformity to existing regulations or standards.⁹ The different country requirements for the entry, sale, and use of commodities can be imposed by governments in the form of technical regulations and by nongovernmental organizations in the form of standards. Technical regulations that relate to either technical specifications or testing or certification requirements are mandatory, and the product must comply with the specifications to which it is subjected. However, standards are voluntary, not legally binding, and arise from the desire of producers or consumers to improve the information in commercial transactions and to ensure compatibility between products.

TABLE 3.8 Products Subject to Antidumping Investigations, 1996–2002

Commodity	OJ Reference	Measure
<i>Investigations by EU</i>		
<i>Definitive antidumping and antisubsidy measures in force as of December 31, 1995</i>		
Cotton yarn	L82, 27.03.1992 and L289, 24.11.1993	Duties
Cotton yarn	L182, 27.07.1994	Duties
Polyester fibers and yarns	L272, 28.09.1991	Undertakings (countervailing)
Polyester yarns (man-made staple fibers)	L88, 3.04.1992	Duties
Polyester yarns (POY and PTY)	L347, 16.12.1988	Duties
Semifinished products of alloy steel	L182, 2.07.1992	Duties and undertakings
Synthetic textile fibers of polyester	L306, 22.10.1992	Duties
Asbestos cement pipes	L209, 31.07.1991	Undertakings
<i>New investigations after January 1, 1996</i>		
Cotton fabrics, unbleached	C50, 21.02.1996	Provisional duty imposed, but no definite measure imposed
Cotton fabrics, unbleached	L295, 20.11.1996	Provisional duty imposed
Cotton fabrics	L42, 20.02.1996	Terminated without the imposition of measures
Bed linen	L171, 07.05.1996	Terminated without the imposition of measures
Cotton fabrics, unbleached	C210, 11.07.1997	Terminated without the imposition of measures
Steel wire rod	C144, 22.05.1999	Terminated without the imposition of measures
Steel ropes and cables	C127, 05.05.2000	Duties
Paracetamol	C134, 13.05.2000	Terminated without the imposition of measures
Colour television receivers	C202, 15.07.2000	Terminated without the imposition of measures
Welded tubes and pipes, of iron and nonalloy steel	C183, 29.06.2001	Duties
Flat rolled products of iron and nonalloy steel	C364, 20.12.2001	Pending
Steel ropes and cables	L34, 03.02.2001 and L211, 04.08.2001	Undertakings
Hallow sections	C249, 16.10.2002	Pending
<i>Investigations by Turkey</i>		
<i>Definitive antidumping and antisubsidy measures in force as of December 31, 1995</i>		
Benzoic acids	14.08.1991	Duties
Printing and writing papers	20.05.1992	Duties
Polyester ELYAF	08.01.1993	Duties
<i>New investigations after January 1, 1996</i>		
Ball bearings	26.12.1998	Terminated without the imposition of measures
Polyvinyl chloride	02.11.2001	Duties

Note: OJ = Official Journal of the EU.

Sources: Undersecretariat of Foreign Trade and various issues of the reports of the Commission on Anti-Dumping and Anti-Subsidy Activities.

Technical barriers have two aspects: (1) the content of the norms (regulations and standards), and (2) the testing procedures needed to demonstrate that a product complies with the norm. The technical barriers to trade (TBTs) thus come in two basic forms, content-of-norm TBTs and testing TBTs. In either case, the costs of the product design adaptations, reorganization of production systems, and multiple testing and certification needed by exporters can be high. These costs are both upfront and onetime—for example, learning about the regulation and bringing the product into conformity—and ongoing, such as periodic testing. TBTs are said to distort trade when they raise the costs of foreign firms relative to those of domestic firms. As emphasized by Baldwin (2001), liberalization requires closing the gap between the costs of the foreign and domestic firms. The two main dimensions to such a step are content of norms and conformity assessment. Liberalization of the content of norms involves making product norms more cosmopolitan and thus narrowing the cost advantage of domestic firms. Liberalization of the second involves lowering the excess costs that foreign firms face in demonstrating the compliance of their goods to accepted norms. The European Commission (1998) has pointed out that the removal of technical barriers to trade will lead to four types of benefits: (1) economies of scale; (2) rationalization of products or production, increased efficiency, and price reductions as a result of increased competition; (3) restructuring of industry (e.g., plant closures, mergers, reorganization, relocation) to gain comparative advantage; and (4) innovation, stimulated by the dynamics of the single market.

The EU Approach to Technical Barriers to Trade

The basic objective of the EU policy and approaches to removing technical barriers to trade is to achieve free trade within the European Community. Currently, this policy has two approaches: enforcement of the Mutual Recognition Principle (MRP) and harmonization of technical regulations.

Mutual Recognition Principle Mutual recognition refers to the principles enshrined in the Treaty Establishing the European Economic Community (Treaty of Rome), interpreted by the European

Court of Justice, as set out in the 1979 *Cassis de Dijon* judgment. In this ruling, the court stated that Germany could prohibit imports of a French beverage (*cassis de Dijon*) only if it could invoke mandatory requirements such as public health, protection of the environment, and fairness of commercial transactions. In other words, the court introduced a very wide definition of Article 28 (ex 30) of the Treaty of Rome, which prohibits quantitative restrictions on imports between member states and “all measures having equivalent results.” As a result of this ruling, the European Commission stated that a product lawfully produced and marketed in one member state shall be admitted to other member states for sale, except in cases of mandatory requirements (the Mutual Recognition Principle). Thus, the basic EU approach under the MRP has been to promote the idea that products manufactured and tested in accordance with a partner country’s regulations could offer levels of protection equivalent to those provided by corresponding domestic rules and procedures. Mutual recognition, in other words, reflects the existence of *ex ante* trust between the trading partners.

The European Commission (1998) divides the traded products into regulated and nonregulated commodities. The regulated products are those whose commercialization is governed by the regulations of member states, and the nonregulated products are those for which no regulations have an impact on commercialization. The regulated products are further divided into commodities under the harmonized sphere and those under the nonharmonized sphere. Products under the harmonized sphere are covered by European rules for the harmonization of regulations and mandatory specifications. Commodities under the nonharmonized sphere are governed by national rules. The MRP is considered the first line of defense against technical barriers in the regulated nonharmonized sphere.

The principal examples of success of the MRP are those regulations that are new and have been notified to the European Community under the 83/189 procedures, but then they have been negotiated away or had specific mutual recognition clauses inserted into the regulations.¹⁰ Any problem in implementation of the MRP is harder to identify, because it relies on complaints from firms or trade associations.

In its relations with third countries, the European Community has advocated the use of mutual recognition agreements (MRAs) in many regional or bilateral forums. These agreements are based on the mutual acceptance of test reports, certificates, and marks of conformity issued by conformity assessment bodies of one of the parties to the agreement, in conformity with the legislation of the other party. Such agreements were signed with Australia, Canada, Israel, Japan, New Zealand, Switzerland, and the United States. The European Community also negotiated protocols to the Europe Agreements on Conformity Assessment and Acceptance of Industrial Products (PECAs) with some of the then-candidate countries. PECAs represent recognition of the progress made in adopting and implementing the relevant Community legislation on industrial products and in creating the necessary administrative infrastructure. The agreements cover a wide range of sectors, from medical devices to pressure vessels and electrical equipment.

In 1992 the European Economic Area (EEA) Agreement was signed between the European Free Trade Association (EFTA) countries and the EU. In extending the EU Single Market to the EFTA countries, the EU felt that ongoing and effective surveillance and enforcement were essential. Accordingly, the EFTA Court of Justice and the EFTA Surveillance Authority were established in 1992. Through the EEA Agreement, the EFTA countries Iceland, Lichtenstein, and Norway participate fully in the EU internal market and thus in the establishment of common product requirements and methods of conformity assessment. Outside the areas covered by EEA legislation related to product requirements, EEA states are permitted to introduce national product requirements, if it can be proved that such requirements are needed to meet public health, environmental, safety, and other social considerations. To ensure transparency, the EEA states are required to notify the EFTA Surveillance Authority and the European Commission of all draft national technical rules for products. Finally, the EEA Agreement forces the EFTA countries to accept future European Council directives on the Single Market without formal participation into the formation of these new laws.

