

ANALYSIS OF THE IMPACT OF EU ENLARGEMENT ON THE AGRICULTURAL MARKETS AND INCOMES OF TURKEY

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Integration into the European Union (EU) is one of Turkey's central foreign policy priorities.¹ As a part of this integration, Turkey will have to adopt an agricultural policy and institutional framework compatible with the EU's Common Agricultural Policy (CAP) and accept the full body of the legislation and policies on agriculture in the EU as it exists on the date of accession. For Turkey, the adoption of EU-like agricultural policies will constitute a significant modification of current policies, and such policies will have enormous implications for the incomes of both farmers and the wider population.

The purpose of this chapter is to explore these issues of EU enlargement to Turkey. The chapter is organized as follows. The first section reviews the agricultural situation in Turkey. The second and third sections consider the agricultural policies in Turkey and in the EU, respectively, as they are now and as they may evolve in line with changes recently proposed formally by the European Commission (the administrative arm of the EU government). The impact of introducing the CAP is analyzed in the fourth section using a partial equilibrium model of the agricultural sector. The fifth section discusses issues related to institutional development. Conclusions are presented in the final section.

Agricultural Situation

Agriculture is an important part of the Turkish economy; it contributes about 12 percent to the

gross domestic product (GDP), while the corresponding figure for the EU15 is 1.7 percent.² Although the Turkish GDP grew at 4 percent per year over the period 1980–2003, the growth rate of agriculture was only 1.1 percent per year, and it fluctuated widely over the period. As a result, the sector shrank as a share of the economy, from 25 percent in 1980 to 12 percent in 2003. The sector still accounts for a very large share of employment, although this share has also fallen considerably. Between 1980 and 2003, the number of people employed in agriculture fluctuated between 7.2 million and 9.2 million, but because of a steady increase in employment in other sectors, agriculture's share in civilian employment dropped from 54.2 percent in 1980 to 33.9 percent in 2003.

Turkey has a total land area of 78 million hectares (see table 2.1 for land use in Turkey). The total agricultural area of 39 million hectares consists of arable land (24 million hectares), the area used for permanent crops (2.5 million hectares), and permanent meadows and pastures (12.7 million hectares). Fallow land makes up more than 20 percent of total arable cropland. In addition, Turkey has slightly more than 20 million hectares of forested land. The total irrigated area is about 4.5 million hectares, or 19 percent of total arable area. It is estimated that the country can potentially irrigate about 8.5 million hectares.

Turkey's agricultural land, exposed to both maritime and continental weather conditions, tolerates

TABLE 2.1 Land Use in Turkey, 1995 and 2000

	1995 (thousand hectares)	Percentage Distribution	2000 (thousand hectares)	Percentage Distribution
Arable land	24,373	31.5	23,826	30.8
Area sown	18,464	23.8	18,207	23.5
Vegetable gardens	785	1.0	793	1.0
Fallow land	5,124	6.6	4,826	6.2
Permanent crops	2,461	3.2	2,553	3.3
Vineyards	565	0.7	535	0.7
Orchards	1,340	1.7	1,418	1.8
Olive groves	556	0.7	600	0.8
Permanent meadows and pastures	12,659	16.3	12,671	16.4
Total agricultural land	39,493	51.0	39,050	50.4
Forests and woodland	20,199	26.1	20,703	26.7
Other land	17,271	22.3	17,210	22.2
Total land area	76,963	99.3	76,963	99.3
Total area	77,482	100	77,482	100

Source: Food and Agriculture Organization Statistical Database.

TABLE 2.2 Value of Agricultural Production: Turkey, 2000

Product	Value (US\$ millions)	Percentage Distribution
Crops	28,163	68.48
Livestock	10,600	25.77
Forestry	1,101	2.68
Fishing	1,246	3.03
Total	41,129	100.00

Source: Turkish State Planning Organization.

a wide range of crops. Climate and geography also have an important bearing on the location and type of animal husbandry carried out in Turkey. According to table 2.2, which shows the value of agricultural production during 2000, crops account for 69 percent of production value, livestock products for 26 percent, forestry for 3 percent, and fishing products for 3 percent.

In Turkey, the family-owned farm is the basic unit of agricultural production, and family members provide most of the farm labor. The number and size of holdings are inferred from agricultural censuses, which are conducted every 10 years on the basis of small sample surveys. The picture that emerges from these censuses is that of a large

number of small farms. The 2001 census revealed that 83.4 percent of farms had less than 10 hectares of land. The average size of farm holdings was 6.1 hectares (see table 2.3).³

An examination of Turkey's foreign trade in the agricultural commodities HS (Harmonized System) 01–24, HS 41.01–41.03, HS 51.01–51.03, and HS 52.01–52.03 reveals that over the period 1999–2001 the average annual agricultural exports amounted to US\$4.06 billion, or about 14.2 percent of total exports.⁴ Turkey's agricultural exports to the EU of \$1.8 billion made up about 12 percent of its total exports to the EU. By contrast, Turkey's total agricultural imports amounted on average to \$2.7 billion, or about 6.2 percent of total imports. Agricultural imports from the EU, valued at \$0.7 billion, made up about 3.2 percent of Turkey's total imports from the EU.

Table 2.4 shows that the three agricultural commodities with the highest shares of total agricultural exports were edible fruits and citrus fruits, 28.5 percent; foods made of vegetables, fruits, and other plants, 13.0 percent; and processed tobacco and substitutes, 12.2 percent. The three agricultural commodities with the highest shares of exports to the EU, of total agricultural exports to the EU, were edible fruits and citrus fruits; foods made of vegetables, fruits, and other plants; and processed tobacco

TABLE 2.3 Agricultural Holdings and Land Engaged in Crop Production, Turkey

Size of Holdings (decares)	Holdings		Total Area		Average Size of Farm Holdings (decares)
	Number	Percent	Decares	Percent	
Less than 5	177,893	5.89	481,605	0.26	3
5–9	290,327	9.61	1,951,672	1.06	7
10–19	539,507	17.86	7,374,515	4.00	14
20–49	950,539	31.46	29,523,341	16.02	31
50–99	559,999	18.54	38,123,216	20.68	68
100–199	327,330	10.83	43,881,626	23.81	134
200–499	153,688	5.09	42,076,313	22.83	274
500–999	17,431	0.58	11,218,554	6.09	644
1,000–2,499	4,198	0.14	5,476,930	2.97	1,305
2,500–4,999	222	0.01	695,541	0.38	3,133
5,000 +	56	0.00	3,526,174	1.91	62,967
Total	3,021,190	100	184,329,487	100	61

Note: The figures on the number of holdings and area are from the 2001 census.

Source: Turkish State Institute of Statistics.

and substitutes. Yet the three agricultural commodities with the highest shares of exports to the EU, of total sectoral exports, were other animal products, 95.3 percent; products made from meat, fish, and crustacea, 83.9; and plants and floriculture products, 76.1. Overall, exports of agricultural commodities to the EU formed 44.3 percent of all of Turkey's agricultural exports.

As for imports of agricultural commodities, the three commodities with the highest shares of total agricultural imports were cotton, 19.0 percent; animal or vegetable oils and fats, 13.6 percent; and cereals, 12.0 percent. The three agricultural commodities with the highest shares of imports from the EU, of total agricultural imports from the EU, were cotton, hides and skin, and animal or vegetable oils and fats. Finally, the three agricultural commodities with the highest shares of imports from the EU, of total sectoral imports, were plants and floriculture products, 89.4 percent; cereal products, wheat flour, and pastries, 89.3 percent; and vegetable lacquers, resins, and balsams, 86.4 percent. Overall, imports of agricultural commodities from the EU made up 25.7 percent of all agricultural imports.

Table 2.4 further reveals that Turkey is a net exporter of commodities such as edible fruits and citrus fruits; foods made of vegetables, fruits, and other plants; and sugar and sweets. It is a net

importer of commodities such as cotton and oilseeds, various seeds and fruits, and industrial plants. By contrast, in its trade with the EU, Turkey is a net exporter of edible fruits and citrus fruits; foods made of vegetables, fruits, and other plants; and processed tobacco and substitutes. It is a net importer of hides and skin, cotton, and various foods.

Agricultural Policies in Turkey

The main objectives of agricultural policies in Turkey are set out in the government's five-year development plans. These objectives are to (1) ensure adequate levels of nutrition, (2) increase yield and output, (3) reduce the vulnerability of production to adverse weather conditions, (4) raise levels of self-sufficiency, (5) provide adequate, stable incomes for those working in the agricultural sector, (6) increase exports, and (7) develop rural areas. In pursuit of these objectives, the government has implemented various measures. In the crops sector, government interventions have primarily taken the form of price supports, augmented by high tariffs. In the livestock sector, quantitative restrictions and tariffs have been the main mechanism used to support prices. In addition, farmers were given input subsidies and credits to improve

TABLE 2.4 Exports and Imports of Agricultural Commodities: Turkey, 1999–2001

Harmonized System (HS) Code	Description	Exports		Exports to EU, Average 1999–2001 (US\$ thousands)	Exports from EU as a Share of Total Exports	Imports		Imports from EU, Average 1999–2001 (US\$ thousands)	Imports from EU as a Share of Total Imports	Net Exports, Average 1999–2001 (US\$ thousands)	Net Exports in Trade with EU, Average 1999–2001 (US\$ thousands)
		Average, 1999–2001 (US\$ thousands)	Percentage Distribution			Average, 1999–2001 (US\$ thousands)	Percentage Distribution				
<i>Live animals and animal products</i>											
01	Live animals	19,159	0.47	1,471	7.68	26,326	0.98	15,467	58.75	–7,168	–13,996
02	Meat and edible offal	13,916	0.34	708	5.09	418	0.02	64	15.41	13,498	643
03	Fish and sea products	54,154	1.33	38,532	71.15	22,508	0.83	12,378	54.99	31,647	26,154
04	Milk and dairy products; eggs; honey	35,301	0.87	6,316	17.89	30,824	1.14	20,828	67.57	4,477	–14,512
05	Other animal products	36,423	0.90	34,701	95.27	18,860	0.70	2,516	13.34	17,563	32,185
<i>Vegetable products</i>											
06	Plants and floriculture products	15,262	0.38	11,613	76.09	16,203	0.60	14,490	89.43	–941	–2,877
07	Vegetables, plants, roots, tubers	304,529	7.50	100,117	32.88	75,451	2.80	6,605	8.75	229,079	93,512
08	Edible fruits; citrus fruits	1,159,461	28.54	743,676	64.14	57,082	2.12	6,103	10.69	1,102,379	737,573
09	Coffee, tea, spices	58,123	1.43	22,574	38.84	27,450	1.02	3,135	11.42	30,673	19,439
10	Cereals	203,561	5.01	33,582	16.50	323,726	12.00	57,506	17.76	–120,165	–23,923
11	Products of the milling industry	82,013	2.02	26,202	31.95	5,175	0.19	4,431	85.61	76,838	21,772
12	Oilseeds, various seeds/fruits; industrial plants	52,430	1.29	28,351	54.07	233,454	8.66	31,223	13.37	–181,024	–2,872
13	Vegetable lacquers, resins, balsams	1,341	0.03	145	10.84	14,110	0.52	12,194	86.42	–12,770	–12,049
14	Vegetable plaiting materials	16,471	0.41	10,819	65.68	2,695	0.10	62	2.28	13,776	10,757

<i>Animal or vegetable oils and fats</i>											
15	Animal or vegetable oils and fats	241,189	5.94	81,999	34.00	366,550	13.59	74,579	20.35	-125,361	7,419
<i>Foodstuffs, beverages, tobacco</i>											
16	Products made from meat, fish, crustacea	34,964	0.86	29,342	83.92	830	0.03	369	44.43	34,134	28,973
17	Sugar and sweets	258,178	6.36	25,237	9.77	14,019	0.52	9,125	65.09	244,158	16,112
18	Cocoa and cocoa products	81,023	1.99	12,256	15.13	68,351	2.53	22,007	32.20	12,672	-9,751
19	Cereal products, wheat flour, pastries	116,732	2.87	13,538	11.60	30,841	1.14	27,544	89.31	85,891	-14,006
20	Foods made of vegetables, fruits, and other plants	528,298	13.00	352,375	66.70	17,542	0.65	12,057	68.73	510,757	340,319
21	Various foods	93,845	2.31	11,226	11.96	101,011	3.75	81,416	80.60	-7,165	-70,190
22	Alcoholic and nonalcoholic beverages	38,877	0.96	18,984	48.83	14,331	0.53	12,365	86.28	24,546	6,619
23	Residues of food industry; fodders	13,271	0.33	357	2.69	167,152	6.20	17,820	10.66	-153,881	-17,463
24	Processed tobacco and substitutes	496,247	12.22	145,360	29.29	308,653	11.45	11,652	3.77	187,594	133,708
<i>Hides, wool, and cotton</i>											
4101-4103	Hides and skin	21,519	0.53	209	0.97	199,473	7.40	106,243	53.26	-177,954	-106,035
5101-5103	Wool and animal hair	6,553	0.16	3,255	49.67	42,362	1.57	1,905	4.50	-35,809	1,350
5201-5203	Cotton	79,630	1.96	46,330	58.18	511,392	18.96	129,916	25.40	-431,762	-83,586
Total		4,062,470	100.00	1,799,277	44.29	2,696,790	100.00	694,001	25.73	1,365,680	1,105,276

Source: The authors.

yields and income and to counterbalance the implicit protection given to domestic input industries through border measures. Finally, administrative controls have been applied to the production of a few important crops.

Output Price Supports, Input Subsidies, and Supply Control Measures

Output price supports, input subsidies, and supply control measures are three important components of agricultural support policies. *Government price supports* for most major crops (such as grains, oilseeds, cotton, sugar beet, tobacco, hazelnut, and tea) have in the past been announced by decree each year, but this practice is changing because of the reform program discussed later in this section on agricultural policies. Related state-owned enterprises (SOEs) and agricultural sales cooperative unions (ASCUs) were commissioned to buy at the announced floor prices. Crops could also be sold to independent buyers. For some crops, a system of “deficiency payments” or premiums was introduced in 1993 in place of floor prices. The High Planning Council announced a target price for those crops as well as an intervention price, and the target price moved in parallel with the world prices. Farmers selling their crop to ASCUs or commodity exchanges received the difference between the price obtained and the target price in the form of a payment directly from the state-owned Turkish Bank of Agriculture. The payment was then reimbursed by the Treasury. The deficiency payments were implemented for sunflower seed, soybean, cotton, and olive oil. Tea growers were also fully compensated for the costs incurred in implementing the strict pruning requirements to control supply. Direct payments were, until recently, only a minor part of the agricultural support system. The main types of direct payments were natural disaster relief, the return on sugar beet pulp, deficiency payments for oilseeds and cotton, and incentive premiums for milk and meat.

Input subsidies are a second important component of agricultural support policies. The most important have been the credit, fertilizer, and irrigation subsidies. Short-term and investment credit for agriculture has long been subsidized by the government at interest rates well below inflation and commercial rates. The result is that interest rates on

loans from the Turkish Bank of Agriculture have been significantly negative in real terms. In addition, the unpaid loans of the ASCUs have been routinely covered as “duty losses” of the Treasury.

The domestic manufacturers and consumers of fertilizers have received subsidies since 1961. The subsidy was set until recently as a percentage of market price, with the percentage varying considerably over the years. In 1996 and 1997, the subsidy was about 40–50 percent of the market price, depending on the type of fertilizer. In November 1997, the government decided to fix the fertilizer subsidy at a nominal amount of Turkish lira (TL) per kilogram. This shift in policy has reduced the fertilizer subsidy substantially in real terms, and inflation has eroded its value.

Agriculture has also received substantial subsidies through irrigation projects. The Turkish government has been investing heavily in irrigation, financing the associated capital investments largely through the budget. Farmers have paid no fee for the resource value of water they have used for irrigation, whether privately extracted or supplied by a public scheme, even though farmers who grew crops on irrigated land did contribute to the cost of operating and maintaining the infrastructure. But even in this situation the bulk of operating and maintenance costs were financed through budget allocations.

Supply control measures, the third component of Turkish agricultural policies, have been used to control the fiscal cost of support policies. Tobacco, hazelnuts, and tea have been under area or production control. Sugar beet output has been indirectly controlled to some extent by the state-owned sugar company (Şeker) through contracts with growers. Tobacco farmers have received payments to compensate for the area controls, and tea producers to compensate for lost production from pruning.

Agricultural producers have also received general services either free or at subsidized prices. The measures taken to improve the production basis of agriculture were mainly research, training and extension services, inspection, pest and disease control, and land improvements (including capital investments in small-scale irrigation works). In addition, only the large farms are required to pay income tax. In all transactions related to agriculture, a 5 percent sales tax is applied at the point of sale. Consumers have not benefited from subsidies

directly. They are protected indirectly through price controls, market intervention, and a lower value-added tax on food.

Agricultural Trade Policy

Table 2.5 shows the applied most-favored-nation (MFN) tariff rates for the major agricultural commodity groups during 2002. The table reveals that the agricultural sector is highly protected in Turkey. The three sectors with highest simple average tariff rates applied to imports from third countries are the products made from meat, fish, and crustacea (HS 16) with a tariff rate of 132.70 percent; meat and edible offal (HS 02), 116.52 percent; and milk and dairy products (HS 04), 105.20 percent. The three sectors with the highest weighted average tariff rates applied to imports from third countries are products made from meat, fish, and crustacea (HS 16) with a tariff rate of 124.08 percent; sugar and sweets (HS 17), 124.08 percent; and edible fruits and citrus fruits (HS 08), 120.17 percent. The table also reveals that Turkey, upon becoming a member of the EU, could have to change its tariff schedule on agricultural commodities substantially. To align its tariff schedule with the current EU schedule, Turkey would have to increase its tariffs on cereals; processed tobacco and substitutes; residues of the food industry and fodders; alcoholic and nonalcoholic beverages; vegetable lacquers, resins, and balsams; cotton; and vegetable plaiting materials. In all other categories, Turkey would have to decrease its tariff rates.

