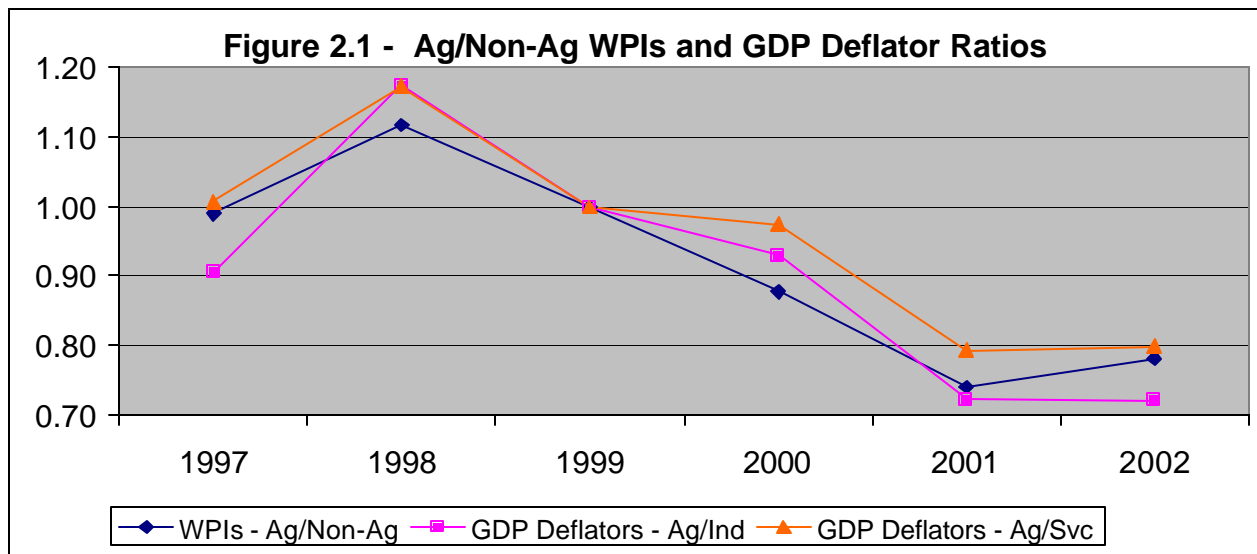


2. Agricultural Terms of Trade and Support Measures

A. Agricultural Terms of Trade

2.1 Output Terms of Trade. Output terms of trade measures agricultural commodity prices relative to non-agricultural prices. From the farmer's perspective, it measures the profitability of agriculture relative to other economic sectors. Examining the ratio of the wholesale price index for the agricultural sector relative to that of the non-agricultural sectors over 1997-2002 (**Figure 2.1**), it is evident that the agricultural sector's output terms of trade peaked in 1998. From 1999-2001 these declined by 26 percent as the subsidy reforms were phased in. Following the severe devaluation in 2001, they recovered to about 78 percent of their pre-reform (1999) level.



Source: SIS (2002) Quarterly Gross National Product 1999-2001, Publication No. 2557 and SIS website data

2.2 Comparative Sectoral Profitability. Sectoral GDP deflators summarize the combined impact of output and input prices on the sector's profitability. Examining the evolution of the GDP deflator for the agricultural sector compared to those of the industrial and service sectors (**Figure 2.1**) shows that the profitability of the agricultural sector declined substantially relative to both the industrial and service sectors from 1999 to 2002. The range of this comparative deterioration was 20-28 percent over this period, with agriculture performing the worst relative to relative to industry particularly in 2001-2002. The accentuated deterioration vis-à-vis the industrial sector in 2001-2002 is likely associated with the substantial real devaluation of Turkish lira, as this caused industrial sector goods (largely tradeables) to grow more than those of the service sector (largely non-tradeables).

2.3 Input Terms of Trade. Input terms of trade (TOT) measures agricultural commodity prices relative to agricultural input prices. We expect input TOT to have declined substantially because of lower output market intervention and sharp reductions in input subsidies. Terms of trade statistics have been worked out for the crops and livestock sector using data available from SIS for input costs in 1987 constant prices and in current prices (available through 2002 only).