In summary, MRAs seek to facilitate trade while safeguarding the health, safety, and environmental objectives of each party. Each party is free to set its

health, consumer protection, environmental, or other regulations at whatever level it deems necessary, as long as they comply with international obligations. These obligations require that each side have full confidence that the certification process on the other side can wholly satisfy its requirements.

Harmonization of National Regulations and Standards The EU legislation on harmonizing technical specifications has followed two distinct approaches, the old approach and the new approach. The old approach was based on the idea that the EU would become a unified economic area functioning like a single national economy. It dealt with the content-of-standards issue using negotiated harmonization, and it sought adoption of a single standard that laid out in detail technical regulations for single products or groups of products. The regulations were implemented by the directives of the European Council, and the designated bodies in EU nations performed the conformity assessments. Technical regulations were harmonized using the old approach for products such as chemicals, motor vehicles, pharmaceuticals, and foodstuffs. Under this approach, the Council issued directives such as Directive 70/220/EEC on the harmonization of the member states' laws related to the measures to be taken against air pollution caused by gases from positive-ignition engines of motor vehicles. The directive detailed EU specifications applying to the related products and their testing requirements. Under the old approach, European standards institutions such as CEN (Comité Européen de Normalisation) and CENELEC (Comité Européen de Normalisation Electrotechnique) were not mandated to draw up supplementary technical specifications. But over time, the need was recognized to reduce the intervention of the public authorities prior to a product being placed on the market. So the "new approach" was adopted and applied to products that have "similar characteristics" and that have been subject to a widespread divergence of technical regulations in EU countries.

Under the new approach, only "essential requirements" are indicated. This approach gives manufacturers greater freedom on how they satisfy those requirements by dispensing with the "old" type of exhaustively detailed directives. Directives under the new approach provide for more flexibility by

using the support of the established standardization bodies—CEN, CENELEC, and the national standards bodies. The standardization work is easier to update and involves greater participation from industry.

Under the new approach, the European Council issues a directive that lays down “essential requirements”—the 1989 machinery directive is one example. So far, 23 directives have been adopted on the basis of this approach. Examples of product sectors regulated in accordance with the new approach are toys, machines, construction products, medical equipment, telecommunications terminal equipment, and recreational craft. Once a new approach directive has been issued, member states must conform their national laws and regulations to it. The European Commission is empowered to determine whether the national measures are equivalent to the essential requirements. The Council refers the task of formulating detailed standards meeting the essential requirements to CEN, CENELEC, and the European Telecommunications Standards Institute.

Conformity Assessment and Market Surveillance

To ensure that products meet the requirements laid down in the new approach directives, special conformity assessment procedures have been established. They describe the controls to which products must be subjected before they are considered compatible with the essential requirements and thus placed on the internal market. The extent of the controls a product must undergo varies according to the risk attached to use of the product. Requirements may range from a declaration by the manufacturer stating that certain standards have been applied, to extensive testing and certification by independent, third-party conformity assessment bodies (notified bodies). In 1993 Council Decision 93/465/EEC was adopted in connection with the new approach directives. It provides an overview of all the conformity assessment procedures available under the directives, divided up into modules and grouped by category of risk.

For products regulated by the new approach directives, a CE (Conformité Européenne) marking confirms conformity with the essential requirements of the directives and is required for a product to be placed on the internal market. The CE marking indicates not only that the product has been

manufactured in conformity with the requirements of the directive, but also that the manufacturer has followed all the prescribed procedures for conformity assessment. It ensures free access to all of the EU. Meanwhile, the manufacturer or its local representative is required to keep all necessary technical documentation as proof for the relevant authorities that the requirements have been satisfied.¹¹

The final stage of implementation of the new approach system consists of market surveillance procedures that develop a common approach to enforcement. Market surveillance consists of the control that the relevant authorities in the member states are required to carry out to ensure that the criteria for CE marking have been satisfied—after the products have been placed on the market. The control is intended to prevent misuse of the CE marking, to protect consumers, and to secure a level playing field for producers. Basically, market surveillance is carried out in the form of random inspections to ensure that the technical documentation as required by the directive is available, but it also may include examination of the documentation or the product itself.

Coverage of EC Technical Regulations Table 3.9 provides crude estimates of the sectoral value added covered under the old approach and the new approach. A large proportion of European Community value added in manufacturing has been covered by the Community’s technical regulations policy: 33 percent by the old approach directives and 42 percent by the new approach directives, with each approach dominating different sectors. Finally, columns four and five show the share that each sector holds in intra-EC trade and world trade. The table reveals that sectors dominated by the old approach represent 29 percent of EC value added, 26 percent of intra-EC trade, and 17 percent of EC imports from the rest of the world. Sectors dominated by the new approach represent 33 percent of EC value added, 43.5 percent of intra-EC trade, and 56 percent of EC imports from the rest of the world.

Turkish Policies and Approaches

With the formation of the EU-Turkey customs union, Turkey has removed all customs duties and equivalent charges as well as quantitative restrictions

TABLE 3.9 EC Technical Regulation Directives and European Community (EC) Imports, 1995

ISIC	Manufacturing Sector	Coverage of EC Technical Regulations (percent of sectoral value added)			Import Structure (percent)	
		Old Approach	New Approach	Total	Intra-EC Imports	World
200	Mining	96	0	96	0.4	2.4
311–312	Agribusiness	100	0	100	5.8	3.8
313	Beverages and sugar	63	37	100	3.2	1.1
321	Textiles	0	59	59	3.6	4.2
322	Clothing	0	77	77	2.3	5.6
323	Leather goods	0	0	0	0.4	1.0
331	Wood and wood products	0	100	100	1.9	2.2
341	Paper and paper products	63	0	63	4.7	2.5
351–352	Chemicals	22	76	98	14.7	9.2
353	Petroleum refineries	100	0	100	1.5	1.6
354	Petroleum and coal products	0	100	100	0.8	8.5
355	Rubber and rubber products	54	0	54	3.7	2.1
361	Pottery, china, etc.	0	79	79	0.3	0.6
369	Nonmetallic products	11	55	66	1.9	1.0
371	Iron and steel	0	24	24	6.9	7.1
381	Metal products	0	43	43	3.1	2.2
382	Machinery	0	93	93	14.0	16.5
383	Electrical and electronic goods	18	82	100	10.0	13.5
384	Transport equipment	74	19	93	15.6	8.3
	Other manufactured goods	0	62	62	5.3	6.7
	All sectors	33	42	75	100.0	100.0

Note: Coverage of EC technical regulation is measured in percentage value added. ISIC = International Standard Industrial Classification.

Source: Messerlin 2001.

on industrial products.¹² Thus industrial products move freely between the EU and Turkey—with the exception of contingent protection measures and technical legislation. According to Decision 1/95 of the EC-Turkey Association Council establishing the customs union, Turkey must harmonize its technical legislation with that of the EU. Decision 2/97 of the Association Council listed the areas in which Turkey must align its legislation. This work should have been finalized before the end of 2000, but, unfortunately, it was not completed until the beginning of 2005. According to Annex II of Decision 2/97, Turkey was supposed to incorporate into its internal legal order 324 instruments that correspond to various European Economic Community or European Community regulations and directives. Currently, Turkey has incorporated into its legal order only 203 of these 324 instruments. In the

meantime, the number of instruments that Turkey has to incorporate into its legal order has increased to 560, and Turkey has incorporated 276 of them. Thus, progress has been rather slow.