As for the market access conditions for agricultural commodities imported from the EU, the preferential regime applied by Turkey to imports of agricultural products originating in the EU is determined by Decision No. 1/98 of the EC–Turkey Association Council of 1998. Under this decision, Turkey must grant a large number of commodities duty-free access to the Turkish market up to the quota limits specified in the decision. A look at the quota levels and trade data for the agricultural commodities specified in Decision No. 1/98 of the EC–Turkey Association Council reveals that for most of the commodities the quota limits have been exceeded. Thus “out of quota” tariff rates are, in general, applicable to imports of these commodities from the EU. Consideration of the “out of quota” tariff rates for these commodities, together

with the MFN tariff rates shown in table 2.5 for the other agricultural commodities, reveals that the three sectors with the highest simple average tariff rates are meat and edible offal (HS 02), with a tariff rate of 116.52 percent; milk and dairy products (HS 04), 99.60 percent; and products made from meat, fish, and crustacea (HS 16), 76.90 percent. The three sectors with the highest weighted average tariff rates applied on imports from the EU are edible fruits and citrus fruits (HS 08) with a tariff of 120.17; milk and dairy products (HS 04), 101.79; and meat and edible offal (HS 02), 71.40 percent.

The preferential regime applied by the EU to imports of agricultural products originating in Turkey is determined by Decisions No. 1/72, 1/80, and 1/98 of the EC–Turkey Association Councils of 1972, 1980, and 1998, respectively. Under these decisions, almost all of the agricultural commodities originating in Turkey are imported by the European Community free from ad valorem duties, and the EU applies tariff quotas only for a relatively small number of commodities (see chapter annex tables 2.17 and 2.18). These tables reveal that those commodities made up about 30 percent of Turkish exports to the EU during 1999. In addition, the EU applies an entry price system for about 30 fruits and vegetables such as tomatoes, artichokes, courgettes, tangerines, lemons, and apples. For these commodities, specific duties are applied as long as the value of consignment falls below the entry price. These commodities, shown in annex table 2.19, made up about 4.8 percent of Turkish agricultural exports to the EU during 1999.

Finally, a sanitary ban on the import of livestock and meat products has remained in place. Export subsidies, applied to a number of products and limited to a maximum of between 10 percent and 20 percent of the export values and between 29 percent and 100 percent of the quantities exported, have continued for processed fruits and vegetables, fruit juices, olive oil, potatoes, apples, poultry meat, and eggs.

The considerations just described reveal that substantial border measures still affect trade between the EU and Turkey and that the external tariffs applied by the EU and Turkey to third countries’ imports differ significantly. Completion of the customs union between the EU and Turkey to cover agricultural products implies the abolition of all border measures and the adoption of the EU external

TABLE 2.5 Most-Favored-Nation Tariff Rates of EU and Turkey, 2002

HS Code	Description	Number of Tariff Lines	Tariff Rates Applied by Turkey to Imports from EU (simple)	Tariff Rates Applied by Turkey to Imports from EU (weighted)	Tariff Rates Applied by EU to Imports from Third Countries (simple)	Tariff Rates Applied by Turkey to Imports from Third Countries (simple)	Tariff Rates Applied by EU to Imports from Third Countries (weighted)	Tariff Rates Applied by Turkey to Imports from Third Countries (weighted)
<i>Live animals and animal products</i>								
01	Live animals	27	27.85	1.72	19.72	27.85	56.69	1.72
02	Meat and edible offal	10	116.52	71.40	55.89	116.52	68.55	71.40
03	Fish and sea products	89	38.90	19.61	11.39	78.30	11.61	37.60
04	Milk and dairy products; eggs; honey	72	99.60	101.79	55.16	105.20	69.17	103.22
05	Other animal products	30	2.50	7.00	0.35	2.80	0.11	7.09
<i>Vegetable products</i>								
06	Plants and floriculture products	37	17.90	7.49	9.25	18.50	12.90	8.46
07	Vegetables, plants, roots, tubers	78	22.20	20.44	13.30	22.30	13.80	20.44
08	Edible fruits; citrus fruits	93	48.10	120.17	8.56	48.10	12.15	120.17
09	Coffee, tea, spices	45	37.70	46.13	6.11	38.00	4.32	47.27
10	Cereals	39	25.60	16.97	66.35	25.70	79.15	16.97
11	Products of the milling industry	40	36.30	28.86	35.87	36.70	44.47	29.65
12	Oilseeds, various seeds/ fruits; industrial plants	88	16.40	5.29	3.65	17.20	0.98	5.55
13	Vegetable lacquers, resins, balsams	29	1.40	1.54	2.88	2.60	2.76	2.06
14	Vegetable plaiting materials	14	0.00	0.00	0.10	0.00	0.01	0.00

<i>Animal or vegetable oils and fats</i>								
15	Animal or vegetable oils and fats	107	18.10	17.74	15.49	20.20	22.90	17.86
<i>Foodstuffs, beverages, tobacco</i>								
16	Products made from meat, fish, crustacea	39	76.90	65.27	21.32	132.70	22.79	124.08
17	Sugar and sweets	53	58.90	63.18	22.79	79.70	48.46	124.08
18	Cocoa and cocoa products	24	38.60	22.38	7.12	99.30	3.06	51.11
19	Cereal products, wheat floor, pastries	66	58.20	54.45	26.05	83.90	22.88	78.96
20	Foods made of vegetables, fruits, and other plants	173	58.50	62.41	25.47	60.80	27.59	73.92
21	Various foods	54	25.20	28.64	13.42	42.02	15.89	42.37
22	Alcoholic and nonalcoholic beverages	41	11.90	2.01	22.52	17.04	13.87	6.27
23	Residues of food industry; fodders	49	6.30	1.12	18.03	7.81	26.96	2.84
24	Processed tobacco and substitutes	17	14.70	0.22	51.55	33.78	51.01	23.98
<i>Hides, wool and cotton</i>								
4101–4103	Hides and skin	44	0.00	0.00	0.00	0.00	0.00	0.00
5101–5103	Wool and animal hair	36	0.00	0.00	0.00	0.00	0.00	0.00
5201–5203	Cotton	15	0.00	0.00	0.18	0.00	0.01	0.00

Source: The authors.

tariff applied to third countries.⁵ As a result, the prices of agricultural products for which border measures still exist would become much closer in the EU and Turkey, with the remaining differences due to quality and to transportation and marketing costs. Such a development would, however, require that the parties harmonize their agricultural price policies.

Agricultural Reform Implementation Project

The overly generous system of agricultural support policies pursued until the late 1990s was fiscally expensive and unsustainable, and they encouraged waste and abuse (World Bank 2000). They did not provide a cost-effective way for addressing policy objectives such as alleviation of rural poverty and regional development, and the “duty loss” system of administration burdened the Treasury with enormous debts. There were other problems as well. Support and administered prices were announced only after key production decisions had been made, and payments were delayed by intervention agencies. These problems confirm the difficulties inherent in trying to administer outcomes in a dynamic, complex market. Neither the overall demand-supply balance nor the equilibrium in the very complex intertemporal, spatial, and quality dimensions could be achieved. The Turkish government recently tried to replicate the market by establishing more quality-differentiated prices. But success in duplicating the price flexibility of freely functioning commodities market was limited.

In the late 1990s, Turkey decided to reform its agricultural policies. Beginning in late 1999, with support from the International Monetary Fund (IMF) and the World Bank, the government developed the Agricultural Reform Implementation Project (ARIP) to phase out current production- and input-oriented support and replace it with area-based income support payments during the 2001–04 period. ARIP was intended to achieve following:

- To phase out the unsustainable and distortionary system of subsidies for fertilizer—credit and price supports that disproportionately benefited large farmers, placed a regressive tax on consumers, and cost about \$5 billion a year. ARIP was determined to link domestic prices to world prices.

- To privatize most state enterprises in agriculture and to turn the agricultural sales cooperative unions (ASCU) into true private sector unions of producer-owned cooperatives in order to reduce government involvement in the marketing and processing of agricultural products.
- To introduce a unified national program of direct income support (DIS). These reforms are intended to increase the efficiency of the agricultural sector and thereby help Turkey meet the preconditions for accession to the EU.

Implementation of ARIP began in 2000 with a pilot program of income support payments applied to four regions. An important part of the pilot program was preparation of a farm registry and testing of the eligibility conditions. All agricultural land users received \$50 per hectare of agricultural land, up to a maximum of 20 hectares per farmer. The program was extended nationwide in 2001–02. Table 2.6 shows the intervention prices and direct payments for selected commodities over the period 1998–2002. The table reveals how the government has tried to compensate for the drop in intervention prices with increases in direct payments.

The intention of direct income support is not to fully compensate every farmer for income lost by removal of the old subsidy system, but rather to cushion the blow and continue to provide adequate support to the agricultural sector in an incentive-neutral way. Within the existing legal framework, the DIS payments should be usable as collateral, thereby giving farmers enhanced access to credit. Payments under the DIS system will be ongoing but should become more explicitly targeted or merged with the general social safety net system. Thus DIS allows the government to disengage from its current support mechanism in a politically acceptable and humane way. The government is also easing the transition for growers of certain crops that were grossly overproduced (i.e., tobacco and hazelnut) by making onetime payments to farmers to cover their cost of switching to alternative activities. This program is distinct from, and in addition to, DIS.

After the policy change, the fertilizer subsidy decreased from 31 percent in 1999 to almost 20 percent by the end of 2000, and it was phased out in 2002. By 2002, credit subsidies channeled through Ziraat Bank, as well as most other input subsidies, were also phased out. In addition, price supports for grains

TABLE 2.6 Agricultural Supports: Turkey, 1998–2002
(US\$ millions)

	1998	1999	2000	2001	2002
Market price support					
Cereals	425.8	356.7	183.0	27.8	0.0
Tobacco	276.9	146.6	81.8	43.3	26.7
Sugar beet	245.2	141.6	70.5	40.1	0.0
Payments based on inputs used					
Fertilizer	476.7	238.6	153.4	60.5	0.0
Pesticides	33.0	24.7	19.2	14.7	0.0
Seed	6.6	3.4	4.6	0.8	0.0
Development of animal husbandry	0.0	0.0	19.2	31.9	50.1 ^a
<i>Incentive premiums</i>					
Milk	31.5	25.6	19.2	9.8	0.0
Compensation payment					
Tea	13.8	7.1	25.2	22.1	26.7
Natural disaster relief	29.7	37.2	22.4	0.0	0.0
Credit subsidy	1,663.2	1,675.3	562.7	274.8	0.0
Deficiency payments	0.0	265.8	298.2	280.5	145.1
Direct income support	0.0	0.0	0.0	68.1	1,159.0
Total	3,202.4	2,922.6	1,459.6	874.4	1,357.5

a. The figure includes the milk premium.

Source: Turkish Ministry of Agriculture and Rural Affairs.

were reduced, with the aim of eliminating the supports completely by 2002. Even though grain support prices were not announced by a decree by the government in 2002, the Turkish Grain Board (TMO) announced its purchasing prices based on production, its stocks, and expected market conditions.

Estimates of Support in Agriculture

Agricultural production in Turkey is protected. According to the official estimates of the Organisation for Economic Co-operation and Development (OECD), total transfers from consumers and taxpayers to agricultural producers, as measured by the producer support estimate (PSE), amounted to a peak of \$9.955 billion in 1998 (almost 25 percent of producers' receipts) and fell slightly to \$6.8 billion (21 percent) in 2000. As a result of the reform efforts, the PSE decreased to \$2.251 billion (10 percent) in 2001, but increased to \$6.1 billion (23 percent) in 2002. According to the OECD (2003a), market price support remained the most important type of support, for a share of 69 percent of total support to producers in 2001 and 75 percent in

2002. Payments based on input use are the other category of support to producers. This category as a share of total support decreased from 22 percent in 1999 to 8 percent in 2001, and further to 2 percent in 2002. By contrast, the total transfers to the agricultural sector measured by the total support estimate (TSE) amounted to \$13.84 billion in 1998 (6.9 percent of GDP) and \$12.1 billion in 1999 (6.6 percent of GDP). The TSE decreased to \$5.4 billion (3.6 percent of GDP) in 2001, but increased again to \$7.7 billion (4.1 percent of GDP) in 2002. At the same time, the corresponding figures for all OECD countries fell from 1.39 percent of GDP in 1998 and 1999 to 1.2 percent in 2002. The TSE for the EU fell from 1.52 percent of GDP in 1999 to 1.3 percent in 2002. Over the same period, the PSE in the EU, as a percentage of producers' receipts, fell from 43 percent to 36 percent.

The Common Agricultural Policy of the EU

The Common Agricultural Policy (CAP) of the European Union, which was set up against the

backdrop of the food shortages and rations that followed World War II, had five founding aims: (1) higher productivity, (2) a fair standard of living for farmers, (3) stable markets, (4) regular food supplies, and (5) reasonable prices for consumers. It was based on the principles of a single market in farm products with common prices and the free movement of agricultural goods within the community, preference for community members, and shared costs. Its main mechanisms were support prices set above world price levels and the use of import taxes, nontariff barriers to imports, and export subsidies to maintain the higher internal prices. As production responded to higher prices, surpluses became chronic and increasingly expensive. As a result, the CAP has been subjected to various reforms. In particular, production has been artificially constrained by mechanisms such as milk quotas and compulsory set-asides for arable crops; prices have been cut, and producers have normally been given direct payments in compensation; and more emphasis has been put on rural development and encouraging farmers to look to markets and diversified forms of income to reduce their dependence on subsidies.

The CAP is financed by the European Agricultural Guidance and Guarantee Fund (EAGGF), which is an integral part of the EU's budget. In the 2003 EU budget of €99.69 billion, appropriations for the EAGGF accounted for about €44.78 billion. In addition to budget costs, the CAP imposes a cost on EU consumers through higher food costs. The additional cost to consumers varies according to movements in world prices, but in 2003 it was estimated by the OECD at about €55.5 billion.

In the EU, like in Turkey, it eventually became clear that price supports, import tariffs and nontariff barriers, export subsidies, and the other government interventions required by the CAP were creating unsustainable pressures on the EU budget and friction in international trade relations. Furthermore, they were not achieving the social objectives of environmental preservation and equity. The EU therefore embarked on a far-reaching reform program for CAP that is still under way. The reform began with the McSharry reforms of 1992 and was accelerated with the Agenda 2000 agreement, which was approved at the Berlin Council in March 1999. The underlying principle of the reform was the same as that of ARIP: to minimize the government's

role in setting prices and allow prices to be closely linked to world prices, while compensating farmers for income losses with area-based direct payments that would not be linked to output or input use. Under the Agenda 2000 agreement, some intervention prices were set at levels so low that they would be binding only in years of very low world prices, and other intervention prices were reduced greatly, with producers compensated by direct income support payments. The agreement represented a significant shift from price supports to direct payments, and it helped to reduce the economic distortions of the CAP. It will go some way toward helping agriculture to meet the challenges of further trade liberalization and enable the formulation of an integrated EU rural development policy that shifts the emphasis from production support to environmental and rural economy measures in the future. But, as described in the rest of this section, further reforms also are under way.

Common Organization of Market

Within the CAP framework, the Common Organization of Market (COM) is the basic instrument used to manage agricultural production and to stabilize markets in accord with the declared objectives of the CAP. COMs, which were introduced gradually, now cover most EU agricultural products, accounting for 90 percent of the final agricultural output of the European Community. The essential features of the current CAP under Agenda 2000 reform is summarized in the following sections (see Europarl 2002 and Csaki and others 2002).

COM for Cereals In the past, at the core of the COM for cereals was a state intervention system based on guaranteed prices, but after the 1993/94 marketing year, compensation payments per hectare became the main mechanism.⁶ The intervention price was set at a very low level to serve as only a safety net in years of extremely low world prices. It was €101.31 per metric ton from the 2001/02 marketing year, and it would decline further, to a little over €90 per metric ton under the CAP Mid-term Review proposals described later in this chapter. This intervention price applies to a predefined "standard quality" that meets the regulations on moisture content and specific weight.

Direct area payments to cereal producers, set in euros per metric ton, were introduced to compensate farmers for reductions in price supports. To receive such compensation, farmers must withdraw 10 percent of their land from production. Small farmers with a total output of less than 92 metric tons are exempt from set-aside as a compulsory requirement to receive compensation payments. For the 2001/02 marketing year, these direct payments were fixed at €63 per metric ton of the historical yield. For durum wheat, the supplementary direct area-based income payment per hectare amounts to €344.5 in traditional areas (traditional durum wheat aid) and €138.9 in other areas (well-established durum wheat aid).

To apply for direct area payments, each member state must draw up a *regionalization plan* by taking into account specific factors that influence yields such as soil fertility. The area concerned must not exceed the region's "base area"—that is, the average number of hectares in the region allocated to growing crops or set aside within the context of the public assistance scheme in 1989, 1990, and 1991.⁷ If the total eligible claims exceed the base area, then all claims are reduced proportionately. Article 9 of Council Regulation No. 1251/1999 states that the base areas of future member states will be established by the European Commission. Finally, aid for the production of "traditional durum wheat" is limited to certain regions that are mentioned in Annex II to Council Regulation No. 1251/1999, and per member state a maximum area that may be eligible for the "traditional durum wheat aid" is fixed in Annex III of that regulation.⁸

According to Article 3 of Council Regulation No. 1252/1999, the historical reference yield for cereals should be the average of the median three years of the five-year period 1986/87–1990/91.⁹ For maize, a specific yield can be set, possibly distinguishing between irrigated and nonirrigated areas. In the areas thus defined, per hectare payments are calculated by multiplying the basic amount per metric ton by the historical average cereal yield for the area. Article 7 of Council Regulation No. 1252/1999 states that applications for payments may not be made for land that on December 31, 1991, was under permanent pasture, permanent crops, or trees, or was used for nonagricultural purposes.¹⁰

As for import duties, export taxes, and export refunds, under commitments to the World Trade

Organization (WTO), the EU can levy an import duty on cereal imports from third countries, which is payable by the European Community importer. Within the limit of the agreement, the duty cannot exceed the intervention price, increased by 55 percent less the representative CIF (cost, insurance, freight) price. Under these rules, the EU is allowed to vary the tariffs for cereals over time.

COM for Oilseeds The McSharry reforms removed the system of institutional prices for oilseeds (i.e., rapeseed, sunflowers, and soybeans), but since the 1993/94 marketing year their producers also qualify for compensatory payments.¹¹ These payments are aligned with the one applicable for cereals (€63 per metric ton of reference yield since 2002). The area grown with oilseeds is taken into account in determining the individual farmer's set-aside obligation as described under the regulations for cereals. As a prerequisite for the imposition of specific oilseed production provisions, production area constraints for the member countries have been implemented under the Blair House agreement. This agreement includes a system of reduced aids for regions where the predetermined agricultural area is exceeded. For nonedible oilseeds for industrial use, specific regulations apply and require that set-aside areas, for example, be planted with several oil-bearing crops for industrial purposes. Currently, there is no regulatory levy on imports, and the Common Customs Tariff rates apply.