The ratio of current to constant (values) produce an input cost deflator³, which is then compared to the crops and livestock price indices. The ratio of these to each other may be interpreted as input terms of trade indices. These results are presented in Table 2.1. These measures of input terms of trade show steady year-on-year deterioration in terms of trade for both the crops and livestock sector in 2000 (-11 percent) and in 2001 (an additional drop of 12 to 22 percent). Compared to the peak year for input terms of trade in 1998, the erosion has been on the order of 45 percent. Thus, there is a certain cyclical nature to the terms of trade, but the trend over the past four years has clearly been steeply downward.

Table 2.1: Input Terms of Trade - Commodity Output Prices versus Input Prices

Year	Input Cost Index	Crops Nominal Price Index	Livestock Nominal Price Index	Crops Terms of Trade Index	Livestock Terms of Trade Index
1997	37.78	38.83	34.26	102.79	90.70
1998	57.05	70.28	68.61	123.19	120.26
1999	100.00	100.00	100.00	100.00	100.00
2000	162.67	144.96	144.28	89.11	88.70
2001	276.21	212.23	184.63	76.84	66.84

Source: SIS and own calculations.

2.4 The relative rise of input costs may be further analyzed with the help of more disaggregated data available for the crops sector. Here a comparison is made of the value of crop production and input costs to the crop sector in both real 1987 prices and in current prices deflated into real 2001 TL terms. The series available from SIS for crop production and input costs in constant 1987 prices provide quantity indices for crops and a number of separate types of agricultural inputs. Since the prices are constant, these series reveal the trends in aggregate crop production and input usage (in physical terms). Similar series for crop value and input costs in real 2001 TL terms are also then constructed. The ratios of these value and quantity indices are measures of the implicit real price indices for the crops sector as a whole and the separate types of agricultural inputs (**Table 2.2**).

2.5 Examination of Table 2.2 below reveals a number of clear trends in 1999-2001. The volume of crop production fell only 2 percent, and aggregate input usage declined by a slightly larger 4 percent. However, input usage across the separate types of inputs show a large degree of variability. The largest change is the fall in chemical fertilizer application by over 25 percent. This is to be expected as fertilizer subsidies were phased out and removed during the period, and fertilizer prices rose by over 30 percent (as can be seen from the derived price index value in Table 2.2). This large adjustment in the fertilizer sector is examined in detail in Chapter 3.

2.6 Usage of seed and manure (as natural fertilizer) declined by only 3-4 percent, roughly in proportion to crop production. The decline of seed usage is most probably a reflection of the decline in area sown. The declining amount of manure used probably reflects the declining number of animals, but as chemical fertilizer prices have risen sharply, some farmers are likely substituting manure used for fuel (heating) for field use. This substitution has therefore

³ This is an approximate measure which has been used since it was not possible to construct an exact index of agricultural input prices owing to the lack of 1999 base year weights for the inputs to the agricultural sector.

moderated manure usage for fertilizer despite the large drop off in herd sizes and manure availability.

Table 2.2 - Quantity, Value, and Price Indices for Crops and Input Types, 1999=100