Turkey also must establish the so-called *quality infrastructure*, a generic term encompassing the operators and operation of standardization, testing, certification, inspection, accreditation, and metrology (industrial, scientific, and legal). In the EU, national quality infrastructures that function according to the same principles and obey the same rules are a critical element of the free circulation of goods in the Single Market. Turkey, as a member of a customs union with the EU and as a candidate country, has to align its national quality infrastructure to the European one. Products manufactured in a future EU member state must satisfy the same requirements prevailing in the EU, and conformity

to these requirements must be demonstrated in the same “harmonized” way and according to the same principles.

Recently, Turkey has taken major steps to align with the *acquis*. Law 4703 on the Preparation and Implementation of Technical Legislation on Products, which entered into force in January 2002, has been supplemented by secondary legislation. This framework law provides the legal basis for harmonization with the EC legislation. It defines the principles for product safety and for implementation of the old and new approach directives, including the conditions for placing products on the market; the obligations of the producers and distributors, conformity assessment bodies, and notified bodies; market surveillance and inspection; withdrawal of products from the market; and notification procedures.¹³ The legislation on market surveillance, use and affixing of the CE conformity mark, working principles and procedures for the conformity assessment bodies and notified bodies, and notification procedures between Turkey and the EU for technical regulations and standards which apply to non-harmonized regulated area entered into force during 2002.¹⁴ Furthermore, Turkey has adopted all of the 23 new approach directives that require affixing the CE conformity marking, and 18 of the directives entered into force up to the present time. They cover commodities and product groups such as low-voltage equipment, toys, simple pressure vessels, construction products, electromagnetic compatibility, gas appliances, personal protective equipment, machinery, medical devices, nonautomatic weighing instruments, telecommunications terminal equipment, hot water boilers, civil explosives, lifts, and recreational crafts.

Overall, then, Turkey has advanced the harmonization of its technical legislation both on a sectoral (vertical) basis and at a horizontal level. It is in the process of establishing the necessary structures on conformity assessment and market surveillance. By now Turkey has the legal basis on which accreditation could be based. In order to assign the notified bodies that would deal with the certification of products, the ministries have established the criteria for the selection of such bodies for the products covered by certain new approach directives. Although in Europe, as in Turkey, accreditation is not mandatory to be appointed as a notified body, since the Turkish Ministries did not feel adequately

prepared to select notified bodies, they made accreditation one of the criteria for their selection by signing protocols with the Turkish National Accreditation Body, TURKAK.¹⁵ However the fact that TURKAK has been a member of European Accreditation Agency since 2003 and yet has not signed any multilateral agreement with the European partners makes its accreditation non-functional. Thus, even though TURKAK has given accreditation to potential notified bodies, this accreditation is meaningless in the eyes of national accreditation bodies of the EU.

Because of this the market is also reluctant to use TURKAK, because TURKAK accreditation is not accepted within the EU. This situation presents Turkish conformity assessment bodies with a disadvantage. The relatively large Turkish firms wishing to obtain CE marking for products exported to the EU market usually contact local subsidiaries of European notified bodies that use their European laboratories for testing. But for other Turkish companies this process seems to be expensive and slow. The small and medium-size enterprises (SMEs) that export products find it particularly difficult to pay the high costs. In Turkey, marking and certification parallel to the EU system are implemented only in the automotive sector, which is subject to the old approach directives. Istanbul Technical University (ITU) does automotive testing under the authorization of the Ministry of Industry and Trade, and it performs acoustic, emissions, and other tests. The Turkish Standards Institute (TSE),¹⁶ Tofaş-Fiat, and Ford-Otosan also have engine and emissions test facilities; Seger has an audible warning devices laboratory; Tam-Test is implementing testing and certification in the case of agricultural tractors; Fren Teknik has test facilities for brakes and Brisa has a pneumatic tires laboratory. Turkey is implementing all relevant automotive EC directives via these facilities.¹⁷ Crash tests, electromagnetic compatibility (EMC), and other tests on complete cars are largely conducted abroad; as of May 2003 the National Metrology Institute (UME) was able to run the EMC tests on vehicles.¹⁸

Other than for the automotive sector, as of 2005 Turkey is suffering from a lack of certification bodies (see European Committee for Standardization 2003). To make its conformity assessment compatible with that in the EU, Turkey has opened up the certification, testing, and calibration market to

other Turkish actors. However, Turkish firms are reluctant to enter the market for conformity assessment bodies as long as uncertainties prevail regarding the acceptance of notified bodies by the European Commission. Some of the Turkish firms in cooperation with the notified bodies in the EU have entered the Turkish market. Over time competition will ensure lower costs for conformity assessment. The expense, time, and unpredictability incurred in obtaining approvals can then be reduced by having products evaluated in Turkey once the Turkish notified bodies are accepted by the European Commission and joint ventures with notified bodies in the EU increase. These savings can be particularly important where rejection of products in the EU can create delays and necessitate additional shipping or other costs. In addition, the SMEs can benefit from procedures in which all testing and certification steps are carried out locally at lower costs. Turkish firms, and in particular the SMEs, can then be expected to increase their competitiveness in the EU market

Although, in principle, standards are voluntary in Turkey, in the absence of a proper market surveillance system the technical ministries and the Undersecretariat of Foreign Trade have turned the standardization regime and licensing before production into a mandatory regime in order to protect the market and the consumers. This pre-market control system gives the TSE a great deal of power. According to the European Committee for Standardization (2003), the TSE has misused its power in several cases of imports and has created technical barriers to trade. The TSE asked for the technical files of the imported products when they entered the Turkish market, and the processing of the files took an usually long time. There are also cases in which products bearing the CE marking were asked for further inspection. Yet the Turkish internal market is regulated largely through mandatory standards and marking issued by the TSE. Since 2004 products covered by directives on toy safety, medical devices, active implantable medical devices, low voltage electrical equipment, electromagnetic compatibility and machinery are not subject to mandatory controls when imported and used in the internal market. But products covered by the remaining 12 new approach directives are subject to mandatory controls.

In Turkey, 500 standards are mandatory for the domestic market as well as for imports. For all of

these the TSE occupies a monopoly position, and for 500 of them TSE certification is mandatory. For these mandatory standards, manufacturers mostly need first a TSE certificate and then a Ministry of Industry and Trade license to put the products on the market.

The system in use in Europe, for those areas under the new approach directives, is in-market control. Under this system, the responsibility for placing a product on the market is left to the producer, so long as it is certified that the product satisfies the minimum requirements set under the directives. Market surveillance, the safeguard of the system, is the responsibility of public authorities. The market surveillance authorities carry out their operations in an impartial and nondiscriminatory way. They shall have the power, competence, and resources to regularly visit commercial, industrial, and storage facilities; to regularly visit, if appropriate, workplaces and other premises where products are put into service' to organize random and spot checks; to take samples of products and subject them to examination and testing, and to require all necessary information. Through this system, measures are taken in the EU to ensure that products meet the requirements of the applicable directives, that action is taken to bring noncompliant products into compliance, and that sanctions are applied when necessary. Member states are free to choose the type of sanction they are going to use. The only requirement is that the penalties be effective, proportionate, and dissuasive.

Technical Barriers and Trade between the EU and Turkey

To determine those sectors and products in which technical regulations are important for Turkish exporters, we used data produced by a study undertaken by the European Commission (1998). This study provides information, at the three-digit level of the NACE (Nomenclature Générale des Activités Économiques dans les Communautés Européennes) classification, about whether trade is affected by technical regulations and the dominant approach used by the European Commission to remove such barriers in the EU.¹⁹ It classifies the technical regulations as follows: those in which barriers are overcome using mutual recognition, old approach, new approach, and those in which there are no technical barriers.