COM for Sugar Beet The EU sugar market is highly protected.¹² Besides protection at the border, the CAP on sugar is implemented through a marketing quota system. Sugar beet quotas are allocated to and administered through sugar refineries on the basis of equity shares. The intervention price for refined beet sugar is set, since the 1998/99 marketing year, at €631.9 per metric ton for white sugar and €523.7 per metric ton for raw sugar in order to guarantee a basic price for sugar beet of €47.67 per metric ton. Intervention is provided for limited quantities corresponding to a production quota for which there is an almost total guarantee (quota A) and a quota with a partially guaranteed price (quota B). For net importers, quota A equals net production, and quota B equals 10 percent of quota A. For net exporters, quota A equals that part of net

production consumed domestically, and quota B equals net exports. The EU insists that the total of quotas A and B should not exceed internal consumption plus the quantity that can be exported within the limits of the WTO commitments. Furthermore, the COM is based on a system of sugar and isoglucose production levies to cover the cost of storage and production refunds for the manufacture of certain chemical products. The regulations are complemented with import tariffs and warrants of export refunds. Agricultural areas planted with sugar beets are not eligible for compensatory area payments and are not subject to set-aside obligations.

COM for Fruits and Vegetables In late July 1996, the European Council reached a political agreement to reform the fresh and processed fruit and vegetable sector.¹³ The reform was intended to improve the organization of supply by strengthening producer organizations (POs), tightening up the criteria for recognizing POs, and setting up an operation fund co-financed by the EU for promotion and quality campaigns and the cessation of farming operations that are not covered by European Community compensation schemes, which, with this reform, will provide on-retributive compensation—that is, they will not encourage production. Based on the first year's experience, some rules were modified in 2001 to simplify the regime, to make it more flexible, and to increase producer responsibility.

EU-wide aid schemes are in place to assist producer organizations supplying tomatoes, peaches, pears, and citrus fruits. This aid is granted for the fresh produce delivered during prescribed periods. Aid is paid to recognized producer organizations, which then pay out to the growers. Delivery to approved processors is based on contracts specifying the quantities they cover, the price, and the schedule of supply. These contracts require the processor to process the products delivered. The minimum characteristics of the raw material supplied for processing and the minimum quality requirements for the finished products are defined. Annual EU thresholds have been established to limit the total volume of aid, and there are penalties for overrunning thresholds. Aid per hectare is available to growers of grapes for use as dried muscatel grapes, sultanas, and currants, within a maximum guaranteed area. Contracts must be concluded between the producer or producer organizations

and processors. The aid level is fixed per hectare of specialized area harvested, on the basis of the average yield per hectare of the area concerned.

COM for the Wine-Growing Sector The common market organization for wine (Council Regulation No. 1493/1999) aims to maintain a balance between supply and demand in the European Community market, thereby giving producers a chance to bring production into line with market developments and to allow the sector to become competitive. This goal is pursued by financing the restructuring of a large portion of the present vineyards, and it should give rise to products in demand at home and abroad. The Common Customs Tariff rates apply to imports of wine into the European Community. To prevent imports from having adverse effects, and subject to compliance with the rules of the WTO, an additional import duty may be imposed.

COM for Milk and Dairy Products The market for milk and dairy products is one of the most important (about 18 percent of the total value of agricultural production) and most regulated markets in the EU.¹⁴ The current market regime comprises the target price for milk (2000–05, €309.80 per metric ton), intervention price for butter (2000–05, €3282.00 per metric ton), intervention price for skimmed milk powder (2000–05, €2,055.20 per metric ton), a producer quota system, support of prices by the imposition of tariffs on dairy products, warrant of export subsidies, the guaranteed purchase and storage of butter and skimmed milk powder through intervention agencies, and a milk quota system introduced in 1984 (117.49 million metric tons, EU total). Farmers who exceed this reference amount of their quota are subject to a payable levy. Since 1998, milk quotas have been transferable from one individual to another within one EU member state through sale, lease, or inheritance. Also related to these measures are a public intervention scheme, private storage, production aids for using milk in animal feedstuffs and processing milk into casein, special measures to reduce stocks, and some aids for reducing or ceasing production. Import levies and export refunds are also applied.

From 2005 on, intervention prices for butter and skimmed milk powder will be reduced by 15 percent in three equal steps of 5 percent each. In the

final stages of reform, they will amount to €2,789.70 per metric ton and €1,746.90 per metric ton, respectively. According to the EU's impact analyses, these changes will put the intervention price after 2007 below the expected world price levels. Benefits for farmers will be provided by three complementary measures: (1) increasing available milk quotas by 1.5 percent in three equal steps over three years in parallel with the price reductions starting in 2005, (2) retaining a crop premium for silage cereals, and (3) implementing a new yearly payment for dairy cows. The payment for dairy cows is to be paid on a flat rate basis per metric ton of the quota held in the 1999/2000 marketing year and amounting to €17.24 per metric ton in the final stages of reform.

On June 26, 2003, EU farm ministers adopted a fundamental reform of the CAP. With the reform, the intervention price for butter will be reduced by 25 percent over four years, which is an additional price cut of 10 percent compared with that of Agenda 2000 reforms.

COM for Beef and Veal In 1999 the beef support "regime" was altered significantly as part of the Agenda 2000 CAP reform process; the practice of EU-subsidized purchases of surplus beef from the market (intervention buying) was reduced to a minimal "safety net." In return for this reduction in market price support, farmers received direct aid in the form of premiums based on the number of cattle they held in a reference period.

Direct aid includes various types of direct farmer support measures (Council Regulation [EC] No. 1254/1999 and Commission Regulation [EC] No. 2342/1999). They are designed to compensate for the reductions in the intervention price (slaughtering premium and the special beef premium), support the incomes of producers who are specialized in beef production (suckler cow premium), encourage producers to undertake extensive farming (extensification payment), assist producers in less favored areas or in member states highly specialized in beef production (additional suckler cow premium), balance the market throughout the year (deseasonalization premium), and permit member states to support specific production systems (national expenditure envelopes).

The intervention price was set for the 2001/02 marketing year at €3,013 per metric ton of carcass weight (for R3 classification) and was replaced in

July 2002 by a basic price for storage, fixed at €2,224 per metric ton. The payment for private storage is granted when the average Community market price level is less than 103 percent of the basic price. As of July 2002, producers also could benefit from a safety net intervention system. When the average market price for bulls or steers in a member state falls to less than €1,560 per metric ton of carcass weight, the EU buys beef into intervention stores.

Since 2002, steer and bull premiums have been set at €150 and €210 per head, and the premium for suckler cows at €200 per year. Although the bull premium is paid once a lifetime for bulls older than nine months or at a minimum carcass weight of 185 kilograms, the steer premiums are paid twice a lifetime, at the age of 9 months and after 21 months. The suckler cow premium is granted per calendar year and per holding within the limits of regional ceilings for not more than 90 animals. These premiums are granted provided that the stocking density on the holding is not more than two livestock units per unit of forage area used for these animals. In addition to these premiums, a slaughter premium applicable at slaughter or export to a third country of €80 has been introduced for bulls, steers, suckler cows, and heifers over the age of eight months, and of €50 for calves more than one and less than seven months in age (with an upper limit of 160 kilograms).¹⁵ The slaughter premium is paid directly to the farmer, provided that the eligible animals have been held for a minimum period of two months. Extensive production (stocking density less than 1.4 livestock units per hectare) may qualify for an additional payment of €100 per premium granted.¹⁶

The reform of the CAP agreed to in June 2003 changes the way the EU supports its farm sector. In January 1, 2005, a single-payment scheme replaced most of the direct aid payments currently offered to farmers, and it is not linked to what a farmer produces. The amount of the payment is calculated on the basis of the direct aids a farmer received in a reference period (2000–02). Member states may delay implementation of this scheme up to 2007, but by 2007, at the latest, all member states must have at least introduced the scheme. Full decoupling is the general principle from 2005 onward. However, member states may decide to partially implement the single-payment scheme and grant additional payment to the beef producers by way of choosing from the options for partial decoupling of direct payments. Under such partial decoupling, member

states may opt to keep up to 100 percent of the slaughter premium for calves. However, member states may also opt to keep up to 100 percent of the suckler cow premium and up to 40 percent of the slaughter premium for calves coupled. Alternatively, they could keep up to 100 percent of the slaughter premium coupled or, instead, up to 75 percent of the special male premium.

The relatively high internal price supports are complemented by measures affecting imports of beef and veal to the EU and by refunds on EU exports to third countries. A basic import tariff (less than 20 percent for most beef products) and an additional variable levy (ranging from 180 to 390 percent) are imposed. Exports are subsidized, and the refunds are set by the European Commission, depending on world market conditions, the present and anticipated condition of the EU market, and the competitive environment in third-country markets. Under the WTO Uruguay Round agreement, these levels are to be reduced in the future.

COM for Ovine Meat This COM comprises a safety net intervention system and a direct payment for ewes of €21 (€16.8 for female goats and for ewes kept for milk production) per head and year since 2002.¹⁷ Each member state has an upper limit on the number of animals eligible for direct payment for ewes.

The reform of the CAP agreed to in June 2003 means that this simplified premium system will be incorporated into a new support structure. Full decoupling will be the general principle from 2005 onward. However, member states may decide to maintain a proportion of direct aids to farmers in their existing forms, notably where the states believe agricultural markets may be disturbed or production may be abandoned because of the move to the single-payment scheme. Fifty percent of the sheep and goat premiums under the 2001 system can continue to be granted as coupled payments.

Future Evolution of the CAP

Although the Agenda 2000 reforms made the CAP much more efficient, it is recognized that the budgetary pressures of accession and international trade obligations will require further reform in the same direction.

Reforms from the Mid-term Review and Future Directions In June 2003, the EU endorsed a series of additional reforms that had been proposed in the

Mid-term Review of the CAP in January. The thrust of the reforms is to continue to reduce the reliance of the CAP on market-distorting measures such as price supports and to channel more of the support given to farmers through payments linked to environmental, food safety, general rural development, and animal welfare objectives (i.e., to receive direct income payments, farmers would have to comply with the conditions tied to these objectives). The catchphrase for this refocusing of the mechanisms of support is “support for producers, not for production.” The reform program is supposed to be budget-neutral.

The key elements of the reforms are as follows:¹⁸

- Most support will take the form of a single decoupled farm payment for EU farmers, independent from production, with member states allowed to maintain limited coupled elements (up to 25 percent of the value of current payments) to avoid abandonment of production.
- This payment will be linked to the respect for environmental, food safety, animal and plant health, and animal welfare standards, as well as to the requirement to keep all farmland in good agricultural and environmental condition (“cross-compliance”).
- There will be a strengthened rural development policy with more EU money and new measures to promote the environment, quality, and animal welfare and to help farmers meet EU production standards starting in 2005.
- Direct payments for bigger farms will be reduced (“modulation”) to finance the new rural development policy.
- A mechanism will be implemented for financial discipline to ensure that the farm budget fixed until 2013 is not exceeded.
- Specific revisions to the market policy of the CAP include:
 - Making asymmetric price cuts in the milk sector, with the intervention price for butter reduced, as noted earlier, by 25 percent over four years. For skimmed milk powder, a 15 percent reduction over three years, as agreed on in Agenda 2000, is retained.
 - Reducing the monthly increments in the cereals sector by half while maintaining the current intervention price.
 - Implementing reforms in the rice, durum wheat, nuts, starch potatoes, and dried fodder sectors.

According to the Mid-term Review, the reforms have the following objectives:

- First, *enhance the competitiveness* of EU agriculture by setting intervention as a real safety net measure, allowing EU producers to respond to market signals (i.e., world prices), while protecting them from extreme price fluctuations. The reforms as adopted by the member states did not go as far as was proposed in the Mid-term Review, which had included further reduction in the support price for cereals, but they still represented progress toward this goal.
- Second, *promote market-oriented, sustainable agriculture* by completing the shift from product to producer support with the introduction of a decoupled system of payments per farm, based on historical references and conditional upon cross-compliance to environmental, animal welfare, and food quality criteria. Again, the Mid-term Review proposal was more ambitious than the program actually adopted, because it will allow member states to pay up to 25 percent of support (or more for durum wheat and certain kinds of beef payments) as coupled payments if necessary to avoid abandonment of production. It is expected, however, that few states will use this exception.
- Third, *strengthen rural development* by transferring funds from the first pillar (payments to producers) to the second pillar (funding to promote rural development) of the CAP. This transfer process is known as “dynamic modulation.” Payments under the second pillar will be increased to 30 percent of the CAP budget from its current 10 percent. Because small farmers will be exempt from modulation, it would affect 25 percent of farmers, who now receive about 80 percent of the direct payments. Funds saved by “modulation” will be redistributed to the member states based on several criteria, and the southern states are expected to be the net gainers. The reform will also expand the scope of the currently available instruments for rural development to promote food quality, meet higher standards, and foster animal welfare.

Although this reform process is being driven largely by the internal needs of the EU—particularly the need to simplify the CAP and control the potentially explosive budgetary implications that accession of the Central and Eastern

European countries would have for an unreformed CAP—the reforms would have other salutary effects outside the EU. Most important, they will reduce the need to rely on export subsidies to dispose of surplus production, and they will provide an alternative way to support farmers’ incomes without high domestic prices. Thus the reforms will increase the EU’s flexibility to agree in the Doha negotiations to phase out export subsidies and increase market access (i.e., to reduce tariffs and nontariff barriers). This point is important, because the EU is almost alone in its position—maintained throughout the WTO’s Cancun ministerial meeting in September 2003—that export subsidies should not be phased out (only reduced) under the Doha Round agreement. Most other WTO members interpret the Doha Declaration’s wording that export subsidies would be reduced “with a view to eliminating” them as meaning that the eventual agreement will require that these subsidies eventually be totally eliminated.

Although the magnitudes have not been estimated definitively, the reform process would also lead to some direct improvements in international market conditions for developing country (and other) producers. The European Commission’s simulations estimate that by 2009–10 EU exports of cereals will fall by 3.8 percent and exports of beef by 60 percent. Eurocare estimates that the EU will become a net importer of beef. Other simulations indicate an effect on world cereal prices of 2 percent or less, although, because it would entail a move from a very trade-distorting mechanism of support to one with relatively small trade-distorting effects,¹⁹ there is some reason to think that the impact may be more substantial.

Beyond the Mid-term Review The adoption of the proposals in the Mid-term Review would essentially decouple payments from production in the grain and oilseed markets and partially decouple them in beef, but some important sectors are not touched by the reforms, including sugar and tobacco. The same motivations for reform are present in these sectors, and other pressures will be operating to ensure that these sectors also are eventually reformed, using much the same model used for grains and oilseeds. One of these motivations is the Doha negotiations. As noted, the EU will be under tremendous pressure to agree to the elimination of export subsidies. Another very

important motivation—especially for sugar—is the “Everything but Arms” (EBA) initiative. Under the EBA, the EU has eliminated tariff and nontariff barriers²⁰ to the imports of all products from the developing countries. For most products, this system has been in effect since 2001, but for rice, bananas, and sugar there are phase-in periods. For sugar, the phase-in period is until 2009, but after 2009 sugar will enter the EU duty- and quota-free from developing countries, clearly ending the sugar regime under the CAP. Before the regime ends, sugar prices in the EU will have to fall to something much closer to world prices, and producers may have to be brought under the direct payment system. The EU is also currently negotiating Economic Partnership Agreements with many other developing countries. Although it is not clear what form these agreements will take, the basic intention is that essentially they will be reciprocal free trade agreements. Such agreements will put even more pressure on the CAP to complete the transition to a regime of very low import barriers for products that can be produced in developing countries and a regime in which farmers are compensated for income losses by decoupled direct payments.

In September 2003, the European Commission tabled its proposal for reforms in the cotton, tobacco, sugar, and olive oil sectors. The main features of the proposals are the following:

- *Tobacco.* The production-coupled premium on tobacco would be completely eliminated, with most of it rolled into the decoupled single-farm payment and the rest put into a fund for restructuring tobacco-producing areas.
- *Olives.* The current system of production-linked payments would be eliminated. For farms under 0.3 hectares, coupled payments would be eliminated and replaced with only single-farm payments. For large farms, 60 percent of their coupled payments would be converted into single-farm payments. The rest of the budget that would have funded the coupled payments for these farms would be converted into payments based on hectares or number of trees to ensure the permanence of olive trees in marginal areas or low-output olive groves. This measure may act as a production incentive, but it is intended to be an environmental measure.

- *Cotton.* Sixty percent of the current coupled payments would be converted into single-farm payments. The other 40 percent would be retained as an area-based payment, based on cotton hectareage. Thus this 40 percent would remain fully coupled, though based on area rather than production. The new area payment would be given for a maximum number of hectares, but administered in the same way as current blue box measures, with area ceilings set on a regional basis and any excess in the region resulting in a reduction in payments to all farmers in the region.²¹ This situation implies that the measure may not be very effective in controlling the area planted, because farmers have little incentive to stay below the ceiling.
- *Sugar.* There is no specific proposal but rather two options: (1) relatively small changes in the current system, or (2) radical reform, with domestic prices lowered to world market levels and direct support payments increased in compensation. In view of the pressures facing the CAP sugar regime, it seems likely that something close to the second option will have to be adopted.

Impact of Introducing the Common Agricultural Policy in Turkey

This section employs a partial equilibrium model of the Turkish agricultural sector to simulate the effects of introducing the CAP.²² The model provides information about the likely impact of the CAP on farmers’ and consumers’ incomes and its budgetary implications. Because the CAP has been a “moving target,” the model does not incorporate the most recent reforms, but rather uses the Agenda 2000 scenario. Subsequent reforms have been of the same variety as those in the Agenda 2000 program, but they have moved further in reducing support prices and distributing support as decoupled payments. These later reforms could then be generally expected to result in lower domestic producer and consumer prices than those produced by Agenda 2000 reforms, but with higher direct payments.

The model considers 11 major agricultural products: wheat, barley, maize, sunflower, sugar beet, potato, grapes, milk, beef, poultry, and ovine meat. Table 2.7 shows the base period results for the major

TABLE 2.7 Base Period Results of Model for Major Activities

	Actual Price (thousand TL per metric ton)	Border Equivalent Price (thousand TL per metric ton)	Quantity Produced (thousand metric tons)	GOV (billions of TL)	GOV Share (percent)	VA, Inclusive Direct Payments (billions of TL)	VA Share (percent)
Wheat	97,325	73,412	15,866.67	1,544,223.37	18.10	781,454.26	16.16
Barley	80,765	56,850	6,189.17	499,868.64	5.86	284,464.38	5.88
Maize	90,000	64,475	2,152.33	193,709.97	2.27	74,848.48	1.55
Sunflower	292,692	141,069	816.67	260,259.67	3.05	205,825.27	4.26
Sugar beet	36,612	20,585	16,807.79	618,223.98	7.25	543,851.74	11.25
Potato	132,444	100,017	5,081.33	672,992.07	7.89	595,596.29	12.32
Grapes	280,139	222,260	3,250.67	910,638.60	10.67	847,373.01	17.52
Milk	167,041	97,945	7,466.33	1,450,093.01	16.99	682,852.63	14.12
Beef	2,153,528	1,085,793	444.67	1,086,378.40	12.73	326,386.03	6.75
Poultry	748,350	469,748	725.00	542,553.75	6.36	180,598.86	3.73
Sheep	2,244,433	1,762,319	237.67	753,628.09	8.83	312,353.42	6.46
	Intermediate Inputs, Actual Price (thousand TL per metric ton)	Intermediate Inputs, Border Price Equivalent (thousand TL per metric ton)	VA, Actual Price (thousand TL per metric ton)	VA, Border Price Equivalent (thousand TL per metric ton)	NPR (percent)	EPR (percent)	NPR on Tradable Inputs (percent)
Wheat	48,074	45,462	49,251	27,949	32.57	76.22	5.74
Barley	34,803	32,153	45,962	24,697	42.07	86.10	8.24
Maize	55,224	52,335	34,776	12,140	39.59	186.45	5.52
Sunflower	66,654	59,687	252,031	81,381	107.48	209.69	11.67
Sugar beet	4,425	4,243	32,357	16,342	77.86	98.00	4.29
Potato	15,231	13,486	117,213	86,531	32.42	35.46	12.94
Grapes	19,462	19,684	260,677	202,576	26.04	28.68	-1.13
Milk	102,760	76,925	91,458	47,712	70.55	91.69	33.59
Beef	1,709,127	1,301,899	734,001	83,372	98.34	780.39	31.28
Poultry	499,248	382,865	249,102	86,882	59.31	186.71	30.40
Sheep	1,856,693	1,370,015	1,314,248	1,350,414	27.36	-2.68	35.52

Note: Gross output value (GOV) comprises the output value from main products and, if applicable, from by-products. Consequently, value added (VA) is calculated on the basis of these gross output values. All variables are measured in terms of 2000 prices. TL = Turkish liras; NPR = nominal protection rate; EPR = effective protection rate.

Source: The authors.

activities carried out under the agricultural policies followed during 2000.²³ From the table it follows that wheat, milk, and beef are the most important commodities considered, because these commodities have the highest shares of total gross output. But the order changes to grapes, wheat, and milk when we consider the value added shares, and to grapes, wheat, and potato when we consider the value added shares measured at border price equivalents.²⁴ The table reveals that crop products constitute 68.93 percent of total value added generated by the 11 commodities and that animal products account for 31.07 percent of the total value added.

Impact on Producers

The domestic prices of the commodities shown in table 2.7 diverge considerably from the border price equivalents. Examination of the profile of nominal protection rates (NPRs)²⁵ reveals the height of protection in agriculture in Turkey observed earlier in table 2.5 for aggregates such as cereals and oilseeds. Table 2.7 shows a similar picture for the 11 commodities analyzed. The NPRs of these commodities are all positive, and NPR exceeds 100 percent for sunflower. Indeed, the NPRs lie between 50 percent and 100 percent for beef, sugar beet, milk, and poultry, and are between 20 percent and 50 percent for barley, maize, wheat, potato, sheep, and grapes. To examine the effects of agricultural policies on farmers' incomes, we consider first the NPRs of purchased intermediary inputs to agriculture. Consider, for example, wheat production. Although the cost of intermediate inputs per metric ton of wheat amounts to TL 48.074 million, the cost of intermediate inputs evaluated at border price equivalents amount to TL 45.463 million. Thus, the intermediate inputs are taxed on average by 5.74 percent. Among the inputs, the most important cost positions are fertilizers (28.2 percent), seeds (25 percent), and fuel (21.4 percent). A comparison of the domestic prices of each of these inputs with their border price equivalents reveals an implicit taxation of 32.6 percent for seed and subsidization of 3.4 percent for fertilizers.

Farmers' income is determined by the difference between input costs and revenues originating from the sale of agricultural produce, and by any non-price-related monetary transfers to farmers (e.g., per hectare payments for crops or per head payments for

livestock). Agricultural policies with an impact on input prices, output prices, or other direct monetary transfers translate into changes in the value added, defined as the difference between the value of gross output and the value of intermediate inputs, or, in terms of factor payments, the return to land, labor, and owned capital. This effect is computed using the effective protection rate (EPR).²⁶ Table 2.7 displays the value added of the analyzed activities at domestic prices in relation to value added at border price equivalents. As expected, the levels of effective protection are more pronounced than those of nominal protection. The incomes of producers of crop and livestock products are all implicitly subsidized under the agricultural policies followed during 2000 except for the incomes of producers of sheep. The extent of relative subsidization measured by the EPR is highest for beef, and this measure decreases for sunflower, poultry, maize, sugar beet, milk, barley, wheat, potato, and grape production. Sheep production has a negative EPR, with an absolute value less than 100, indicating the comparative advantage of the country in the production of sheep.

Alternative Agricultural Policy Options for Turkey

We assume that, as a new entrant, Turkey will have to adjust to the EU and accept its legislation and policies. Accession negotiations will therefore focus on how long Turkey will have to adopt the EU legislation and how it will do so. However, agricultural policy in the EU is also evolving beyond the changes introduced under the McSharry reforms and Agenda 2000. Because it is not easy to anticipate what EU agricultural policies will be at the time of Turkey's accession, we use a simulation approach to analyze the potential impacts, using the following scenarios:

- Scenario A1: partial adoption of Agenda 2000 without direct payments
- Scenario A2: complete adoption of Agenda 2000, including direct payments equal to those currently applied in the EU
- Scenario B: adoption of the European Commission proposal similar to that given CEE countries, including direct payments at a level of 35 percent of payments granted in the EU member countries
- Scenario C: free trade with direct payments.

Simulation results for Scenario A1 are presented in table 2.8a. When Turkey adopts Agenda 2000 without direct payments, domestic prices decrease substantially for all commodities except grapes, milk, and poultry. For example, the price of wheat decreases from TL 97,325,000 per metric ton in the base case scenario to TL 73,412,000 per metric ton. Similarly, the prices of barley, maize, sunflower, sugar beet, potatoes, beef, and sheep fall significantly. With the decrease in output prices, the gross output value decreases for all commodities under consideration except poultry and milk. Similar considerations hold for the value added; it decreases for all commodities except grapes, milk, poultry, and sheep. Relative to the base case scenario, the largest decreases occur for sunflower, beef, and wheat. Finally, the share of crop products in total value added generated by the 11 commodities decreases from 68.93 percent in the base case scenario to 62.66 percent in Scenario A1.

In Scenario A2 Turkey adopts Agenda 2000 in full and introduces direct payments to agricultural producers equal to those applied in the EU (table 2.8b). Because prices are basically the same as in Scenario A1, only those activities to which the direct payment schemes apply will be affected. Among the production activities considered are wheat, barley, maize, sunflower, milk, beef, and sheep. As a result of the direct payments, the value added relative to the base period increases as shown in table 2.8b by 71.42 percent for barley, 57.72 percent for beef, and 48.06 percent for sheep. For sunflower, the decline in value added in Scenario A2 (Agenda 2000 with direct payments) is smaller than that in Scenario A1 (Agenda 2000 with no direct payments). For wheat, barley, maize, and beef, the decline in value added turns into increases in value added. Whereas wheat production declines by 41.78 percent in Scenario A1, it increases in Scenario A2 by 38.62 percent relative to the base run. Similar considerations apply for barley, maize, and beef. The increase in milk production goes up from 24.47 percent in Scenario A1 to 45.82 percent in Scenario A2, and the increase in sheep production goes up from 6.28 percent in Scenario A1 to 48.06 percent in Scenario A2. As for the share of crop products generated by the 11 commodities, in total value added, it decreases from 68.93 percent in the base case to 62.32 percent in Scenario A2.

Table 2.9a displays the results of Scenario B. In this scenario, direct payments are introduced, but,

following the EU proposals for Central and Eastern European countries, on a level of 35 percent of direct payments granted to agricultural producers in the EU. The final results of the introduction of the CAP will depend on the positions taken by the government of Turkey and the European Commission. Because the negotiations have not yet started, we analyze only the effects of the introduction of direct payments at the rate of 35 percent of EU levels.²⁷ Table 2.10 shows the positions taken in agricultural negotiations between the Slovak Republic and the European Commission. The table reveals that the main issues in the agricultural negotiations will be the shares of compensation payments for crops and livestock as a percentage of the EU direct payments, the level of reference yield for crop compensation payments, the level of quotas for sugar and milk, slaughter premiums, suckler cow premiums, and ewe ceilings.

In Scenario B, the value added generated in the production of wheat, barley, maize, sunflower, milk, beef, and sheep decreases considerably compared with the value added generated in Scenario A2. The change in value added compared with the base case becomes negative for wheat, maize, and beef production, indicating the extreme vulnerability of the sectors to changes in direct payments. The share of crop products in total value added generated by the 11 commodities decreases now from 68.93 percent in the base case to 62.52 percent in Scenario B.

Table 2.9b presents the results of Scenario C—removal of current trade interventions but with direct payments as under Agenda 2000. In the free trade scenario with direct payments, the value added increases compared with the base case for wheat, barley, beef, and sheep production. For all other commodities, the value added decreases. The share of crop products of total value added generated by the 11 commodities remains almost unchanged.

Effects of Policies on Producers' Incomes in the Medium Term: Adjusting for Supply Response Effects

The discussion so far has been based on the assumption that the output levels for all analyzed activities remain constant (i.e., the assumption of totally inelastic supply). This is a simplifying

TABLE 2.8a Simulation Results for Partial Adoption of Agenda 2000 without Direct Payments (Scenario A1)

	Domestic Price (thousand TL per metric ton)	NPR, Main Outputs (percent)	Quantity Produced (thousand metric tons)	GOV (billions of TL)	GOV Change Relative to Base Run (percent)	NPR, Intermediary Inputs (percent)	VA (billions of TL)	VA Share (percent)	EPR (percent)	VA Change Relative to Base Run (percent)
Wheat	73,412	0.00	15,867	1,164,796	-24.57	-1.60	455,001	10.17	2.60	-41.78
Barley	74,155	30.44	6,189	458,955	-8.18	5.56	248,900	5.56	62.84	-12.50
Maize	76,283	18.31	2,152	164,187	-15.24	1.97	49,326	1.10	88.78	-34.10
Sunflower	141,069	0.00	817	115,206	-55.73	-2.70	67,777	1.52	1.98	-67.07
Sugar beet	26,867	30.52	16,808	451,569	-26.96	0.98	379,559	8.48	38.19	-30.21
Potato	100,017	0.00	5,081	508,220	-24.48	-3.14	441,846	9.88	0.49	-25.81
Grapes	376,586	69.43	3,251	1,224,157	34.43	-1.13	1,160,892	25.95	76.29	37.00
Milk	180,301	84.08	7,466	1,512,916	4.33	15.43	849,966	19.00	138.60	24.47
Beef	1,614,137	48.66	445	846,529	-22.08	15.97	175,193	3.92	372.56	-46.32
Poultry	888,077	89.05	725	643,856	18.67	19.13	313,190	7.00	397.21	73.42
Sheep	2,055,348	16.63	238	708,689	-5.96	15.69	331,980	7.42	3.44	6.28

TABLE 2.8b Simulation Results for Adoption of Agenda 2000 with Direct Payments (Scenario A2)

	Domestic Price (thousand TL per metric ton)	Quantity Produced (thousand metric tons)	Direct Payments (billions of TL)	GOV (billions of TL)	GOV Change Relative to Base Run (percent)	VA (billions of TL)	VA Share (percent)	EPR (percent)	VA Change Relative to Base Run (percent)
Wheat	73,412	15,867	628,217	1,793,013	16.11	1,083,218	17.85	144.26	38.62
Barley	74,155	6,189	238,716	697,671	39.57	487,616	8.04	219.01	71.42
Maize	76,283	2,152	41,339	205,526	6.10	90,665	1.49	246.98	21.13
Sunflower	141,069	817	70,112	185,318	-28.80	137,889	2.27	107.47	-33.01
Sugar beet	26,867	16,808	0	451,569	-26.96	379,559	6.26	38.19	-30.21
Potato	100,017	5,081	0	508,220	-24.48	441,846	7.28	0.49	-25.81
Grapes	376,586	3,251	0	1,224,157	34.43	1,160,892	19.13	76.29	37.00
Milk	180,301	7,466	145,791	1,658,707	14.39	995,757	16.41	179.52	45.82
Beef	1,614,137	445	339,577	1,186,106	9.18	514,770	8.48	1288.54	57.72
Poultry	888,077	725	0	643,856	18.67	313,190	5.16	397.21	73.42
Sheep	2,055,348	238	130,488	839,176	11.35	462,468	7.62	44.09	48.06

Note: All variables are measured in terms of 2000 prices. TL = Turkish liras; NPR = nominal protection rate; GOV = gross output value; VA = value added; EPR = effective protection rate.

Source: The authors.

TABLE 2.9a Simulation Results for Adoption of Agenda 2000 with Direct Payments at 35 Percent (Scenario 2B)

	Border Equivalent Price (thousand TL per metric ton)	NPR Main Outputs (percent)	Domestic Price (thousand TL per metric ton)	Quantity Produced (thousand metric tons)	Direct Payments (billions of TL)	GOV (billions of TL)	GOV Change Relative to Base Run (percent)	NPR Intermediary Inputs (percent)	VA (billions of TL)	VA Share (percent)	EPR (percent)	VA Change Relative to Base Run (percent)
Wheat	73,412	0.00	73,412	15,867	219,876	1,384,672	-10.33	-1.60	674,877	13.41	52.18	-13.64
Barley	56,850	30.44	74,155	6,189	83,550	542,506	8.53	5.56	332,451	6.61	117.50	16.87
Maize	64,475	18.31	76,283	2,152	14,469	178,656	-7.77	1.97	63,794	1.27	144.15	-14.77
Sunflower	141,069	0.00	141,069	817	24,539	139,745	-46.31	-2.70	92,316	1.83	38.90	-55.15
Sugar beet	20,585	30.52	26,867	16,808	0	451,569	-26.96	0.98	379,559	7.54	38.19	-30.21
Potato	100,017	0.00	100,017	5,081	0	508,220	-24.48	-3.14	441,846	8.78	0.49	-25.81
Grapes	222,260	69.43	376,586	3,251	0	1,224,157	34.43	-1.13	1,160,892	23.07	76.29	37.00
Milk	97,945	84.08	180,301	7,466	51,027	1,563,943	7.85	15.43	900,993	17.91	152.92	31.95
Beef	1,085,793	48.66	1,614,137	445	118,852	965,381	-11.14	15.97	294,045	5.84	693.16	-9.91
Poultry	469,748	89.05	888,077	725	0	643,856	18.67	19.13	313,190	6.22	397.21	73.42
Sheep	1,762,319	16.63	2,055,348	238	45,671	754,360	0.10	15.69	377,651	7.51	17.67	20.90

TABLE 2.9b Simulation Results for Adoption of Free Trade with Direct Payments (Scenario 2C)

	Domestic Price (thousand TL per metric ton)	Quantity Produced (thousand metric tons)	Direct Payments (billions of TL)	GOV (billions of TL)	GOV Change Relative to Base Run (percent)	VA (billions of TL)	VA Share (percent)	EPR (percent)	VA Change Relative to Base Run (percent)
Wheat	73,412	15,867	628,217	1,793,013	16.11	1,071,679	24.17	141.66	37.14
Barley	56,850	6,189	238,716	590,568	18.14	391,569	8.83	156.17	37.65
Maize	64,475	2,152	41,339	180,111	-7.02	67,468	1.52	158.21	-9.86
Sunflower	141,069	817	70,112	185,318	-28.80	136,573	3.08	105.49	-33.65
Sugar beet	20,585	16,808	0	345,981	-44.04	274,666	6.20	0.00	-49.50
Potato	100,017	5,081	0	508,220	-24.48	439,691	9.92	0.00	-26.18
Grapes	222,260	3,251	0	722,494	-20.66	658,508	14.85	0.00	-22.29
Milk	97,945	7,466	145,791	1,076,369	-25.77	502,024	11.32	40.93	-26.48
Beef	1,085,793	445	339,577	955,562	-12.04	376,650	8.50	915.98	15.40
Poultry	469,748	725	0	340,567	-37.23	62,990	1.42	0.00	-65.12
Sheep	1,762,319	238	130,488	777,044	3.11	451,437	10.18	40.66	44.53

Note: All variables are measured in terms of 2000 prices. TL = Turkish liras; NPR = nominal protection rate; GOV = gross output value; VA = value added; EPR = effective protection rate.

Source: The authors.

TABLE 2.10 Selected Positions in Agricultural Negotiation between the Slovak Republic and European Commission (EC)

	EC Proposal	Slovak Proposal
Share of compensation payments for crops and livestock (% of EU) ^a	35	100
Reference yield for crop compensation payments (cereal metric ton per hectare) ^b	4.16	4.99
Sugar quota—type A (metric tons) ^c	189,800	190,000
Sugar quota—type B (metric tons) ^c	19,000	45,000
Milk quota (metric tons)	946,150	1,235,000
Slaughter premium—adults (head) ^d	204,062	260,000
Slaughter premium—calves (head) ^d	62,841	60,000
Suckler cow premium (head) ^d	39,708	50,000
Ewe ceilings (head) ^d	219,360	370,000

a. As percent of payments granted to farmers in EU member countries.

b. Reference yield used in calculation of compensatory payments for crops.

c. Sugar beets used to produce sugar up to the A quota secure a higher price (about €46.72 per metric ton in 2000). Sugar beets used to produce sugar above the A quota and up to the B quota secure a slightly lower price (about €32.42 per metric ton in 2000). Sugar production exceeding the sum of both quotas has to be exported at world market prices (i.e., without export refunds). It is known as C sugar.

d. Number of head eligible for compensation payments.