TABLE 3.10 Trade Coverage of Technical Regulations and of Different Approaches to Their Removal, 1990–2001
(percent)

	Old Approach	Mutual Recognition	New Approach	Subject to Technical Barriers	No Technical Barriers
<i>Manufacturing Imports of EU</i>					
1990	24.507	28.463	29.869	82.838	17.162
1991	23.662	29.839	29.187	82.689	17.311
1992	23.550	29.692	29.165	82.407	17.593
1993	21.970	30.615	28.662	81.248	18.752
1994	21.925	29.543	30.041	81.508	18.492
1995	19.078	30.497	31.459	81.034	18.966
1996	18.593	31.266	31.331	81.189	18.811
1997	18.700	32.269	30.435	81.404	18.596
1998	18.795	32.990	30.632	82.418	17.582
1999	18.663	33.245	30.627	82.535	17.465
2000	17.407	31.318	33.835	82.560	17.440
2001	18.108	31.602	32.538	82.248	17.752
<i>Manufacturing Exports of Turkey to EU</i>					
1990	8.815	63.561	14.911	87.287	12.713
1991	9.436	66.096	10.349	85.881	14.119
1992	8.735	66.411	10.694	85.840	14.160
1993	7.334	68.648	9.470	85.452	14.548
1994	9.048	64.839	10.607	84.494	15.506
1995	10.029	61.501	12.685	84.215	15.785
1996	10.143	61.589	12.267	83.998	16.002
1997	10.096	58.503	13.465	82.064	17.936
1998	12.474	56.552	13.042	82.069	17.931
1999	16.432	52.961	13.545	82.939	17.061
2000	17.634	50.762	14.332	82.728	17.272
2001	20.707	47.358	14.887	82.951	17.049

Note: The variables show the percentages of different approaches to the removal of technical barriers to trade in total manufacturing imports for the EU and in Turkish manufacturing exports to the EU.

Source: The authors.

Table 3.10 shows the overall trade coverage of technical regulations and of the different approaches to their removal in the EU and to their application to Turkish exports to the EU. Here we aggregated, following the approach of Breton, Sheehy, and Vancauteran (2001), the value of manufacturing imports across the four-digit Standard Identification Trade Classification (SITC) categories, which are subject to old approach directives, new approach directives, mutual recognition, and a residual.²⁰ We then identified the proportion of total imports value in sectors subject to old approach directives, new approach directives, mutual recognition, and a residual.

The table demonstrates that a very high proportion of EU manufacturing imports and of Turkish manufacturing exports to the EU are subject to technical barriers. The average value of the proportion over the period 1990–2001 is 82.0 percent for the EU and 84.2 percent for Turkey. In the EU, sectors subject to old approach directives make up on average 20.4 percent; mutual recognition and new approach directives, 31 percent each; and sectors subject to no technical barriers, 18.0 percent. For Turkish exports to the EU, the average values of the shares are 11.7 percent for old approach products; 60.0 percent, mutual recognition; 12.5 percent, new approach products; and 15.8 percent,

sectors subject to no technical barriers. Sectors with no significant technical barriers to trade include nonferrous metals, footwear, and sawing and processing of wood. Old approach products include mainly motor vehicles and parts, and new approach products include sectors specified earlier, such as machinery.

Developments in the proportions of sectors subject to technical barriers over the period 1990–2001 reveal that the proportion of manufacturing imports subject to technical barriers has been relatively stable in the EU and that for Turkish exports to the EU declined from 87.3 percent in 1990 to 82.9 percent in 2001. In the EU, the proportion of sectors subject to mutual recognition and new approach directives has increased slightly over time, and the proportion of sectors subject to old approach directives has correspondingly declined. As for Turkish exports to the EU, the proportion of sectors subject to the new approach has been relatively constant. As the share of sectors subject to the old approach has increased, a corresponding decline appears in the share of sectors subject to mutual recognition.

We now turn to consideration of the index values of revealed comparative advantage (RCA) defined as

$$(3.3) \quad RCA_i = \ln \left[\frac{(X_i/X)}{(M_i^{EU}/M^{EU})} \right]$$

where X_i denotes Turkish exports of commodity i to the EU, X the total value of Turkish manufacturing exports to EU, M_i^{EU} the total EU imports of commodity i , and M^{EU} the total value of EU imports. Equation 3.3 considers the share of commodity i exports to the EU of total Turkish exports to the EU relative to the share of commodity i imports by the EU to total EU imports. If this ratio is greater than 1, the natural logarithm of the variable will be positive. In that case, the country is said to have a comparative advantage in producing that product, and the higher the value, the more competitive the product. Using the index of revealed comparative advantage, it is possible to determine in which product categories Turkey has the greatest comparative advantage. Table 3.11 shows the nine sectors with the highest RCA values by the different EU approaches to technical barriers to trade. The table reveals that the highest RCA values are attained in the sectors with no technical barriers. Turkey seems

also to be quite an efficient producer of goods from the sectors under mutual recognition as well as from the new approach sectors. Thus if trade between Turkey and the EU is constrained by technical barriers to trade, then with the accession of Turkey, competition in the EU for these products may intensify.

This analysis reveals that, for Turkey, sectors subject to technical regulations in the EU account for considerable shares of Turkish exports to the EU. The calculations demonstrate that accession will affect the exports of Turkish old and new approach products to the EU, and that Turkey has a comparative advantage in sectors subject to new approach directives. Therefore, it is of utmost importance that Turkey establish the quality infrastructure needed, encompassing the operators and operation of standardization, testing, certification, inspection, accreditation, and metrology. The Turkish quality infrastructure has to function according to EU principles and obey the same rules as in the EU. Only then will Turkey be able to participate in the free circulation of goods in the enlarged Single Market.

Conditions of Competition

Over the past few decades, Turkey has used intensively three tools of industrial policy: investment incentives, export incentives, and a policy of state-owned enterprises. In using these measures, the government has tried to obtain a preferred allocation of resources. The purpose of the investment incentive scheme has been to increase investment and overcome the barriers imposed by capital market imperfections to entry into industry. But investment incentives in Turkey have also been a barrier to competition. Through the incentive system, established firms have obtained cost advantages that have helped them to consolidate their market position. Entrants, competing with scarce fiscal resources, have been at a disadvantage relative to well-informed incumbents. The credit incentives, which were supposed to promote entry, have often turned into instruments that have reinforced the position of large incumbents. Furthermore, the government, with its large share of the banking system, has also directly controlled the allocation of credit, and credit from public banks has often been extended on the basis of political considerations. Overall,

TABLE 3.11 Sectors with Highest RCA Values in Each Category

SITC		RCA, 1999–2001	Turkish Exports to EU, 1999–2001 Average (thousands of ECU)
<i>Old approach</i>			
7831	Public transport-type passenger motor vehicles	3.2198	181,834
5238	Other metallic salts, peroxy salts of inorganic, acids	2.9270	65,203
7611	Television receivers, color, whether or not combined	2.2189	725,383
5323	Synthetic inorganic tanning matter; preparations	1.4908	895
5237	Percarbonates; commercial ammonium carbonate	1.3940	26,140
7139	Parts, NES, for the engines of 7132, 7133 and 7138	1.1439	217,582
5234	Polysulphides, dithionites, sulphites, sulphates	0.8834	5,148
5233	Hypochlorites; chlorites; chlorates; bromates; iodates	0.8047	1,190
8986	Magnetic tapes, recorded	0.7545	4,692
<i>Mutual recognition</i>			
6534	Fabrics, woven, < 85% synthetic staple fibers, mixed	3.1060	101,494
8462	Panty hose, socks, and other hosiery, knitted or crocheted	2.5733	285,684
6542	Fabrics, woven, > 85% wool or fine animal hair	2.4675	29,022
8454	T-shirts, singlets and other vests, knitted or crocheted	2.4476	984,273
6529	Other woven fabrics of cotton	2.4372	4,265
8442	Suits, ensem., dresses, skirts, trousers, knitted, women	2.3862	349,327
6513	Cotton yarn, other than sewing thread	2.3166	235,351
6524	Other woven fabrics > 85% cotton, weight > 200 g/m ²	2.2850	85,496
6536	Fabrics, woven, > 85% artificial staple fiber (excluding pile)	2.2635	21,646
<i>New approach</i>			
7753	Dishwashing machines of the household type	3.4565	11,569
6624	Nonrefractory ceramic bricks and similar products	2.7997	117,996
6762	Rods (excluding 6761), iron, steel, hot-rolled, hot-drawn	2.6528	188,512
6761	Bar and rods, hot-rolled, irregular wound coils, iron, steel	2.4310	114,585
6612	Hydraulic cements, whether or not colored, clinkers	2.4192	160,431
8121	Boilers (excluding 711), radiators, etc., not electrical	2.2241	83,012
6794	Other tubes, pipes, and hollow profiles of iron, steel	2.1659	132,205
7752	Household-type refrigerators and food freezers	2.0630	152,836
6652	Glassware for domestic use (excluding 66511, 66592, 66593)	1.8532	105,440
<i>No technical barriers</i>			
7753	Dishwashing machines of the household type	3.4565	11,569
6581	Sacks and bags of textile materials, for packing goods	2.8222	109,778
6579	Special products of textile materials	2.5383	39,282
6564	Tulles and other net fabrics; lace, in the piece	2.5145	10,051
8122	Ceramic sinks and similar sanitary fixtures	2.3625	58,256
6584	Bed, table, toilet, and kitchen linen	2.3485	471,456
6112	Composition leather, basis of leather, slabs, sheets	2.0423	1,380
6931	Stranded wire, ropes, slings, and the like, of metal	1.9921	44,441
6252	Other knitted or crocheted fabrics, noncoated, etc.	1.7149	70,236