Source: Csaki and others 2002.

assumption, but one that presumably captures the essence of short-run effects. However, after some time producers would begin to adjust to the new price situation, readjusting the output mix and the overall level of resource intensity. The medium- to long-term supply response in the model is determined by the elasticities of supply.²⁸

When supply effects are taken into consideration, modeling the impact of introducing the CAP with direct payments becomes tricky for the following reason: the direct payments are made per hectare currently planted, with the amount per hectare computed by multiplying a basic per metric ton payment amount by a historical regional yield for the 1986–91 baseline period. The payments are not based on the individual farmer's current levels of production (yield). For this reason, the direct payment should not affect the farmer's cultivation decisions,²⁹ but it does affect the farmer's decision on how many hectares to plant. Under Agenda 2000, these payments were originally crop-specific for large farmers (the "professional farmer" scheme) and non-crop-specific for small farmers (the "small producer" scheme). However, even for

large farmers, under Agenda 2000 the payments per hectare for cereals and oilseeds have been progressively aligned, and by the end of the Agenda 2000 period they will be virtually equal.³⁰ Thus the payments will not affect whether a large farmer chooses to plant, say, wheat or sunflower, or the farmer's decision on how much seed or fertilizer to use. They will, however, affect the amount of arable land in cultivation. In this sense, the direct payments do have an impact on agricultural production, but they do not have as much of an effect on incentives to plant individual crops as would additional income from higher prices for the products. This factor makes it difficult to model the payments' effects. In the simulations, we first treat the payments as if they do *not* come from higher prices. The resulting supply response should then be regarded as a lower bound (Case I).³¹ In Case I, the payments do not produce any supply response, but they do increase value added. Next, we treat the payments as if they come from higher prices and thus generate an increase in production. The resulting supply response should be regarded as an upper bound (Case II).

We adjust the medium-run supply elasticities, e_i , to capture the difference in the ratio of value added to price. In particular, the adjusted elasticities, ε_i , are calculated (as emphasized by Valdes 1973) by multiplying the unadjusted elasticities with the ratio of value added to product price so that $\varepsilon = e_i v_i$, where v_i is the ratio of the per unit value added at base run prices to the base period price. The supply response is then computed by applying the relation

$$(2.1) \quad \frac{\Delta q_j}{q_j} = \varepsilon \left(\frac{VA_{jA2}}{VA_{jBase}} - 1 \right)$$

where q_j indicates the quantity of product j , VA_{jA2} the value added generated in the production of commodity j in Scenario A2 (Agenda 2000 with direct payments), and VA_{jBase} the value added generated in the production of commodity j in the base case. Here we first incorporate the direct payments under Agenda 2000 as part of the value added; thereafter we abstract from considering direct payment as part of value added.

Table 2.11 shows the effects of the alignment to Agenda 2000 under alternative elasticities of supply. For each commodity, the first column shows the results under the assumed medium-run supply elasticities and the second column the results under the assumption of a completely inelastic supply response. The table reveals that output quantities under the Agenda 2000 scenarios decrease, on average, by 3.7 percent for Scenario A1 and increase by 2.5 percent for Scenario A2 under Case II. As expected, the introduction of direct payments gives incentives to increase the output relative to the case in Scenario A1.

Furthermore, the changes in total value added in the simulations with a supply response are larger than under a totally inelastic response. Similarly, Case II results in higher changes in total value added compared with Case I. Consider, for example, wheat production. Whereas total value added generated in wheat production increases by 38.62 percent in Scenario A2 (Agenda 2000 with direct payments) under the inelastic response assumption and Case II, the increase goes up to 46.20 percent under the elastic supply assumption and Case II. By contrast, under elastic supply the value added under Case I increases by only 30.41 percent. Under free trade with direct payments (Scenario C) and Case II, value added generated in wheat production goes up by 37.14 percent

under inelastic supply and by 44.36 percent under the elastic supply assumption. Note that in Scenario C, the value added increases despite the lower prices for wheat, barley, beef, and sheep. As a result, the quantity produced increases under elastic supply and Case II—5.26 percent for wheat, 4.50 percent for barley, 1.78 percent for beef, and 15.64 percent for sheep production. In all other cases, the quantity produced decreases by 0.53 percent for maize, 4.64 percent for sunflower, 14.87 percent for sugar beet, 21.78 percent for potato, 2.07 percent for grapes, 17.11 percent for milk, and 40.75 percent for poultry.

Impact on Consumers

Changes in agricultural output prices also have an impact on consumers through food prices. Lower food prices lead to a decrease in consumer spending on food. A consumer with a fixed, nominal disposable income (i.e., a fixed amount of money available for consumption) is able to increase his or her overall consumption of total goods and services by a percentage derived from multiplying the absolute value of the percentage decrease in food expenditure by the share that food expenditure makes up of total consumption. This increase in the consumer's ability to purchase goods and services is equivalent to an increase in his or her real income. The relative increase in real consumer incomes is highest for households with low disposable incomes, because poor households allocate a higher share of expenditures to food products. In the medium to long term, consumers will adjust to the new set of relative prices, moving away from the consumption of foods that have become relatively more expensive as a result of the policy changes. The medium- to long-term impact on income, therefore, is expected to be more moderate than the short-run impact. The exact amount will be determined by the price elasticity of demand for each product, which regulates the extent of consumers' adjustments to changes in food prices.

To trace the effects of changes in output prices on consumers, we start with the information on expenditure given in table 2.12 and annex table 2.20 for the average consumer and for the average consumer in urban and rural areas, respectively. Consider a commodity such as bread. Annex table 2.20 reveals that for the average consumer the

TABLE 2.11 Simulation Results for Alignment to Agenda 2000 under Positive Supply Response
(percent change relative to 2000 base run)

	Wheat		Barley		Maize		Sunflower		Sugar Beet		Potato		Grapes		Milk		Beef		Poultry		Sheep	
	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic	Elastic	Inelastic
<i>Scenario A1</i>																						
<i>Alignment, excluding direct compensatory payments</i>																						
Price change	-24.57	-24.57	-8.18	-8.18	-15.24	-15.24	-51.80	-51.80	-26.62	-26.62	-24.48	-24.48	34.43	34.43	7.94	7.94	-25.05	-25.05	18.67	18.67	-8.42	-8.42
Quantity change	-5.92	0.00	-1.49	0.00	-1.84	0.00	-9.24	0.00	-9.08	0.00	-21.48	0.00	3.44	0.00	15.81	0.00	-5.37	0.00	45.94	0.00	2.21	0.00
GOV change	-29.04	-24.57	-9.56	-8.18	-16.80	-15.24	-59.82	-55.73	-33.59	-26.96	-40.70	-24.48	39.06	34.43	20.83	4.33	-26.26	-22.08	73.19	18.67	-3.89	-5.96
Total VA change	-45.22	-41.78	-13.81	-12.50	-35.31	-34.10	-70.11	-67.07	-36.54	-30.21	-41.75	-25.81	41.72	37.00	44.15	24.47	-49.21	-46.32	153.09	73.42	8.63	6.28
<i>Scenario A2(a)</i>																						
<i>Complete alignment, including direct compensatory payments (Case I)</i>																						
Price change	-24.57	-24.57	-8.18	-8.18	-15.24	-15.24	-51.80	-51.80	-26.62	-26.62	-24.48	-24.48	34.43	34.43	7.94	7.94	-25.05	-25.05	18.67	18.67	-8.42	-8.42
Quantity change	-5.92	0.00	-1.49	0.00	-1.84	0.00	-9.24	0.00	-9.08	0.00	-21.48	0.00	3.44	0.00	15.81	0.00	-5.37	0.00	45.94	0.00	2.21	0.00
GOV change	9.24	16.11	37.49	39.57	4.14	6.10	-35.37	-28.80	-33.59	-26.96	-40.70	-24.48	39.06	34.43	32.47	14.39	3.32	9.18	73.19	18.67	13.81	11.35
Total VA change	30.41	38.62	68.85	71.42	18.90	21.13	-39.20	-33.01	-36.54	-30.21	-41.75	-25.81	41.72	37.00	68.88	45.82	49.25	57.72	153.09	73.42	51.33	48.06
<i>Scenario A2(b)</i>																						
<i>Complete alignment, including direct compensatory payments (Case II)</i>																						
Price change	-24.57	-24.57	-8.18	-8.18	-15.24	-15.24	-51.80	-51.80	-26.62	-26.62	-24.48	-24.48	34.43	34.43	7.94	7.94	-25.05	-25.05	18.67	18.67	-8.42	-8.42
Quantity change	5.47	0.00	8.53	0.00	1.14	0.00	-4.55	0.00	-9.08	0.00	-21.48	0.00	3.44	0.00	29.60	0.00	6.69	0.00	45.94	0.00	16.88	0.00
GOV change	22.46	16.11	51.48	39.57	7.31	6.10	-32.03	-28.80	-33.59	-26.96	-40.70	-24.48	39.06	34.43	48.25	14.39	16.48	9.18	73.19	18.67	30.15	11.35
Per unit VA change	38.62	38.62	71.42	71.42	21.13	21.13	-33.01	-33.01	-30.21	-30.21	-25.81	-25.81	37.00	37.00	45.82	45.82	57.72	57.72	73.42	73.42	48.06	48.06
Total VA change	46.20	38.62	86.05	71.42	22.52	21.13	-36.05	-33.01	-36.54	-30.21	-41.75	-25.81	41.72	37.00	88.99	45.82	68.27	57.72	153.09	73.42	73.06	48.06
<i>Scenario C(a)</i>																						
<i>Free trade with direct payments (Case I)</i>																						
Price change	-24.57	-24.57	-29.61	-29.61	-28.36	-28.36	-51.80	-51.80	-43.78	-43.78	-24.48	-24.48	-20.66	-20.66	-41.36	-41.36	-49.58	-49.58	-37.23	-37.23	-21.48	-21.48
Quantity change	-6.13	0.00	-5.53	0.00	-3.52	0.00	-9.33	0.00	-14.87	0.00	-21.78	0.00	-2.07	0.00	-30.90	0.00	-10.27	0.00	-40.75	0.00	0.97	0.00
GOV change	9.00	16.11	11.61	18.14	-10.29	-7.02	-35.44	-28.80	-52.36	-44.04	-40.93	-24.48	-22.31	-20.66	-48.71	-25.77	-21.08	-12.04	-62.81	-37.23	4.10	3.11
Total VA change	28.73	37.14	30.04	37.65	-13.03	-9.86	-39.84	-33.65	-57.01	-49.50	-42.25	-26.18	-23.90	-22.29	-49.20	-26.48	3.55	15.40	-79.34	-65.12	45.92	44.53
<i>Scenario C(b)</i>																						
<i>Free trade with direct payments (Case II)</i>																						
Price change	-24.57	-24.57	-29.61	-29.61	-28.36	-28.36	-51.80	-51.80	-43.78	-43.78	-24.48	-24.48	-20.66	-20.66	-41.36	-41.36	-49.58	-49.58	-37.23	-37.23	-21.48	-21.48
Quantity change	5.26	0.00	4.50	0.00	-0.53	0.00	-4.64	0.00	-14.87	0.00	-21.78	0.00	-2.07	0.00	-17.11	0.00	1.78	0.00	-40.75	0.00	15.64	0.00
GOV change	22.22	16.11	23.46	18.14	-7.52	-7.02	-32.10	-28.80	-52.36	-44.04	-40.93	-24.48	-22.31	-20.66	-38.47	-25.77	-10.47	-12.04	-62.81	-37.23	19.24	3.11
Total VA change	44.36	37.14	43.84	37.65	-10.34	-9.86	-36.72	-33.65	-57.01	-49.50	-42.25	-26.18	-23.90	-22.29	-39.06	-26.48	17.46	15.40	-79.34	-65.12	67.14	44.53

Note: GOV = gross output value; VA = value added.

Source: The authors.

TABLE 2.12 Structure of Household Expenditures
(1994 prices, Turkish liras)

	Average	Rural	Urban
Total expenses per household	111,044,759	66,698,941	167,764,049
Food, beverages, and tobacco per household	39,552,432	30,202,155	51,511,644
Food and nonalcoholic beverages per household	36,457,528	28,287,252	46,907,494
<i>Expenditure shares (% of total expenditure)</i>			
Cereals and pasta	7.24	9.54	6.07
Meat and meat products	5.18	5.69	4.92
Milk, dairy products, and eggs	4.61	5.84	3.99
Fat	3.00	4.76	2.10
Fruit, fresh or dried	7.82	9.65	6.89
Sugar and sugar products	1.95	3.07	1.38
Other food and nonalcoholic beverages	3.03	3.86	2.61
Alcoholic beverages	0.34	0.30	0.36
Tobacco	2.45	2.57	2.39
Total food, beverages, and tobacco	35.62	45.28	30.70

Source: Turkish State Institute of Statistics.

expenditure share for bread is 3.5371 percent. Next, we consider the value share of the primary commodity in bread, wheat. Multiplying the expenditure on bread with this share, we obtain the value of the analyzed primary commodity (wheat) in the bread expenditure. Considering the price relation $p_i = p_i^*(1 + NPR_i)$, where p_i denotes the domestic price, p_i^* the Agenda 2000 price of wheat, and NPR_i the nominal protection rate on wheat, we obtain the relation $p_i^* = \frac{p_i}{1 + NPR_i}$. We then normalize the domestic price so that $p_i = 1$ for wheat in the base case. By means of the NPR, we determine the foreign price of wheat. Then, by multiplying the expenditure on bread in the form of wheat with the foreign price, we can determine the value of the primary commodity (wheat) evaluated at foreign prices in the bread expenditure. By adding the value of the contents of bread other than wheat, we arrive at the value of bread evaluated at Agenda 2000 prices. Based on the expenditure of the average income group on bread evaluated at base year prices and the expenditure on bread evaluated at Agenda 2000 prices, we determine the effect of Agenda 2000 on the bread expenditure in percentage terms. Once we conduct similar calculations for all the commodities under consideration, we obtain the expenditure on food, beverages, and tobacco evaluated at Agenda 2000 prices. If E stands for total

expenditure, F for food expenditure in the base case, and F^* for food expenditure evaluated at Agenda 2000 prices, F^* can be defined as $E^* = F^* + (E - F)$. The effect on consumer welfare is then calculated as $(E - E^*)100/E^*$.³²

Table 2.13 summarizes the main results of the simulations. For each scenario, we estimated the impact of changes in food prices on, first, the nominal expenditure (change of food expenditure relative to the base period food expenditure) and second, consumers' real income (reduction in purchasing power of nominal income induced by changes in the expenditure on food). The table reveals that, on average, the price changes under the Agenda 2000 scenario (Scenarios A and B) produce a 5.91 percent decrease in the expenditure on food, beverages, and tobacco. As for the expenditure on food and nonalcoholic beverages only, consumers would have to spend 6.41 percent less than under the current base period market conditions. In the Agenda 2000 scenario, the greatest decreases in expenditure occur in the groups fat (30.53 percent), sugar and sugar products (13.44 percent), and meat and meat products (9.48 percent). Because of the significant price changes in the main agricultural products of the Agenda 2000 scenario (compared with the prevailing prices in Turkey), decreases in expenditure were recorded for all food product

TABLE 2.13 Simulation of Scenario Effects on Real Income, Selected Household Types

Reference Scenario (removal of all divergences)	Inelastic Demand			Own Price Elasticities		
	Average	Rural	Urban	Average	Rural	Urban
Change in real income	5.50	8.09	4.23	3.91	5.97	2.89
<i>Change in nominal expenditure (%)</i>						
Food, beverages, and tobacco	-14.64	-16.53	-13.23	-10.56	-12.45	-9.14
Food, and nonalcoholic beverages	-15.88	-17.64	-14.52	-11.45	-13.29	-10.03
Cereals and pasta	-13.21	-18.41	-9.06	-12.04	-16.90	-8.16
Meat and meat products	-29.12	-27.79	-29.90	-13.20	-12.63	-13.54
Fish and fish products	0.00	0.00	0.00	0.00	0.00	0.00
Milk, dairy products, and eggs	-25.85	-26.44	-25.40	-18.75	-19.14	-19.82
Fat	-37.10	-37.11	-37.10	-29.16	-28.56	-29.86
Fruits, fresh and dried	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables and potatoes	-2.54	-3.01	-2.15	-2.34	-2.78	-1.98
Sugar and sugar products	-22.10	-24.39	-19.51	-20.68	-22.82	-18.24
Other food and nonalcoholic beverages	0.00	0.00	0.00	0.00	0.00	0.00
Alcoholic beverages	-1.08	-1.09	-1.08	-0.87	-0.88	-0.87
Tobacco products	0.00	0.00	0.00	0.00	0.00	0.00
Agenda 2000 Scenario	Inelastic Demand			Own Price Elasticities		
	Average	Rural	Urban	Average	Rural	Urban
Change in real income	2.15	3.43	1.51	1.87	3.03	1.28
<i>Change in nominal expenditure (%)</i>						
Food, beverages, and tobacco	-5.91	-7.32	-4.85	-5.14	-6.49	-4.13
Food, and nonalcoholic beverages	-6.41	-7.82	-5.33	-5.58	-6.93	-4.53
Cereals and pasta	-8.03	-11.19	-5.51	-7.22	-10.11	-4.91
Meat and meat products	-9.48	-9.44	-9.50	-5.20	-4.86	-5.41
Fish and fish products	0.00	0.00	0.00	0.00	0.00	0.00
Milk, dairy products, and eggs	4.96	5.07	4.88	2.87	2.92	2.83
Fat	-30.53	-29.36	-31.88	-27.96	-27.14	-28.91
Fruits, fresh and dried	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables and potatoes	-2.54	-3.01	-2.15	-2.34	-2.78	-1.98
Sugar and sugar products	-13.44	-14.83	-11.86	-12.44	-13.73	-10.98
Other food and nonalcoholic beverages	0.00	0.00	0.00	0.00	0.00	0.00
Alcoholic beverages	-0.12	-0.14	-0.11	-0.10	-0.11	-0.09
Tobacco products	0.00	0.00	0.00	0.00	0.00	0.00

Source: The authors.

groups under the assumptions of Scenarios A and B except for milk and dairy products. Scenario C (free trade with direct payments) also induces a decrease in consumers' expenditure on food, beverages, and tobacco of about 14.64 percent. Expenditures for almost all product groups will be reduced.