Note: RCA = revealed comparative advantage; SITC = Standard International Trade Classification; NEC = not elsewhere classified.

Source: The authors.

established firms benefit from the investment incentive schemes such as investment allowances, but new entrants do not, because to benefit from devices such as investment allowances, they must show positive profits in their income statements first.

In Turkey, the investment incentive scheme has been used while no specific competition legislation or competition policy has been enforced in the country. To promote competition within the country, Turkey eliminated quantitative restrictions in foreign trade during the 1980s and substantially decreased the levels of nominal and effective protection rates. With the formation of the customs union with the EU, all of the tariff barriers on imports of industrial commodities from the EU were completely eliminated, as noted earlier.

On the export side, over the 1980s Turkey used various export incentive measures. But in 1985 it agreed to eliminate export subsidies by 1989. After 1989, Turkey eliminated most of the export incentives, introduced GATT legal subsidies, and reduced substantially the nominal and effective export subsidy rates. The reduction in the nominal and effective protection and subsidy rates was not sufficient, however, to ensure proper functioning of markets in Turkey. During the 1950s, a similar situation in Europe had led to the adoption of competition policies aimed at ensuring effective competition, allocating resources efficiently, and creating the best possible climate for fostering innovation and technical progress.

In June 1989, Turkey adopted the law titled On the Prevention of Unfair Competition in Importation, containing both antidumping and antisubsidy provisions. Turkey adopted its competition policy during December 1994 with the Law on the Protection of Competition. The key provisions of the competition law are based on the EU's competition law: agreements, decisions, and concerted practices in constraint of competition; abuse of dominant position; and mergers and acquisitions. The statute contains not only rules on forbidden practices and provisions against the abuse of a dominant market position, but also regulations on acquisitions and mergers. The Competition Authority responsible for the implementation and enforcement of the prohibitions set out in the law opened its doors in October 1997. As indicated by OECD (2002) competition policy, institutions in Turkey are in place and active, but competition pol-

icy is not fully integrated into the general policy framework for regulation. Turkey's competition law has no rule equivalent to Article 86 of the Treaty Establishing the European Community to govern the permissible operations of monopolies providing public services. Nevertheless, special rules limit competition in some sectors such as the financial sector, tobacco industry, mineral products, agriculture, and postal services. In addition, Turkey has to control its anticompetitive state aid policy.²¹

It could be said, then, that Turkey has achieved considerable progress in the fields of investment and export incentives, but it has not achieved similar progress in dealing with public enterprises. Although privatization has become a prominent part of the Turkish structural adjustment program, since 1983 privatization has not gained momentum.

Table 3.12 presents basic data on Turkey's manufacturing sector for 2000. The data are taken from two surveys, "Annual Manufacturing Industry Statistics" and "Small Manufacturing Industry Statistics," published by the State Institute of Statistics. The first survey covers all firms in the public sector and private firms employing 10 or more employees. The second survey covers all private firms employing less than 10 employees. The table reveals that the sectors with the highest shares of total value added of the manufacturing sector were petroleum and coal, 12.49 percent; textiles, 12.29 percent; food processing, 11.45 percent; and chemicals, 9.71 percent. The sectors with the highest shares of total manufacturing employment were textiles, 18.56 percent; food processing, 15.41 percent; wearing apparel and footwear, 9.62 percent; and metal products, 7.98 percent. The sixth column of the table gives the share of 1998 public sector value added of the total value added of the corresponding manufacturing subsector. From the table, it follows that the average share of public sector value added of the total manufacturing industry value added was 18.91 percent. Petroleum and coal had the highest share with 89.83 percent, followed by the tobacco industry with 78.25 percent, and the beverages industry with 50.58 percent.

The seventh and eighth columns of table 3.12 indicate exposure to international trade. Column seven provides a measure of competitiveness on the domestic market measured by the rate of import penetration. If Q , X , and M stand, respectively, for

TABLE 3.12 Characteristics of Turkish Manufacturing Industries, 2000

ISIC	Sector	Value Added (US\$ millions) (1)	Share of Sector of Total Manuf. Value Added (2)	Employment (3)	Share of Sector of Total Manuf. Employment (4)	Public Sector Value Added (US\$ millions) (5)	Share of Public Sector of Total Sectoral Value Added (6)	Import Penetration (percent) (7)	Export Ratio (percent) (8)	Rate of Exposure to International Competition (percent) (9)
311 + 312	Food processing	4,687.9	11.45	255,437	15.41	609.8	13.01	7.47	9.44	16.20
313	Beverages	908.2	2.22	11,194	0.68	459.4	50.58	0.77	1.98	2.74
314	Tobacco	1,063.8	2.60	18,951	1.14	832.4	78.25	1.97	5.28	7.15
321	Textiles	5,030.6	12.29	307,689	18.56	56.0	1.11	17.31	39.88	50.29
322 + 324	Wearing apparel and footwear	1,533.9	3.75	159,561	9.62	19.1	1.25	30.70	86.35	90.54
323	Fur and leather products	110.8	0.27	10,358	0.62	0.0	0.00	50.93	38.19	69.67
331	Wood and cork products	526.7	1.29	67,688	4.08	0.0	0.01	12.03	3.99	15.54
332	Furniture and fixtures	449.2	1.10	72,072	4.35	0.0	0.01	53.63	44.26	74.16
34	Paper and products	1,314.5	3.21	56,459	3.41	111.5	8.48	27.49	5.30	31.33
351 + 352	Chemicals	3,977.7	9.71	59,537	3.59	287.9	7.24	49.13	13.66	56.08
353 + 354	Petroleum and coal	5,112.4	12.49	9,882	0.60	4,592.3	89.83	17.08	2.34	19.02
355 + 356	Rubber and plastic products	1,574.5	3.85	60,577	3.65	4.3	0.27	9.01	8.90	17.11
36	Nonmetallic minerals	2,712.5	6.62	92,160	5.56	23.1	0.85	9.01	20.84	27.98
37	Basic metals	2,216.0	5.41	65,729	3.96	454.8	20.52	40.04	27.04	56.25
381	Metal products	1,946.2	4.75	132,276	7.98	50.2	2.58	15.95	11.20	25.36
382	Machinery	1,822.5	4.45	100,594	6.07	96.5	5.29	63.39	18.98	70.34
383	Electrical machinery	2,218.8	5.42	68,616	4.14	44.4	2.00	62.00	38.25	76.53
384	Transport equipment	3,218.6	7.86	84,358	5.09	82.0	2.55	48.87	25.22	61.76
385	Professional and sci. measuring equip.	251.1	0.61	11,327	0.68	12.0	4.80	69.28	11.23	72.73
39	Other manufacturing industries	271.9	0.66	13,647	0.82	5.9	2.16	56.67	61.23	83.20
3	Manufacturing	40,947.8	100.00	1,658,112	100.00	7,741.6	18.91	33.10	21.78	47.67

Note: ISIC = International Standard Industrial Classification.

Source: Annual manufacturing industry statistics and small manufacturing industry statistics provided by Turkish State Institute of Statistics.

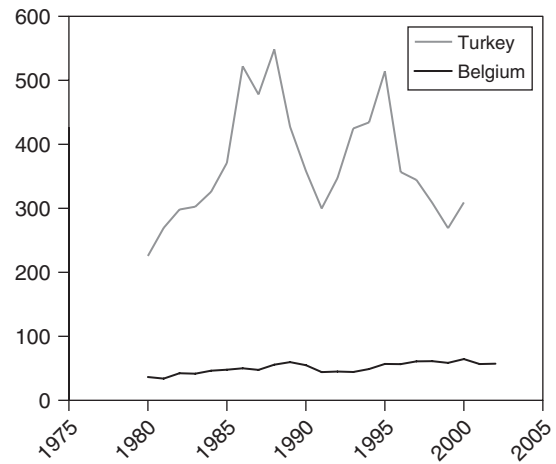
sectoral output, exports, and imports, the domestic demand D will be equal to $D = Q - X + M$, and the rate of import penetration will equal $[M * 100/D]$. A low level of penetration does not necessarily mean that there are barriers to entry. The table reveals that the professional and scientific measuring equipment sector had the highest import penetration with 69.28 percent, followed by the machinery sector with 63.39 percent and electrical machinery with 62.00 percent. Column eight of table 3.12 gives the export ratio, defined as $[X * 100/Q]$. From the table, it follows that the wearing apparel and footwear sector had the highest export ratio at 86.35 percent, followed by other manufacturing industries at 61.23 percent, furniture and fixtures at 44.26 percent, and textiles at 39.88 percent. Finally, column nine gives the rate of exposure to international competition, defined as $[(export\ ratio) + [1 - (export\ ratio/100)] * import\ penetration]$. The construction of this indicator rests on the idea that the exported share of production is 100 percent exposed and that the share sold on the domestic market is exposed in the same proportion as the penetration of the market. The table reveals that the wearing apparel and footwear sector had the highest exposure to international competition with an index value of 90.54 percent, followed by the other manufacturing industries sector with an index value of 83.20 percent and the electrical machinery sector with an index value of 76.53 percent.

Defining the markup by the relation

$$(3.4) \quad \lambda = \frac{(value\ added - labor\ cost)}{labor\ cost}$$

we note from the first two columns of table 3.13 that the markup calculated for three-digit International Standard Industrial Classification (ISIC) sectors in Turkey are much higher than the markup in Belgium, a small open economy considered to be the benchmark country in the analysis. The data in this table were obtained from the “Annual Manufacturing Industry Statistics” of the State Institute of Statistics for the period 1999–2000 for the Turkish economy, and from the OECD STAN Database for Belgium for the period 1997–99. The table shows that the markups in all other sectors in Turkey exceed those in Belgium, and that the average markup in Turkey relative to that in Belgium, $[(1 + \lambda)/(1 + \lambda')]$, is highest in the sectors coke, refined petroleum products, and nuclear fuel

FIGURE 3.1 Average Value of Markups for Manufacturing, 1980–2000



(ISIC 353 + 354); other manufacturing (ISIC 39); and wood and products of wood (ISIC 331). The lowest average markups (in Turkey relative to those in Belgium, $[(1 + \lambda)/(1 + \lambda')]$, are found in the sectors paper and paper products (ISIC 341); leather, leather products, and footwear (ISIC 323 + 324); and nonferrous metals (ISIC 372). Figure 3.1 plots the average value of the markup for the manufacturing industry over the period 1980–2000. On the other hand, defining the markup as

$$(3.5) \quad \lambda = \frac{(output - labor\ cost - material\ cost)}{(labor\ cost + material\ cost)}$$

we note from the last two columns of table 3.13 that the markups in Turkey exceed those in Belgium except in the sectors electrical and optical equipment (ISIC 383 + 385); iron and steel (ISIC 371); and publishing, printing, and reproduction of recorded media (ISIC 342). The average markup in Turkey relative to that in Belgium, $[(1 + \lambda)/(1 + \lambda')]$, is now highest in the sectors tobacco products (ISIC 314); other nonmetallic mineral products (ISIC 36); and coke, refined petroleum products, and nuclear fuel (ISIC 353 + 354). The results are striking. They indicate the lack of competition in the Turkish manufacturing sector.

To further illustrate the arguments about the conditions of competition in the Turkish manufacturing sector, we consider in table 3.14 the four-firm concentration ratios. The table reveals that the concentration ratios are relatively high and that the most concentrated sectors are the manufacture of coke coal and briquettes (ISIC 3542), manufacture of sporting and athletic goods (ISIC 3903),

TABLE 3.13 Average Markups, Turkey and Belgium
(percent)

ISIC	Commodity	Markup I		Markup II	
		Turkey, 1999–2000	Belgium, 1997–1999	Turkey, 1999–2000	Belgium, 1997–1999
31	Food and beverages and tobacco				
311 + 312 + 313	Food products and beverages	347.52	80.03	46.49	29.66
314	Tobacco products	362.79	100.54	74.76	19.78
32	Textiles, apparel, and leather				
321	Textiles	268.62	53.29	52.69	37.66
322	Wearing apparel, dressing, and dyeing of fur	252.56	45.01	45.73	26.52
323 + 324	Leather, leather products, and footwear	211.08	55.45	49.84	47.96
33	Wood products				
331	Wood and products of wood and cork	427.71	51.09	59.09	39.72
332	Furniture; manufacturing NEC	381.65	45.59	66.02	43.22
34	Paper, paper products				
341	Paper and paper products	215.81	71.33	57.24	47.09
342	Publishing, printing, and reproduction of recorded media	312.06	60.19	54.77	61.46
35	Chemical products				
353 + 354	Coke, refined petroleum products, and nuclear fuel	1,628.89	174.81	52.48	14.53
351 + 352 – 3522	Chemicals, excluding pharmaceuticals	384.18	80.80	67.88	43.63
3522	Pharmaceuticals	404.26	115.64	107.81	76.67
355 + 356	Rubber and plastics products	312.54	66.59	66.74	42.76
36	Nonmetallic minerals				
36	Other nonmetallic mineral products	387.83	60.35	109.65	56.55
37	Basic metals				
371	Iron and steel	202.95	37.78	34.65	38.63
372	Nonferrous metals	196.86	44.10	30.97	19.69
38	Fabricated metal				
381	Fabricated metal products, except machinery and equipment	290.62	42.38	74.69	49.58
382	Machinery and equipment NEC	239.35	50.04	62.49	54.58
383 + 385	Electrical and optical equipment	274.18	39.49	55.84	59.07
384	Transport equipment	274.78	36.18	47.63	24.37
39	Other manufacturing				
39	Manufacturing NEC	479.38	51.03	49.40	37.72

Note: ISIC = International Standard Industrial Classification; NEC = not elsewhere classified.

Sources: OECD STAN Database and annual manufacturing industry statistics provided by the Turkish State Institute of Statistics.

manufacture of aircraft (ISIC 3845), manufacture of watches and clocks (ISIC 3853), tire and tube industries (ISIC 3551), and petroleum refineries (ISIC 3530). The most competitive sectors are manufacture of wearing apparel (ISIC 3222); spinning, weaving, and finishing textiles (ISIC 3211); manufacture of plastic products (ISIC 3560); and knitting mills (ISIC 3213).