The results in table 2.13 of the simulated introduction of EU-type agricultural policies in Turkey

reveal an increase in consumers' real income of 2.15 percent as an impact of food price changes on average households. The increase is more pronounced in the lower-income group, the rural sector. Because food makes up a higher share of their total expenditures and because their food consumption basket has a different mix, lower-income households experience a more significant change in real income

than the average of all groups. The immediate introduction of Agenda 2000 in Turkey would increase the real incomes of the households with the lowest incomes by 3.43 percent, which is significantly higher than the increase of 1.51 percent for households with the highest income—that is, the urban sector.

Columns 4–6 of table 2.13 present the results of the simulation of changes in consumers' real income and in nominal expenditures under the elastic demand assumption.³³ As expected, the effects of the “elastic” scenarios are substantially lower than those of the “inelastic” scenarios. Under the Agenda 2000 scenario, real income increases in the elastic variant are 1.87 percent instead of 2.15 percent in the inelastic demand. The pattern of impacts on the different groups of households under the elastic variant is principally the same as just described.

Impact on the State Budget

In addition to the implications for farmers' incomes and for consumers, the implementation of EU policies would have wide budgetary implications. The most important budgetary effects are the direct effects on internal price support measures (e.g., intervention purchases and border measures) and those stemming from direct income transfers.

When estimating the effects of the policy changes on tariff revenues and export refunds, we assume that before accession Turkey will adopt the EU-like agricultural policies on its own and will not receive any compensation from the EU budget for doing so. Under this assumption, we suppose that any subsidies to agriculture resulting from adoption of the EU-like agricultural policies will have to be financed from the Turkish Treasury.³⁴ Later, we relax this assumption by considering the case in which Turkey would receive compensation from the EU budget for introducing the EU-like agricultural policies. It should be noted that the total trade-related budgetary effects under Scenarios A1, A2, and B are similar, because the level of domestic support prices is the same for all scenarios under consideration.

The trade-related budgetary implications of adopting EU-like agricultural policies are analyzed by multiplying the net traded quantity by the difference between the base period domestic price and the Agenda 2000 price. Whenever the base period domestic price exceeds the Agenda 2000 price, the product determines the loss in tariff revenue for

imported commodities such as sunflower. For exported commodities, the product can be considered the decrease in export subsidies, as long as the base period domestic price exceeds the Agenda 2000 price, such as for wheat. Finally, for poultry the Agenda 2000 price exceeds the base period domestic price. Because poultry is an imported commodity, the product is considered to be an increase in tariff revenue.

Table 2.14 shows that after adoption of the Agenda 2000 policies Turkey will incur a net trade-related revenue loss of €226 million. In the longer term, the losses could become even greater as producers and consumers adjust to the new price levels. These results account only for expenditure on the commodities analyzed in this study. Thus they are likely to underestimate the true trade-related budgetary effects of an implementation of CAP-type market regimes in Turkey.

The budgetary effects of direct income transfers can be determined for each agricultural commodity such as wheat, barley, maize, and beef. For wheat, direct income support can be determined from the relation [direct payments (euros/metric ton)] * [exchange rate (lira/euro)] * [historical grain yield for the EU compensatory area payments (metric tons/hectare)] * [quantity of wheat produced (metric tons)]/[actual yield in 2000 per hectare (metric tons/hectare)]. The direct income support for other commodities can be similarly determined. A close look at the figures in table 2.14 reveals that direct payments to agriculture will amount to €2.772 billion under Scenarios A1 and A2 and to €970 million under Scenario B.

Overall, the budgetary costs to Turkey of adopting EU-like agricultural policies when uncompensated by the EU budget for introducing those policies will be €2.998 billion under Scenario A policies and €1.196 billion under Scenario B policies.

After accession to the EU, Turkey will be eligible for payments under the EU's Structural Funds and Cohesion Fund. But after accession, Turkey will also have to contribute to the EU budget in the form of VAT-based and GNP-based contributions. The VAT-based contribution is determined by the relation $0.008522 * 0.55 * \text{GDP}$, where the value of 0.008522 denotes the proportion used in calculation of the VAT-based contribution, and the parameter value of 0.55 is derived from the relation that the VAT base may not exceed 55 percent of national GDP.

TABLE 2.14 Trade-Related Budget Effects and Direct Payments under Agenda 2000

		Net Exports, 1999–2001 Average (metric tons)	Trade-Related Effects on Budget (billions of TL)	Agenda 2000 Direct Payments (billions of TL)	
				Scenario A	Scenario B
Wheat	EX	617,845	16,729	628,217	219,876
Barley	EX	160,508	1,061	238,716	83,550
Maize	IM	–881,072	–12,085	41,339	14,469
Sunflower	IM	–394,310	–66,002	70,112	24,539
Sugar beet	IM	–31,675	–309	0	0
Potato	EX	91,237	3,467	0	0
Grapes	EX	470,095	–45,339	0	0
Milk	IM	–146,669	1,945	145,791	51,027
Beef	IM	–69,392	–37,429	339,577	118,852
Poultry	IM	–374	52	0	0
Sheep	EX	42,162	7,972	130,488	45,671
Total			–129,939	1,594,239	557,984
Total (€ millions)			–226	2,772	970
Total budgetary cost (€ millions):					
	Scenario A		2,998		
	Scenario B		1,196		

Note: Because of the prevailing sanitary ban by Turkey on imports of livestock and meat products, the 1990–96 average of net exports for beef, sheep, and poultry is used. TL = Turkish liras; EX = export; IM = import.

Source: The authors.

Table 2.15 shows that Turkey's VAT-based contribution will amount to €1.023 billion. The GNP-based contribution is determined by the relation $34.46 * (\text{exchange rate}) * (\text{share of Turkish GDP in EU GDP})$, where 34.46 denotes the amount measured in terms of billions of euros that must be met by the EU budget requirement by the GNP-based contribution.³⁵ From table 2.15, we note that Turkey's GNP-based contribution will be €878 million.

After accession, Turkey will receive from the EU budget direct income support payments, trade-related net subsidies, payments under the Structural Funds and Cohesion Fund. The direct income support will amount to €2.772 billion in Scenarios A1 and A2 and to €970 million in Scenario B. Trade-related net subsidies, consisting of subsidies on exports minus tariff revenues on imports, are determined by multiplying the net traded quantity (exports minus imports) from third countries by the difference between the Agenda 2000 price and the border price. Basing the calculations on the average 1999–2001 net trade figures with third

countries, trade-related net subsidies from the EU will be €23 million. The payments under the Structural Funds that Turkey may receive from the EU after accession can be calculated, assuming that Turkey falls under Objective 1 of the Structural Funds.³⁶ According to the European Commission (2002), per capita payments under Objective 1 currently amount to €217 per inhabitant per year. Therefore, assuming Objective 1 applies to Turkey, the country would receive about €14.6 billion—that is, about 6.75 percent of the 2000 GDP. Turkey's potential gains from the Cohesion Fund have been estimated on the basis of the payments granted to Greece, Ireland, Portugal, and Spain. Cohesion Fund payments are granted to countries with a per capita GNP of less than 90 percent of the EU average. The total amount to be spent in 2002 was about €45 per inhabitant. If Turkey receives equal payments, it could expect to receive about €3 billion.

The calculations just presented are optimistic, because, according to EU rules, transfers from the

TABLE 2.15 Contributions to and Revenues from EU Budget

		Turkish Liras (billions)	Euros (millions)
<i>Contributions to EU budget</i>			
VAT-based contribution		588,682	1,023
GNP-based contribution		505,112	878
Total contribution		1,093,793	1,902
<i>Revenues from EU budget</i>			
Direct payments to agriculture	Scenario A	1,594,239	2,772
Direct payments to agriculture	Scenario B	557,984	970
Trade-related budgetary effects		13,473	23
Structural Funds		8,421,079	14,641
Cohesion Fund		1,746,307	3,036
Total revenue	Scenario A	11,775,099	20,472
Total revenue	Scenario B	10,738,843	18,670
<i>Net revenue from EU budget</i>			
Unrestricted	Scenario A	10,681,305	18,570
Unrestricted	Scenario B	9,645,050	16,768
Structural operations (restricted)	Agenda 2000	4,983,338	8,664
Restricted	Scenario A	5,497,258	9,557
Restricted	Scenario B	4,461,002	7,755

Source: The authors.

Structural Funds and Cohesion Fund cannot exceed 4 percent of GDP. Thus this requirement places an upper bound on the amount that Turkey can receive from the EU under these funds. For Turkey, this requirement is binding, and therefore the payments under the Structural Funds and Cohesion Fund cannot exceed €8.664 billion. The total annual net revenue that Turkey can receive from the EU under accession will therefore be about €9.557 billion under Scenario A and €7.755 billion under Scenario B.

Furthermore, an assessment of Turkey's potential gains from the Structural Funds must bear in mind that funding of projects under the priority objectives are subject to a co-financing mechanism. The amount just estimated therefore constitutes the EU's share of project funding and must be complemented by funds from the national budget. The EU's contribution to structural funding is subject to two ceilings. The first is a maximum of 75 percent of the total eligible cost and, as general rule, is at least 50 percent of the eligible public expenditure for measures carried out in the regions covered by Objective 1. When the regions

are located in a member state covered by the Cohesion Fund, the European Community contribution may rise, in exceptional cases, to a maximum of 80 percent of the total eligible cost. The second ceiling is a maximum of 50 percent of the total eligible cost and, as a general rule, is at least 25 percent of the eligible public expenditure for measures carried out in areas covered by Objectives 2 and 3. Assuming that Turkey will qualify for assistance under Objective 1 and the Cohesion Fund, and assuming an EU participation rate (on average) of 75 percent, the EU's contribution of €8.664 billion would have to be accompanied by a Turkish co-financing share of about €2.9 billion from the national budget.

Welfare Effects

The situation just described reveals that, in Turkey, integration into the EU will lead to substantial changes in the agricultural incomes of producers, the welfare levels of the consumers, and the budget revenues of the government. On the effects of integration into the EU, we have five observations.

TABLE 2.16 Impact of Changes in Agricultural Policies on Agricultural Incomes

	Gross Agricultural Output (billions of TL)	Value Added Inclusive Direct Payments (billions of TL)
Base run with current policies	8,532,570	4,835,604
Agenda 2000 without direct payments	7,799,080	4,473,629
Agenda 2000 with direct payments	9,393,319	6,067,868
Agenda 2000 with 35 percent direct payments	8,357,064	5,031,613
Free trade with direct payments	7,475,246	4,433,256

Note: All variables are measured in terms of 2000 prices. TL = Turkish liras.

Source: The authors.

First, the impact on farmers' incomes of the introduction of EU-type agricultural policies (Scenarios A1, A2, B, and C) will be driven mainly by the amount of CAP-like compensation payments granted to the farmers (see table 2.16), and the impact will be greater in the medium to long term as farmers adjust to the new policies. The largest reduction in farmers' incomes is produced by Agenda 2000 policies without direct payments (Scenario A1). From the point of view of the farmers, the best alternative among the various EU policies considered is the Agenda 2000 scenario with direct payments given at the EU levels.

Second, the impact will not be uniformly distributed across all agricultural products; some farmers will gain and others will lose from the reforms as a result of changes in relative rates of protection.

Third, EU-type agricultural policies will reduce agricultural prices substantially in Turkey, leading to lower food prices. In the short term, food expenditures are projected to fall by as much as 5.91 percent compared with the current base period conditions. In the medium to long term, EU-like changes in agricultural policies (Scenarios A1, A2, and B) would induce a 5.14 percent average drop in food expenditures. Expenditures are projected to fall for the major food product groups, with the largest decreases projected for fat products (30.53 percent), sugar and sugar products (13.44 percent), and meat and meat products (9.48 percent).

Fourth, because Turkish households spend on average about 36 percent of their disposable income on food and beverages, policy reforms that affect food prices will undoubtedly affect con-

sumers' real income. In fact, the model estimates that, in the medium to long term, EU-like policies (Scenarios A1, A2, and B) will lead to a 1.87 percent increase in real household incomes in Turkey. This impact is higher (2.15 percent) in the short term, before consumers can adjust to the higher prices for some food products. Therefore, although farmers as a group could lose from the new policies, depending on the amount of direct payments, the population as a whole stands to gain from the introduction of these policies. Furthermore, because food makes up a higher share of their total expenditures and their food consumption basket has different mixes, lower-income households (i.e., rural households) experience a more significant increase in real income.

Fifth, the budgetary costs to Turkey of adopting EU-like agricultural policies (when Turkey will not receive any compensation from the EU budget for introducing these policies) will amount to €2.998 billion under Scenario A policies and to €1.196 billion under Scenario B policies. Yet after the EU accession, Turkey will be a net recipient of funds from the EU; it can expect to receive from the EU €9.557 billion in net transfers under Scenario A and €7.755 billion in net transfers under Scenario B.³⁷

Institutional Development and EU Accession

The institutional and human capital enhancements implied by EU membership require significant effort and investment during the preaccession period. Not only is the alignment of legislation necessary; Turkey also must develop the judicial

and administrative capacity to implement and enforce the *acquis communautaire*. In preparation for joining the EU and adopting regulations and policies of the EU, Turkey will have to strengthen some institutions and create others. This section first outlines Turkey's key institutions for agriculture in the context of implementation of the *acquis* and, in particular, the mechanisms to operate the CAP. The section then briefly discusses Turkey's status and ability to adopt and implement the *acquis*.

Implementing Agencies for Agricultural Policies

The Ministry of Agriculture and Rural Affairs (MARA), Ministry of Industry and Trade, Turkish Bank of Agriculture, and Treasury are the main organizations responsible for the formulation and implementation of agricultural policy in Turkey. The main task of MARA is to assist in the elaboration and implementation of agricultural policies, particularly services such as research and development, quarantine and inspection, rural development, and small-scale irrigation works.

MARA also carries out commercial functions through the Turkish Grain Board (TMO), an affiliated state economic enterprise. For more than six decades, the TMO has functioned as a buffer stock agency in order to stabilize the grain prices received by producers and paid by consumers. The board announces the purchase prices, which are later re-determined based on market conditions. The TMO uses its stock capacity to regulate the market, so that prices in the bread and pasta industries are stabilized, and so producers and consumers do not face high price fluctuations (MARA 2002). Under the Agricultural Reform Implementation Project, the prices of the TMO will be increasingly linked to the world price (with a margin equal to the tariff) in order to allow state procurement to function only as a "buyer of last resort," which is now the case in the EU. The TMO also declares a sales price for grain no less than either (1) the TMO's purchase price plus the storage cost up to the date of sale, including imputed interest charges on stocks, or (2) the tariff-inclusive import parity price for grain of equivalent quality as of the time the grain is sold. Prices increase in general to take into account the depreciation of the Turkish lira. This system discourages wheat buyers from letting the TMO incur all of the storage costs and then buying the grain at

a subsidized price later in the year, which has been the case in the past. TMO's new purchase and sales pricing policies have been very successful in eliminating its deficit (TMO 2002).

The Turkish Bank of Agriculture is, as explained early in this chapter, the principal supplier of agricultural credit for crop and livestock production. It was the channel through which the bulk of the credit was extended to farmers through the agricultural credit cooperatives (ACCs) and the agricultural sales cooperatives unions (ASCUs). Virtually all of these loans carried negative real interest rates, with losses covered by the Treasury. The ACCs provided short- and medium-term credit in the form of a limited cash payment (up to 25 percent of the total loan) plus production inputs (e.g., seed, fertilizer, feed, and machinery). The ACC system was a retail network of the Turkish Bank of Agriculture for the distribution of subsidized credit in kind to small farmers, with some independence from the government since 1995. It was the only source of production credit for smallholder farmers. Because almost all of the financial requirements were provided by the Turkish Bank of Agriculture, the cost-effectiveness of the ACCs was never a concern. Recently, the Turkish Bank of Agriculture was commercialized (about 500 branches were closed in rural areas), and the credit subsidy was eliminated. Since then, an alternative arrangement for providing small farmers with credit has not yet been established.

In the past, the ASCUs operated under the control of the Ministry of Industry and Trade. They were authorized to set prices for members' commodities and to implement support purchases from producers on behalf of the state. They also were authorized to set up facilities such as warehouses and primary processing and packing plants and to market commodities in accordance with wholesale and retail market practices. Today, within the framework of the Agricultural Reform Implementation Project (ARIP), financial aid is granted to assist the restructuring and transformation of ASCUs into genuine cooperative organizations—that is, independent, financially autonomous, self-managed cooperatives that sell and process members' production.

Financial aid is also provided for improving public services to facilitate reform implementation. Regulations are in place to control water and soil pollution and to protect wetlands. National and regional

plans distribute information on ways to combat desertification and reduce discharges of nutrients. The government plays a large role in investment in infrastructure, especially irrigation works.

Status of Implementation of the Acquis in Agriculture

This section examines Turkey's status and ability to assume the obligations of EU membership.

Adoption of the Common Market Organizations

The markets policy is the most important instrument of the CAP. As noted earlier, it places products or a group of products under a particular regime, the Common Organization of the Market (COM), so that common rules govern production and trade. The CAP is seeking to gradually reduce institutional prices toward the world market levels, while consolidating direct aid as the basic support mechanism for European Community farming. The *acquis* requires that the intervention agencies be capable of carrying out tasks such as regular market and price monitoring, buying-in, public storage, and sales and stock control in premises that meet Community standards. Furthermore, the *acquis* specifies precise rules for producer organizations, which must be fulfilled if such an organization is to benefit from Community support. Finally, the COMs require specific administrative structures for operation of the Community supply-management instruments such as production quotas in the sugar, dairy, and starch sectors.

During late 1990s, Turkey, with the introduction of ARIP, completely reformed its prevailing output price support and input subsidy policies. The ASCUs were restructured, and the TMO was downsized. The TMO will preserve the assets needed to carry out a minimum level of purchases and storage and will liquidate the rest of its assets.