In summary, with the formation of the EU-Turkey customs union Turkish industries became subject to greater competition. But markups and concentration ratios are still high compared with those in benchmark countries such as Belgium.²² It seems that Turkey has to complete the harmonization of technical regulations, privatize its public enterprises, liberalize entry and exit into

TABLE 3.14 Concentration of Domestic Activity, 1997–2000
(four-firm concentration ratios)

ISIC Rev 2	Commodity	1997	1998	1999	2000
3111	Slaughtering, preparing, and preserving meat	34.15	29.64	32.45	31.13
3112	Manufacture of dairy products	51.54	50.25	51.55	49.57
3113	Canning and preserving of fruits and vegetables	19.08	17.34	16.16	18.90
3114	Canning, preserving, and processing of fish and crustacea	91.72	89.85	81.40	84.98
3115	Manufacture of vegetable and animal oils and fats	46.66	42.28	43.25	43.92
3116	Grain mill products	17.01	17.97	25.46	24.30
3117	Manufacture of bakery products	29.52	30.37	31.30	34.81
3118	Sugar factories and refineries	39.14	33.43	35.94	31.62
3119	Manufacture of cocoa, chocolate and sugar confectionery	58.61	49.26	51.03	53.03
3121	Manufacture of food products NEC	25.47	28.75	21.88	24.94
3122	Manufacture of prepared animal feeds	22.66	26.41	27.40	28.95
3131	Distilling, rectifying, and blending spirits	60.97	66.08	71.99	74.50
3132	Wine industries	74.24	74.21	80.89	75.16
3133	Malt liquors and malt	74.56	80.12	69.04	76.49
3134	Soft drinks and carbonated waters industries	63.17	64.82	60.90	66.06
3140	Tobacco manufactures	54.81	58.92	57.64	70.82
3211	Spinning, weaving, and finishing textiles	9.90	7.68	9.44	11.08
3212	Manufacture of madeup textile goods, except wearing apparel	21.74	22.99	24.71	25.32
3213	Knitting mills	14.93	12.20	22.89	13.95
3214	Manufacture of carpets and rugs	43.34	41.66	43.84	39.65
3215	Cordage, rope, and twine industries	82.12	88.77	70.69	95.91
3219	Manufacture of textiles NEC	67.88	65.07	66.28	65.04
3221	Manufacture of fur and leather products	23.98	23.95	22.03	24.89
3222	Manufacture of wearing apparel, except fur and leather	12.03	7.45	8.79	9.21
3231	Tanneries and leather finishing	21.42	30.47	19.40	19.42
3233	Manufacture of products of leather and leather substitutes	58.23	68.77	57.75	61.04
3240	Manufacture of footwear, except vulc. or molded rubber	34.04	32.18	38.43	28.27
3311	Sawmills, planing, and other wood mills	37.98	34.23	38.27	35.16
3312	Manufacture of wooden and cane containers and small cane ware	61.99	47.05	64.11	51.02
3319	Manufacture of wood and cork products NEC	67.83	60.53	63.29	60.22
3320	Manufacture of furniture and fixtures, except primarily of metal	45.99	44.06	44.37	49.66
3411	Manufacture of pulp, paper, and paperboard	55.42	42.42	39.29	38.82
3412	Manufacture of containers and boxes of paper and paperboard	24.46	25.52	27.95	26.09
3419	Manufacture of pulp, paper, and paperboard articles	45.79	41.45	56.87	47.00
3421	Printing, publishing, and allied industries	63.28	40.42	50.08	45.55
3511	Manufacture of basic industrial chemicals, except fertilizers	47.00	53.20	54.64	67.81
3512	Manufacture of fertilizers and pesticides	56.58	54.43	55.28	54.65
3513	Manufacture of synthetic resins, plastic materials	92.64	88.30	90.34	86.91
3521	Manufacture of paints, varnishes, and laquers	49.15	45.49	39.82	38.84
3522	Manufacture of drugs and medicines	31.28	31.59	29.74	33.37
3523	Manufacture of soap and cleaning preparations, perfumes	62.17	66.35	71.32	63.36
3529	Manufacture of chemical products NEC	37.67	44.02	44.98	43.68
3530	Petroleum refineries	97.81	97.86	97.51	97.39

TABLE 3.14 (Continued)

ISIC Rev 2	Commodity	1997	1998	1999	2000
3541	Manufacture of asphalt paving and roofing materials	88.54	73.54	72.19	92.33
3542	Manufacture of coke coal and briquettes	100.00	100.00	100.00	100.00
3543	Compounded and blended lubricating oils and grease	87.51	85.54	79.22	88.25
3544	Liquid petroleum gas tubing	88.96	84.60	87.49	84.17
3551	Tire and tube industries	97.88	98.03	98.24	99.08
3559	Manufacture of rubber products NEC	28.85	22.80	25.84	23.66
3560	Manufacture of plastic products NEC	18.01	16.38	16.48	14.41
3610	Manufacture of pottery, china, and earthenware	74.71	58.05	60.97	69.81
3620	Manufacture of glass and glass products	43.64	40.68	42.21	39.51
3691	Manufacture of structural clay products	47.09	43.91	41.59	42.78
3692	Manufacture of cement, lime, and plaster	31.23	29.52	33.68	34.95
3699	Manufacture of nonmetallic mineral products	27.70	26.82	25.89	20.08
3710	Iron and steel basic industries	32.29	31.76	36.69	32.91
3720	Nonferrous metal basic industries	40.27	42.40	44.92	49.06
3811	Manufacture of cutlery, hand tools, and general hardware	28.72	33.58	20.19	24.52
3812	Manufacture of furniture and fixtures, primarily of metal	49.40	43.18	45.58	40.87
3813	Manufacture of structural metal products	23.59	24.04	24.80	24.41
3819	Manufacture of fabricated metal products	26.31	25.96	27.67	23.85
3821	Manufacture of engines and turbines	92.31	88.68	86.78	92.53
3822	Manufacture of agricultural machinery and equipment	81.46	81.59	79.93	80.73
3823	Manufacture of metal and wood working machinery	46.89	45.84	37.63	35.70
3824	Manufacture of special industrial machinery and equipment	26.99	26.61	21.65	21.16
3825	Manufacture of office, computing, and accounting machinery	75.13	86.06	82.19	90.88
3829	Machinery and equipment, except electrical	51.73	49.54	54.52	48.10
3831	Manufacture of electrical industrial machinery and apparatus	58.63	56.01	57.51	53.22
3832	Manufacture of radio, television, and communication equipment	75.40	69.75	64.74	62.37
3833	Manufacture of electrical appliances and housewares	48.54	51.99	51.95	45.45
3839	Manufacture of electrical apparatus and supplies	27.08	24.94	29.73	26.14
3841	Ship building and repairing	50.28	46.01	48.48	52.18
3842	Manufacture of railroad equipment	98.04	98.78	96.62	94.21
3843	Manufacture of motor vehicles	40.81	40.60	46.44	47.32
3844	Manufacture of motorcycles and bicycles	78.79	77.45	80.31	76.12
3845	Manufacture of aircraft	100.00	100.00	100.00	99.78
3849	Manufacture of transport equipment NEC	94.08	95.81	94.22	100.00
3851	Controlling equipment NEC	34.87	43.34	36.34	55.93
3852	Manufacture of photographic and optical goods	62.06	76.78	81.98	84.30
3853	Manufacture of watches and clocks	100.00	100.00	100.00	98.73
3854	Other	79.65	81.46	65.87	65.64
3901	Manufacture of jewelry and related articles	48.80	46.02	47.12	53.39
3902	Manufacture of musical instruments	100.00	100.00	—	—
3903	Manufacture of sporting and athletic goods	100.00	100.00	100.00	100.00
3909	Manufacturing industries NEC	31.38	32.74	39.74	45.58

— Not available.