In addition, a process of privatizing the agricultural state economic enterprises has begun. The sugar law adopted on April 19, 2001, opens the market to competition, reduces state interference, and aims to maintain stable and self-sufficient sugar production. The state-owned sugar company will operate on a commercial basis, and sugar mills will be transferred to the Privatization Agency. In addition, a sugar board was established. The sugar law aims to maintain the demand and supply

balance through a system of production quotas like that used in the EU. In the tobacco sector, the Turkish Parliament adopted a new law restructuring the Directorate General for the Tobacco and Tobacco Products, Salt and Alcohol Industry (TEKEL). The law converts TEKEL from a monopoly to a commercial enterprise that will operate under free-market conditions. Parliament also adopted new regulations on tobacco, tobacco products, and alcoholic beverages. The processing facilities of TEKEL are to be privatized. In January 2002, a tobacco law was adopted that aimed to end state-subsidized tobacco purchases as of 2002 and to introduce auction sales, individual purchasing contracts between producers and buyers, and liberalization of the market.

In this restructuring, some firms were liquidated, such as the Turkish Agricultural Supply Corporation, the state firm responsible for input supply. Although the achievements described are considerable, Turkey, according to the European Commission (2004), lags behind in adopting the EU's common market organizations.

Implementation of the Integrated Administration and Control System of Payments

According to the *acquis*, the administrative structures and systems needed for handling the CAP expenditure under the Guarantee Section of the European Agricultural Guarantee and Guidance Fund must meet certain requirements. In particular, the paying agencies must be accredited and must offer sufficient guarantees that the admissibility of claims and compliance with European Community rules are checked before payment is authorized and that the payments effected are correctly and fully recorded in accounts. To help combat fraud and ensure that the direct payments scheme is effectively applied, the EU introduced the Integrated Administration and Control System. Farmers wishing to claim direct payments must complete detailed IACS forms, which are designed to ensure that only eligible land is entered into the scheme and that only one claim is made on any individual piece of land. According to the *acquis*, the IACS must have a computerized database, an alphanumeric identification system for agricultural parcels, and a system for identifying and recording animals.

Turkey realizes that direct income support is at the heart of ARIP and that registration of farmers is a critical part of the DIS program. Two approaches have been used to build an adequate registry of farmers in Turkey. The first approach is based on the existing land registry records (cadastre), and the second is based on certificates of farmers. Land registry was used where it exists, but it was complemented by farmer certificates. In addition, MARA developed a farm registry system in collaboration with related organizations. The database of this system includes information on the number of farmers, their demographic characteristics and assets, the number and the size of land parcels, and land use. This information is more accurate than formal statistics, and to access it, all provinces and districts are provided an online connection to the MARA Registration Center. The 2.6 million farmers registered hold a total of 16.4 million hectares of land, of which 16.3 million hectares are eligible for direct income support. The number of parcels registered is 15.5 million. In 2001, direct payments of about TL 500 trillion were made, paid in two installments. DIS continued in 2002 with a payment of TL 135 million (\$85) per hectare of land up to 50 hectares. Transition payments to help farmers divert from hazelnut and tobacco increased in 2002 to \$0.2 million, and transition payments were to be granted until 2004. In addition to the farmer registry, a Geographic Information System (GIS) and Remote Sensing Department was established within MARA to classify and map agricultural land, estimate production and production capacity for various products, and create a database for land use planning purposes.

These are considerable achievements. Yet, according to the European Commission (2004), Turkey has achieved little progress in introducing an IACS for payments. This situation is particularly serious because the data required for IACS are not easily available. It requires a uniform, centralized database that would allow payments control at the central level, and an integrated system of on-the-spot controls needs to be developed. According to EU legislation, the individual member states are obliged to control areas that have at least 5 percent of applicants for payments. Fifty percent of the requested area must be verified—one part on-site and one part perhaps from aerial photography. The

registration system in Turkey developed under the DIS is certainly a start on an IACS. It includes a very comprehensive audit and financial management system that is in line with the kind of control system mentioned earlier.

By the end of 2004, all EU member states will be required to use a land register and parcel identification control system based on GIS analysis of digital images. Turkey could adopt this system from the outset. Over time, GIS maps of the whole territory of Turkey should be prepared. Such a system will derive the basic data from the cadastre map of the Turkish territory, which needs to be digitized. The cadastre data will then be superimposed with ortho-photomaps, which will allow identification of the exact borders of cultivated agricultural land and of less favored areas. The processed ortho-photomaps, along with other relevant cadastre data (on disadvantaged areas, protected areas, environmentally sensitive areas, and so forth), will be given to an institution in charge of the data processing, and the result is expected to be an entirely new register of land use. Because introduction of the IACS and establishment of an agency to disburse direct payments and other subsidies to farmers are prerequisites for the functioning of the CAP, it appears that Turkey must extend the present system in order to develop the land register and parcel identification control system like those of the EU and establish the associated payment agency.

Food Safety and Quality Standards Food safety issues in the EU are spread over food, veterinary, phytosanitary, and animal nutrition legislation. Food legislation includes general rules for hygiene and control, food labeling, food additives, food packaging, and genetically modified foods. Veterinary legislation addresses animal health, animal welfare, animal identification and registration, internal market control systems, external border controls, and public health requirements for establishments in relation to animal products. Phytosanitary legislation includes plant health (harmful organisms, pesticides), seeds and propagating material, and plant hygiene. Finally, animal feed legislation includes the safety of feed materials and additives, labeling, contaminants in feed, controls, and inspections.

The *acquis* requires that each member state have appropriate administrative structures to inspect and control the implementation of all food legislation. In particular, the various hygiene control officials must be trained in inspection and in the Hazard Analysis and Critical Control Point (HACCP) system. Food operators must implement HACCP, and laboratories used in hygiene and foodstuff analysis must comply with the European Community system on accreditation, method of sampling, and analysis.³⁸ In the realm of plant and animal health and nutrition, the *acquis* requires that appropriate inspection arrangements be available at the site of origin, that nondiscriminatory checks be performed during transport and at the destination point, and that satisfactory testing arrangements be available.

A recent white paper on food safety stated that the commission is determined to set the highest standards of food safety (see European Commission 2000). The white paper proposes the following: (1) establishment of an independent European Food Authority with responsibility for independent scientific advice on all aspects of food safety, operation of rapid alert systems, and communication of risks; (2) an improved legislative framework covering all aspects of food products “from farm to table”; (3) greater harmonization of national control systems; and (4) dialogue with consumers and other stakeholders. According to the white paper, imported foodstuffs and animal feed should meet health requirements at least equivalent to those set by the European Community for its own products. The white paper on food safety also states that it is essential that the EU candidate countries implement the basic principles of the treaty establishing the European Community, pass food safety legislation, and put in place control systems equivalent to those in place within the European Community. Similar considerations will certainly apply to Turkey. Because the EU will not take any risks that might lead to lower food safety standards or affect EU consumers, it is of prime importance that Turkey comply with the EU’s *acquis* on food safety.

In Turkey, food legislation has been updated continually since 1985. The harmonization of “Good Agricultural Practices” has been completed, and the regulation on agricultural quarantine has been in force, and regularly strengthened, since 1991.³⁹ A food act was passed in 1995, according to which all stages of food production are targeted for

inspection. Turkey has formally adopted a number of typical elements of food safety regulations and control systems by adopting some of the EU rules and regulations. In particular, Turkey has started to set up the Rapid Alert System for Food and Feed, and has revised the regulation on the Establishment and Duties of Province Control Laboratories. Accreditation has been initiated for some of the laboratories involved in the ring test organized by the Food Analysis Performance Assessment Scheme and Turkish Scientific and Technical Council. Fifteen provincial laboratories have been brought up to EU standards. The Plant Health Regulations, which are the Turkish equivalent of the basic Council Directive 2000/29/EC, dating back to 1991, were amended in 2003. HACCP control instructions have been prepared to improve food processing. In the veterinary area, Turkey amended the Law on Animal Health and Surveillance in 2004, creating the legal bases for banning the administration of certain substances to animals and imposing sanctions in this regard. It has also upgraded the control performance of the veterinary service, including the implementation of residue monitoring plans.⁴⁰

Trade and Border Control Implementation of the CAP requires the establishment of effective customs control for trade with third countries. Because Turkey’s borders will become EU borders at the point of accession, Turkey will have to protect its long borders and ensure, for example, an adequate veterinary infrastructure to manage livestock inspection and control disease. Thus Turkey needs to assess the current conditions and to design technical specifications for construction of other veterinary and phytosanitary border crossings along its future EU border.

EU controls on third-country imports require that a system of border inspection posts (BIPs) be completed to EU standards at external borders with third countries. Currently, some 283 EU BIPs are operated by national authorities. Most of these are at ports and airports; others are at road or rail links located, in particular, on the eastern borders of the EU.

The accession of Turkey will extend the EU’s eastern frontier with Georgia, Armenia, Iran, Iraq, and Syria. Veterinary checks on imports at the BIPs include documentary, identity, and physical checks of the animals or animal products. After these checks

at the first border crossing into the EU, animals and products can in principle circulate freely in the internal market. It is therefore essential that BIP facilities and procedures are adequate to maintain animal and public health safety. Setting up border inspection posts for veterinary and other controls in the new member states requires that buildings, equipment, and staff be in place to carry out the required border checks. EU legislation sets out minimum standards for BIP facilities, depending on the types of products to be checked.

Conclusion

Accession to the EU implies some major changes, both in the incentive structure for agricultural production and in the institutions of the sector. This chapter modeled and quantified the probable changes in the incentive structure and examined their implications for the structure of production, value added in primary agriculture, and welfare of producers and consumers. It also investigated qualitatively what changes will be needed in major institutions by comparing those existing currently in Turkey with those of the EU's Common Agricultural Policy.

The results of any modeling exercise should be taken with a grain of salt, and that is even truer of those in this chapter. One reason is that the CAP is a moving target undergoing fundamental reforms. The general direction of the reform program is clear, but how far it will have gone by the time of Turkey's accession is not. It is quite possible—some would argue likely—that the price structure in the EU will in another 5–10 years be very close to that prevailing in world markets, but this development depends on some future political decisions, and so is by no means certain. Clearly, however, prices will be much lower than they are at present. Because of the uncertainties, this chapter modeled several different scenarios, but all results should be interpreted as indicative of general orders of magnitude rather than as precise numerical forecasts. If the model were run using the scenario of the recently adopted reform program that is an extension of Agenda 2000, Turkey's producers and consumers would face lower prices. Turkish consumers would gain even more than they would under the Agenda 2000 scenario, and producers would lose more in price supports but would receive substantially higher direct payments.

One important difference between Turkey and the accession countries of Central and Eastern Europe is that in most of the latter, agricultural prices were lower than those in the EU at the time those countries began accession negotiations. In Turkey, the converse is true, which implies that the prices for many major agricultural products in Turkey will have to be reduced at some point between now and accession. As quantified in this chapter, such a reduction would be of great benefit to Turkish consumers, especially the poor. It would, however, require adjustments on the part of Turkish farmers. Under its current reform program, ARIP, Turkey has made a good start in this adjustment process. The way in which it has done this—by partially compensating farmers by means of an incentive-neutral, WTO-compatible direct income support system—is fully consistent with the mechanisms of the CAP. By bringing agricultural prices in Turkey more in line with world prices, the reforms will begin to make Turkish agriculture more efficient. This improvement, in turn, would help Turkey to meet one of the EU's primary criteria for accession countries—that its producers be able to compete in the unified market that follows from membership. Of course, an important lesson from other reform-minded countries is that to realize the benefits of the reform program in increased competitiveness, producers must be supported by having the appropriate infrastructure and services, as well as continued sectoral and economy-wide reforms.

As for institutions, Turkey has made a good start in some areas, but it still has a long way to go in others. The DIS system in Turkey lays the foundation for a system to administer direct payments under the CAP, and the financial management system of the DIS should be a good basis on which to build the Integrated Administrative and Control System of payments. But some improvements will clearly be needed. For example, the system will have to be based on GIS analysis of digital images, implying that GIS maps will have to be prepared for all of Turkey. Food safety and quality standards will have to be improved, as will veterinary border posts. But with a good investment program and support from the EU and international community, Turkey should find it feasible to complete the improvements in the period leading up to accession.

Annex

TABLE 2.17 Arrangements Applicable to European Community Importation of Agricultural Products, Other than Fruits and Vegetables Originating in Turkey

HS	Description	1999 Turkish Exports to EU (US\$)	Tariff Rates Applied by EU on Imports from Third Countries	Ad Valorem Duty on Imports from Turkey		Specific Duty on Imports from Turkey		Over- Quota Duty on Imports from Turkey
				Ad Valorem Duty	Tariff Quota (metric tons)	In-Quota Duty	Tariff Quota (metric tons)	
0204	Meat of sheep or goat	123,880	78.10–157.20	0	—	0	200	
020725	Frozen turkeys	—	20.85				1,000	
02072510		—				ECU/t 170		
02072590		—				ECU/t 186		
020727	Frozen cuts of turkeys	—	27.64					
02072730		—				ECU/t 134		
02072740		—				ECU/t 93		
02072750		—				ECU/t 339		
02072760		—				ECU/t 127		
02072770		—				ECU/t 230		
040690	Cheese		67.76					
04069029		338				0	1,500	ECU 67.19/100 kg
04069031		804,042						
04069050		—						
04069086		—						
04069087		—						
04069088		—						
0811							100	
08111011	Frozen strawberries	125,928	25.27	0	—	0		
08112011	Frozen raspberries	—	19.89	0	—	0		
08119019	Other fruits, frozen	1,122	18.93	0	—	0		
10020000	Rye	—	103.90			Reduction according to Article 3(4)		
1107	Malt	1,538						
110710			50.40			Reduction of ECU/t 6.57		
11072000			29.30			Reduction of ECU/t 6.57		

1509	Olive oil							
15091010		—	81.30					
15091090		121,068,014	81.30					
15099000		—	69.90					
151000	Other olive oil							
15100010		—	79.20					
15100090		2,201,779	79.20					
2002	Prepared tomatoes				8,000			
200210		3,622,783	16.80	0				
20029011		485,353	16.80	0				
20029019		78,337	16.80	0				
2002	Prepared tomatoes				30,000 t			
20029031		12,924,543	16.80	0				
20029039		4,760,473	16.80	0				
20029091		5,718,862	16.80	0				
20029099		256,187	16.80	0				
2007								
20079130	Prep. of citrus fruit, with sugar	—	32.50	0	—	0	100	
20079939	Other preparations with sugar	1,000,696	39.26	0	—	0	100	
200850	Apricot pulp				600			
ex 20085092		481,445	25.39	0				
ex 20085094		27,604	25.39	0				
2204	Wine							
220410	Sparkling wine	32,099	9.80			0	—	
220421	Other wine, 2 liters or less	4,196,588	8.70			0	—	
220429	Other	2,224,958	17.70			0	—	
220600	Other fermented beverages	2,358	8.51			0	—	
ex 2007	Undenatured ethyl alcohol	—	28.00–39.26			0	—	
200900	Vinegar and substitutes	—				0	—	

Note: ECU/t = European currency unit per metric ton.

Source: Decision 1/98 of the EC-Turkey Association Council of February 25, 1998.

TABLE 2.18 Arrangements Applicable to European Community Importation of Fruits and Vegetables Originating in Turkey

HS		1999 Turkish Exports to EU (US\$)	Tariff Rates Applied by EU on Imports from Third Countries	Time Period	Tariff Rates Applied by EU on Imports from Turkey during Specified Time Periods	Tariff Quota (metric tons)
ex 070190	Potatoes	805,142	13.85	January 1–March 31	0	—
070310	Onions	444,377	11.20			
ex 07031011				February 15–May 15	0	—
ex 07031019				February 15–May 15	0	—
ex 07031011				May 16–February 14	0	2,000
ex 07031019				May 16–February 14	0	2,000
070820	Beans	460,017	13.37			
ex 07082020				November 1–April 30	0	—
ex 07082095				November 1–April 30	0	—
ex 07089000				July 1–April 30	0	—
070930	Aubergines	1,546,945	14.90			
ex 070930				January 15–April 30	0	—
ex 070930				May 1–January 14	0	1,000
070940	Stick celery	8,598	14.90			
ex 07094000				January 1–April 30	0	—
070990	Fresh or chilled vegetables NES	179,561	13.08			
07099071	Courgettes			December 1–end of February	0	—
ex 07099073	Courgettes			December 1–end of February	0	—
ex 07099079	Courgettes			December 1–end of February	0	—
070990	Fresh or chilled vegetables NES					500
ex 07099073	Courgettes			March 1–November 30	0	—
07099075	Courgettes			March 1–November 30	0	—
07099077	Courgettes			March 1–November 30	0	—
ex 07099079	Courgettes			March 1–November 30	0	—

ex 07099090	Pumpkins and courges			December 1–end of February	0	—
ex 07099090	Other wild onion			February 15–May 15	0	—
080221- 22	Fresh or dried hazelnuts	354,662,275	3.70			
08022100					3	—
08022200					3	—
080610	Fresh table grapes	21,850,312	16.10			
08061021				Nov. 15–April 30, June 18–July 31	0	—
ex 08061029				Nov. 15–April 30, June 18–July 31	0	—
08061030				Nov. 15–April 30, June 18–July 31	0	—
ex 08061040				Nov. 15–April 30, June 18–July 31	0	—
ex 08061050				Nov. 15–April 30, June 18–July 31	0	—
08061061				Nov. 15–April 30, June 18–July 31	0	—
08061069				Nov. 15–April 30, June 18–July 31	0	—
080711	Watermelon	784,893				
ex 08071100				April 1–June 15	0	—
ex 08071100				June 16–March 31	0	14,000
080719	Melons	1,437,680				
ex 08071900				November 1–May 31	0	—
080940	Plums	1,278,413				
ex 08094010				May 1–June 15	0	—
ex 08094020				May 1–June 15	0	—

Note: NES = not elsewhere classified.

Source: Decision 1/98 of the EC-Turkey Association Council of February 25, 1998.

TABLE 2.19 Agricultural Products for Which EU Entry Price System Applies

HS	Description	1999 Turkish Exports to EU (US\$)
07020000	Tomatoes	2,306,800
07070005	Cucumbers	1,303,757
07091000	Artichokes	9,307
07099070	Courgettes	1,417,562
08051030	Oranges	5,191,270
08051050	Oranges	174,027
08052010	Clementine	439,670
08052030	Satsumas	69,803
08052050	Mandarins	—
08052070	Tangerines	—
08052090	Citrus hybrids	8,010,676
08053010	Lemons	13,367,259
08061010	Grapes	21,834,061
08081000	Apples	—
08081050	Apples—Granny Smith	1,735
08081090	Other Apples	5,350
08082010	Pears	—
08082050	Other pears	1,520,560
08091000	Apicots	674,115
08092005	Sour cherries	189,787
08092095	Table cherries	37,176,175
08093010	Peaches	—
08093090	Other peaches	310,744
08094005	Plums	1,270,287
20096011	Fruit juices	—
20096019	Fruit juices—grapes	410,950
20096051	Fruit juices—grapes	271,163
20096059	Fruit juices—grapes	768
22043092	Wine of fresh grapes	—
22043094	Wine of fresh grapes	—
22043096	Wine of fresh grapes	—
22043098	Wine of fresh grapes	16,965
Total		95,972,791

Source: Turkish State Institute of Statistics.

TABLE 2.20 Structure of Household Expenditures

(1994 prices, Turkish liras)

	Average	Rural	Urban
Total expenses per household	111,044,759	66,698,941	167,764,049
Food, beverages, and tobacco per household	39,552,432	30,202,155	51,511,644
Food and nonalcoholic beverages per household	36,457,528	28,287,252	46,907,494
<i>Expenditure shares (% of total expenditure)</i>			
<i>Cereals and pasta</i>			
Rice	0.7659	1.1584	0.5663
Flour	1.6416	3.9502	0.4677
Bread	3.5371	2.6741	3.9759
Bread and bread products			
Pasta	0.3113	0.5020	0.2144
Other bread products	0.4088	0.7150	0.2532
Confectionary products			
Rolls (fancy cake)	0.2885	0.1857	0.3408
Rolls (ordinary)	0.0634	0.0730	0.0585
Rolls (durable)	0.2251	0.2840	0.1952
<i>Meat and meat products</i>			
Meat			
Pork			
Veal	1.5659	1.2013	1.7513
Beef	0.5351	0.8484	0.3758
Sheep, lamb, and goat	1.5581	2.1953	1.2341
Poultry	0.7116	0.6450	0.7454
Subproducts and edible offal	0.1471	0.1772	0.1318
Smoked products	0.2997	0.2515	0.3243
Canned meat products			
Fish and fish products			
Fresh and frozen fish	0.3588	0.3698	0.3532
Processed fish			
Other water animals	0.0011	0.0016	0.0008
Fish ready-to-cook and fish dishes			
<i>Milk, dairy products, and eggs</i>			
Milk			
Fresh milk	1.0733	1.2479	0.9845
Dry (powder) and condensed milk	0.8019	1.2451	0.5765
Dairy products			
Cheese and curd	1.9321	2.4456	1.6710
Ice cream	0.0758	0.0290	0.0996
Other dairy products	0.0205	0.0395	0.0109
Eggs	0.7103	0.8310	0.6489
<i>Fat</i>			
Vegetable fat			
Vegetable oil	1.6869	2.6487	1.1977
Margarine	0.7650	1.0891	0.6001
Animal fat			
Dairy butter	0.5337	0.9984	0.2974
Lard/fat	0.0117	0.0193	0.0078

TABLE 2.20 (Continued)

	Average	Rural	Urban
<i>Fruit, fresh or dried</i>			
Fresh fruit			
Fresh fruits, temperate zones	2.2800	2.4176	2.2101
Fresh fruits, tropical zones	0.1158	0.0812	0.1333
Dried fruit and nuts	0.4174	0.4317	0.4101
Fruit, canned			
Frozen fruit	0.0068	0.0084	0.0060
Bottled fruit			
Jam, marmalade, and jelly	0.2569	0.3638	0.2026
Fruit juices, syrups, and nectars	0.0845	0.0528	0.1006
Vegetables and potatoes			
Fresh vegetables and mushrooms	3.0108	3.6075	2.7073
Dried vegetables	1.0826	1.7756	0.7302
Frozen vegetables	0.0587	0.0962	0.0396
Potatoes			
Potatoes	0.5085	0.8146	0.3529
Potato products	0.0013	0.0007	0.0017
<i>Sugar and sugar products</i>			
Sugar	1.3920	2.4582	0.8498
Sugar products—nonchocolate	0.2004	0.2435	0.1785
Chocolate products	0.1588	0.0993	0.1891
Honey	0.1953	0.2680	0.1583
<i>Other food and nonalcoholic beverages</i>	3.0312	3.8650	2.6072
Coffee, tea and cocoa			
Coffee—all sorts	0.0840	0.0541	0.0991
Tea, including dried herb and others	1.0452	1.7319	0.6961
Cocoa	0.0067	0.0058	0.0071
Other food	1.5310	1.8555	1.3659
Soft drinks			
Fizzy soft drinks	0.3415	0.2098	0.4085
Mineral water	0.0228	0.0078	0.0305
<i>Alcoholic beverages</i>			
Spirits	0.2095	0.1852	0.2218
Wine	0.0151	0.0121	0.0166
Beer	0.1132	0.1017	0.1190
<i>Tobacco</i>			
Cigarettes	2.4142	2.4970	2.3721
Tobacco products	0.0352	0.0749	0.0150

Source: Turkish State Institute of Statistics.

Notes

1. The authors are grateful to Mr. Antonio Nucifora for his assistance and advice on the model used in this paper to quantitatively estimate the effects of adopting the Common Agricultural Policy of the European Union.

2. 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, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

3. The last agricultural census was carried out in 2001, but the results of this census are still not available. The large number of multiparcel agricultural land holdings, the landless peasants in some parts of eastern Turkey, and the feudal structures in eastern and southeastern Anatolia are three of the major problems in Turkish agriculture. The land fragmentation is in part a consequence of the inheritance provisions of the 1926 Civil Code, which is patterned after the Swiss Civil Code. To attack the problem of landless peasants, the government has pursued various agrarian reforms since the formation of the Republic, but more work needs to be done. Finally, the local lord's hegemony in eastern and southeastern Turkey is a peculiarity of the Turkish agricultural setting.

4. All dollar amounts are U.S. dollars unless otherwise indicated.

5. A review of the tariff binding commitments of Turkey and the EU under the World Trade Organization (WTO) on agricultural products reveals that by 2004 Turkey's tariff bindings will all be almost above the EU final bound levels under the Uruguay Round agreement, which will be further reduced by the ongoing Doha Round negotiations. Thus, under the accession process, Turkey will have to conform to the lower EU levels.

6. For the COM on cereals, see Council Regulations (EC) No. 1251/1999 and No. 1253/1999.

7. See Article 2 of Council Regulation No. 1251/1999. In the Central and Eastern European (CEE) countries, the arable base area for each accession country has been determined by taking the average for the years 1997, 1998, and 1999.

8. In the CEE countries, aid for durum wheat applies to the durum wheat used to produce pasta. The glassiness of the variety grown should be higher than 73 percent. Furthermore, durum wheat must have been grown for a minimum of some 20 years to qualify for aid. Finally, aid is contingent on the area under durum wheat production constituting at least 2 percent of the total area under cereal production.

9. For CEE countries, the reference yields have been determined as the average of the median three years of the period 1994/95–1998/99. The reference yields have been set at 4.26 metric tons per hectare for Hungary, 2.96 tons per hectare for Poland, and 4.16 tons per hectare for Slovakia.

10. For CEE countries, the date is December 31, 2000.

11. The regulations that apply to sunflower seed are governed by Council Regulation (EC) No. 1251/1999 amending Regulation No. 3405/93.

12. Sugar beets are governed by Council Regulation (EC) No. 1260/2001.

13. Fruits and vegetables, including grapes, are governed by Regulation (EC) No. 2699/2000 amending Council Regulation (EC) No. 2200/1996, No. 2201/1996, and No. 2202/1996.

14. Milk and dairy products are governed by Council Regulation (EC) No. 1255/1999 on the COM for milk and dairy products. Also applicable is Council Regulation (EC) No. 1256/1999 amending Regulation (EEC) No. 3950/1992 establishing an additional levy in the milk and milk products sector.

15. Ceilings have been established per member state on the basis of slaughterings and exports registered in 1995. Where the national ceiling is exceeded, the premiums are reduced proportionately.

16. In particular, member states may choose between two formulas for granting additional extensification premiums on suckler cows and special beef payments: (1) a simple supplement of €100 per premium where the stocking intensity is less than 1.4 livestock units per hectare; or (2) as of 2002, €40 where the stocking intensity is between 1.8 and 1.4 livestock units per hectare and €80 if less than 1.4 livestock units per hectare.

17. Ovine meat is governed by Regulation (EC) No. 2529/2001.

18. More information on the reforms is available at http://europa.eu.int/comm/agriculture/mtr/index_en.htm.

19. Even decoupled payments involve some distortion as they are currently administered. But, according to an analysis by the OECD, this distortion is very small. See OECD (2001) and Dewbre, Anton, and Thompson (2001).

20. This elimination of barriers does not include food safety, sanitary, and phytosanitary requirements, and it is subject to rules of origin.

21. In WTO terminology, subsidies in general are identified by "boxes" given the colors of traffic lights: green (permitted), amber (slow down—that is, will be reduced), and red (forbidden). The Uruguay Round agreement on agriculture has no red box, although domestic support exceeding the reduction commitment levels in the amber box is prohibited. A blue box refers to an amber box with conditions designed to reduce distortions. Subsidies that are tied to programs that limit production are included in the blue box.

22. For a discussion of the modeling methodology, see Csaki and others (2002).

23. The policies have been projected using the 2000 price and cost situation, because complete data for later periods were not available at the time of preparation of this chapter.

24. The exchange rates used in the study for 2000 were TL 624,325 to the U.S. dollar and TL 575,179.98 to the euro.

25. Given the domestic price of commodity i , p_i , and its border equivalent price, p_i^* , the nominal protection rate (NPR) is defined as

$$NPR_i = \left(\frac{p_i}{p_i^*} - 1 \right) * 100$$

26. The effective protection rate (*EPR*) is computed on the basis of the ratio of value added in the production of i measured at domestic prices (VA_i) over such value added at border prices (VA_i^*) and is shown by

$$EPR_i = \left(\frac{VA_i}{VA_i^*} - 1 \right) * 100$$

$EPR > 0$ implies direct protection of domestic producers of the commodity; $EPR < 0$ implies underlying disincentives to domestic producers of the commodity; and $EPR = 0$ implies a neutral structure of net incentives.

27. We do not consider the effects of the imposition of quotas on sugar and milk production by the EU.

28. The assumed output supply elasticities, taken largely from Koç, Uzunlu, and Bayaner (2001), are 0.28 for wheat, 0.21 for barley, 0.14 for maize, 0.16 for sunflower, 0.34 for sugar beet, 0.94 for potato, 0.10 for grapes, 1.18 for milk, 0.34 for beef, 1.88 for poultry, and 0.60 for sheep.

29. This is why these kinds of payments are classified under WTO rules as "green box"—that is, payments that minimally distort trade.

30. For a description of the direct payments and an estimate of their effects, see OECD (2003b).

31. In Case I, there is a negative supply response to the drop in prices due to the alignment with Agenda 2000 prices (except grapes, the price of which increases), and no compensating increase in price or production from the direct payments. In Case II, the negative effect of alignment with Agenda 2000 prices is offset by the direct payments.

32. Note that this approach determines the equivalent variation in consumer income. Alternatively, one could determine the change in consumer surplus.

33. The assumed price elasticities of demand, taken largely from Koç, Uzunlu, and Bayaner (2001), are 0.12 for bread and pasta, 0.81 for beef, 0.7 for sheep meat, 1.23 for poultry, 0.5 for milk, 0.3 for dairy products, 0.2 for fat, and 1.09 for butter.

34. This assumption helps to highlight the impact of EU-like agricultural policies on the state budget.

35. Note that the EU budget must be balanced during each fiscal year. So this value of 34.46 will change from year to year by the requirements of the budget during that year.

36. Structural Funds allow the EU to grant financial assistance to resolve structural economic and social objectives. Objective 1 of the Structural Funds is the main priority of the EU's cohesion policy. The EU aims to narrow the gap between the development levels of the various regions. "Objective 1 regions" refers to areas lagging behind in their development and in which GDP is below 75 percent of the European Community average. Objective 2 of the Structural Funds aims to revitalize all areas facing structural difficulties, whether industrial, rural, urban, or dependent on fisheries. Objective 3 covers the entire EU territory outside of areas covered by Objective 1 and serves as a reference framework for all measures to promote human resources in the member states. It takes account of the title on employment in the Treaty of Amsterdam and the new European strategy for employment.

37. For alternative quantitative analyses of the effects of adopting the CAP, see Çakmak and Kasnaoğlu (2001); Çağatay, Saunders, and Amor (2001); Grethe (2004); and Oskam and others (2004). Whereas Çakmak and Kasnaoğlu (2001) study the impact of the CAP on producers, consumers, and foreign trade, Çağatay, Saunders, and Amor (2001) concentrate only on the effects on producers and foreign trade. Both papers abstract from consideration of the impact on the state budget. According to Çakmak and Kasnaoğlu (2001), adoption of Agenda 2000 policies with direct payments equal to those currently applied in the EU will lead to reductions in producers' welfare, which is contrary to our results summarized in table 2.16. The comprehensive study by Oskam and others (2004) analyzes the likely consequences for Turkey's agricultural and agrifood sectors should it become an EU member in 2015.

38. HACCP is a system that establishes process control through identification of the production points most critical to controlling and monitoring the production process. It involves seven principles. First, analyze hazards. Potential hazards associated with a food and measures to control those hazards are identified. The hazard could be biological such as a microbe, chemical such as a toxin, or physical such as ground glass or metal fragments. Second, identify critical control points. These are points in a food's production—from its raw state through processing and shipping to consumption by the consumer—at which the potential hazard can be controlled or eliminated. Examples are cooking, cooling, packaging, and metal detection. Third, establish preventive measures with critical limits for each control point. For a cooked food, for example, this might include setting the minimum cooking temperature and time required to

ensure the elimination of any harmful microbes. Fourth, establish procedures to monitor the critical control points. Such procedures might include determining how and by whom cooking time and temperature should be monitored. Fifth, establish the corrective actions to be taken when monitoring shows that a critical limit has not been met—for example, reprocessing or disposing of food if the minimum cooking temperature is not met. Sixth, establish procedures to verify that the system is working properly—for example, testing time and temperature recording devices to verify that a cooking unit is working properly. Seventh, establish effective recordkeeping to document the HACCP system. This documentation would include records of hazards and their control methods, the monitoring of safety requirements, and action taken to correct potential problems. Each of these principles must be backed by sound scientific knowledge—for example, published microbiological studies on time and temperature factors for controlling food-borne pathogens.

39. "Good Agricultural Practices" refers to applying available knowledge to use of the natural resource base in a sustainable way for the production of safe, healthy food and nonfood agricultural products in a humane manner, while achieving economic viability and social stability.

40. See chapter 10 of Oskam and others (2004) for a discussion of animal and plant health issues in Turkey.

References

- Çağatay, S., C. Saunders, and R. Amor. 2001. "The Impact on the Agricultural Sector of the Potential Extension of the Customs Union Agreement to Cover Agricultural Commodities." Unpublished paper, Lincoln University, New Zealand.
- Çakmak, E. H., and H. Kasnaoğlu. 2001. "Tarım Sektöründe Türkiye ve Avrupa Birliği Etkileşimi: Türkiye'nin AB'ye Üyelikinin Analizi" [The Turkey–European Union Interaction in Agricultural Sector: Analysis of Turkey's of EU Membership]. Working Paper, Agricultural Economics Research Institute, Ministry of Agriculture and Rural Affairs, Ankara.
- Csaki, C., A. Nucifora, Z. Lerman, T. Herzfeld, and G. Blaas. 2002. *Food and Agriculture in the Slovak Republic: The Challenges of EU Accession*. Washington, DC: World Bank.
- Dewbre, J. H., J. Anton, and W. Thompson. 2001. "The Transfer Efficiency and Trade Effects of Direct Payments." *American Journal of Agricultural Economics* 83: 1204–15.
- Europarl. 2002. "European Parliament Fact Sheets." http://www.europarl.eu.int/factsheets/default_en.htm.
- European Commission. 2000. "White Paper on Food Safety." COM (1999) 719 final. Brussels: EC.
- . 2002. "Regional Policy Interim Report." http://www.europa.eu.int/comm/regional_policy/sources/docoffc/official/reports/pdf/interim1/report_en.pdf.
- . 2004. "2004 Regular Report on Turkey's Progress Towards Accession." COM (2004) 656 final. Brussels: EC.
- Grethe, H. 2004. "Turkey's Accession to the EU: What Will the Common Agricultural Policy Cost?" Humboldt University Working Paper 70/2004. Berlin.
- Koç, A., V. Uzunlu, and A. Bayaner. 2001. "Türkiye'de Tarımsal Ürün Projeksiyonları 2000–2010" [Forecasts for Agricultural Products in Turkey for the Period 2000–2010]. Agricultural Economics Research Institute, Ankara.
- MARA (Ministry of Agriculture and Rural Affairs). 2002. "Data files." Research Planning and Coordination Council, MARA, Ankara.
- OECD (Organisation for Economic Co-operation and Development). 2001. "Market Effects of Crop Support Policies." OCED, Paris.

- . 2003a. "Agricultural Policies in OECD Countries: Monitoring and Evaluation." OECD, Paris.
- . 2003b. "Risk Related Non-price Effects of the CAP Arable Crop Regime: Results from an FADN Sample." AGR/CA/APM(2002)14/REV1, Directorate for Food, Agriculture, and Fisheries, February 27.
- Oskam, A., A. Burrell, T. Temel, S. van Berkum, N. Lonworth, and I. M. Vilchez. 2004. "Turkey in the European Union: Consequences for Agriculture, Food, Rural Areas and Structural Policy." Wageningen University, Wageningen.
- TMO (Turkish Grain Board). 2002. TMO files. <http://www.tmo.gov.tr>.
- Valdes, A. 1973. "Trade Policy and Its Effects on the External Agricultural Trade in Chile, 1945–1965." *American Journal of Agricultural Economics* 55: 154–64.
- World Bank. 2000. "Turkey Country Economic Memorandum: Structural Reforms for Sustainable Growth." Report No. 20657-TU, World Bank, Washington, DC.