Note: For abbreviations, see table 3.13.

Source: Turkish State Institute of Statistics.

various sectors of the economy, and impose hard budget constraints on all public and private enterprises. Further integration with the EU will then remove the distortions in the price system, which, in turn, will boost the allocative efficiency in the economy.

Conclusion

Although customs duties and equivalent charges, as well as quantitative restrictions on industrial products, were eliminated with the formation of the customs union in 1996 between Turkey and the EU, the free movement of industrial products between the parties could not be established until 2003. The two remaining issues are contingent protectionism and technical barriers to trade. Article 44 of the Customs Union Decision allows the EU to impose antidumping measures until Turkey implements effectively the competition rules and the rules on the intellectual, industrial, and commercial property rights of the customs union. Similar considerations apply for Turkey. Since 1996, both parties have been active users of these measures.

On another front, under Decision 2/97 of the Association Council, Turkey had to incorporate into its internal legal order, before the end of 2000, 324 instruments corresponding to various European Economic Community and European Community regulations and directives on technical legislation. But the work has still not been completed. In addition, Turkey has to align its national quality infrastructure to the European one. Products manufactured in Turkey must satisfy the same requirements as those prevailing in the EU, and the demonstration of conformity to these requirements must be done in the same “harmonized” way and according to the same principles as in the EU. Recently, Turkey has taken major steps to align its legislation with the *acquis*. But it still has to establish the operators and operation of standardization, testing, certification, inspection, accreditation, and metrology according to the same principles and obeying the same rules as in the EU. Once these problems are solved, competition will increase in the economy, leading to decreases in markups and concentration ratios, provided it is complemented with privatization and adoption of appropriate competition policies. Thus, to benefit from free trade between the parties, Turkey has to adopt and

implement the whole body of EU legislation—that is, the *acquis communautaire*, and in particular the rules on competition, intellectual, industrial, and commercial property rights, and the whole body of technical legislation on a sectoral as well as a horizontal level.

Notes

1. The authors wish to thank their discussant, Bernard Hoekman, and anonymous referees for helpful comments. İbrahim Yılmaz and Harun Çelik provided excellent research support.
2. For a discussion of the trade regime during the 1980s, see Togan (1994).
3. All dollar amounts are U.S. dollars unless otherwise indicated.
4. EU15 refers to the 15 members of the EU prior to the 2004 enlargement in which 10 more countries joined the EU. The 15 countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
5. The mass housing fund tax is a specific tariff imposed mainly on agricultural commodities.
6. The average rates of nominal protection were derived by weighting nominal rates estimated as applied rates for the sectors by sectoral outputs valued at world prices. The average rates of effective protection were obtained by weighting effective rates estimated for the sectors by sectoral value added evaluated at world market prices.
7. These are the sectors with negative EPRs and with values greater than -100 .
8. The classification of the sectors into four trade groups follows the same rule adopted by Balassa and others (1982). The export category includes sectors whose exports amount to more than 10 percent of domestic production and whose imports account for less than 10 percent of domestic consumption. For sectors classified as export and import competing, both of these shares exceed 10 percent. The import-competing and non-import-competing categories include sectors whose exports amount to less than 10 percent of domestic production. In sectors in the import-competing category, imports exceed 10 percent of domestic consumption. In sectors in the non-import-competing category, imports are less than 10 percent of domestic consumption.
9. The authors are grateful to Ela Yazıcı Inan for her contributions to this section. On technical barriers to trade, see Sykes (1995).
10. Directive 83/189/EEC, amended by Directive 98/34/EC, established the requirements that member states notify draft regulations and that national standards bodies notify work on new standards.
11. Consider the machinery directive that applies to all machinery and to safety components. The directive defines a machine as “an assembly of linked parts or components, at least one of which moves.” Annex I of the directive gives a comprehensive list of the hazards that may arise from the design and operation of machinery, and gives general instructions on what hazards must be avoided. The directive requires the machine manufacturer to produce a “technical file” of documentary evidence that the machinery complies with the directive, the form and content of which is dictated in the directive. Machinery

meeting the requirements of the directive is required to have the CE symbol clearly affixed to indicate compliance. An item of equipment may only display the CE mark when the equipment satisfies all relevant directives—for example, machines with electrical controls must also comply with the requirements of the low voltage and electromagnetic compatibility (EMC) directives. For most items of machinery, the manufacturer (or its authorized representative) can self-certify—that is, it designs its products to meet the requirements of the directive and signs a Declaration of Conformity. This declaration of conformity must be backed up with the technical file. The file must be retained for a period of 10 years after the manufacture of the machine (or the last machine of a production run). For certain especially dangerous items of machinery (known as Annex IV machines), justification of use of the CE mark must be independently verified by a recognized authority (called an “approved body” or “notified body”). Manufacturers of Annex IV machines are required to compile a technical file that shows how the machinery has been constructed to meet the requirements of the directive. The file is then audited by the notified body to confirm that the directive’s requirements have indeed been met, and a sample of the machinery is examined to confirm that it is constructed as described in the file. If a harmonized standard for a particular type of Annex IV machine exists, the manufacturer can avoid the expense of type examination by manufacturing the machine fully in accordance with the standard. All that is then required is that the file be lodged with a notified body, but the notified body does not have to give an opinion on the machine—it simply acts as an independent repository for the file. This procedure can only be applied to machines that are manufactured fully in accordance with the harmonized standard. If there are any deviations from the standard (e.g., a light guard is fitted where the standard says a physical guard is required), the full type approval route must be followed.

12. This section reports the state of affairs on technical barriers to trade in Turkey as of 2003.

13. Law 4703 is based on Council Directive 92/59/EEC on general product safety, Council Regulation 85/C 136/01 on the new approach to technical harmonization and standards, and the Council resolution of December 1989 on the global approach to conformity assessment.

14. The legislation on market surveillance was prepared using Council Directive 92/59/EEC on general products safety, the Council resolution of December 1989 on the global approach to conformity assessment, Council Directive 88/378/EEC on the approximation of the laws of the member states on the safety of toys, and on a European Commission implementation guide (2000). The legislation on working principles and procedures for the conformity assessment bodies and notified bodies was prepared using the material in chapter 6 of the European Commission guide (2000). The legislation on the use and affixing of the CE conformity mark is based on Council Decision 93/465/EEC on the modules for the various phases of the conformity assessment procedures and the rules for affixing and the use of the CE conformity marking. Finally, the legislation on notification procedures between Turkey and the EU for technical legislation and standards is based on Council Directive 98/34/EC, laying down a procedure for the provision of information in the field of technical standards and regulations and the relevant section of Decision 2/97 of the EC-Turkey Association Council.

15. Under a law published on October 27, 1999, TURKAK is the national accreditation body in all fields. But the regulations that gave the Turkish Standards Institute (TSE) and Turkish

Scientific and Technical Research Council (TUBITAK) the power to accredit are still in force.

16. The TSE was established in 1954 to draw up standards for all kinds of products and services.

17. For automotive products, the “e” sign confirms conformity.

18. UME is organized as part of TUBITAK. UME has calibration laboratories in mechanics, physics, electricity, ionizing radiation, and chemicals. The laboratories under construction include EMC, acoustics, and liquid flow.

19. We use four-digit SITC trade data and correspondences between the NACE, International Standard Industrial Classification, and Standard Identification Trade Classification classifications provided by the Eurostat’s Classification Server (<http://europa.eu.int/comm/eurostat/ramon/>).

20. *Manufactures* are defined as consisting of sectors under SITC sections 5, 6, 7, and 8 minus division 68 and group 891.

21. Although Turkey realizes that the major pillars of a competition policy must comprise privatization, liberalization of entry and exit, imposition of hard budget constraints on all public and private enterprises, and a very liberal trade regime, it faces difficulties in implementing these principles.

22. For concentration ratios in Slovakia and Belgium, see Djankov and Hoekman (1998).

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