	1997	1998	1999	2000	2001
Quantity Index					
Crops	94.8	107.1	100.0	106.6	97.7
Seed	100.1	99.3	100.00	97.9	97.1
Manure	109.4	102.0	100.00	100.3	96.4
Chemical Fertilizer	85.2	100.9	100.00	93.2	74.2
Fuel	94.8	97.7	100.00	101.8	102.5
Repairs	95.9	98.2	100.00	101.5	101.9
Pesticides	91.3	108.7	100.00	95.9	107.8
Irrigation	93.3	96.3	100.00	102.0	102.7
Total	94.3	99.8	100.00	98.7	95.6
Value Index (Real Terms 2001 TL)					
Crops	100.6	117.3	100.0	102.4	88.5
Seed	116.3	101.7	100.00	89.2	94.9
Manure	97.1	83.4	100.00	102.3	99.2
Chemical Fertilizer	60.0	93.8	100.00	95.5	97.6
Fuel	112.4	81.1	100.00	124.0	132.2
Repairs	82.6	82.7	100.00	102.6	107.8
Pesticides	124.1	115.1	100.00	82.8	104.3
Irrigation	336.2	56.2	100.00	80.6	83.2
Total	97.1	88.6	100.00	106.4	112.6
Derived Price Indices (Real Terms)					
Crops	106.0	109.5	100.0	96.1	90.6
Seed	116.2	102.4	100.00	91.0	97.7
Manure	88.8	81.7	100.00	102.0	102.9
Com. Fertilizer	70.4	93.0	100.00	102.4	131.4
Fuel	118.5	83.0	100.00	121.8	129.1
Repairs	86.1	84.3	100.00	101.1	105.7
Pesticides	136.0	105.9	100.00	86.4	96.7
Irrigation	360.1	58.4	100.00	79.0	81.0
Total	103.1	88.8	100.00	107.8	117.8

Source: Own calculations based on Quarterly Gross National Product of Turkey (1996-1997), (1998), (1999-2000). Input Cost data for all years has been kindly provided by SIS.

2.7 Fuel usage has been quite stable despite a 30 percent price increase over 1999-2001. This basically reflects inelastic price demand, which has increased as the machinery fleet has expanded. The stable volume of repair (parts and maintenance) costs also likely reflects mainly the increasing amount of machinery used by farmers. The implied highly price inelastic demand

for fuel is not so unusual, but it implies that the largest share of machinery is in the hands of the more commercially oriented and wealthier farmers in the west and southern regions of Turkey. This pattern has also been found in the detailed analysis of fertilizer demand in Chapter 3, but could not be investigated for fuel owing to the lack of sufficient data at the provincial level.

2.8 The results regarding pesticides show that this is the input type which demonstrates the greatest fluctuation in volumes used from year to year. This quantity index shows swings of 15-20 percent from 1997-2001. The derived price index for pesticides show continuous decline for 1997-2000, but prices rose in 2001. As demand also rose strongly in 2001, there must be other important factors that affect this demand as compared to other input types.⁴

2.9 Data on water charges (obtained from the General Directorate of State Hydraulic Works) that show quite a low and stable level may be incomplete. According to these data, irrigation costs account for less than 1 percent of total input costs to the crop sector. However, past droughts, together with increasing vegetable and fruit production, have actually encouraged private irrigation efforts by many farmers. Even if farmers do not pay directly for water, pumping is an important irrigation cost. It would be more probable to have seen a rise in irrigation and irrigation costs. Apparently, the General Directorate of State Hydraulic Works reports only the charges it collects from its own, relatively large irrigation schemes.

2.10 Table 2.2 shows the same magnitude of reduction in input terms of trade in the crops sector as depicted in Table 2.1: input terms of trade for the crop sector declined steadily by a cumulative 23 percent in 1999-2001. While the index of real prices for crop inputs rose by almost 18 percent, the index of crop prices deteriorated by almost 10 percent. The extent of this fall in real crop prices for Turkey's major crops will be examined in Chapter 4.

Table 2.3: Gross Value of Crops and Input Cost Shares (in 2001 Constant TL)

Trillion TL	1997	1998	1999	2000	2001
Gross Crop Value	22,746	26,528	22,620	23,171	20,017
Input Costs	5,433	4,955	5,593	5,948	6,299
Cost Shares					
Seed	14%	14%	12%	10%	10%
Manure	3%	3%	3%	3%	2%
Chemical Fertilizer	10%	16%	15%	14%	13%
Fuel	35%	27%	30%	35%	35%
Repairs	13%	15%	16%	15%	15%
Pesticides	5%	5%	4%	3%	3%
Irrigation	0%	0%	0%	0%	0%
Other Costs	21%	21%	21%	21%	21%

Source: Quarterly Gross National Product of Turkey (1996-1997), (1998), (1999-2000).

Value added 2001 and Input Cost data for all years has been kindly provided by SIS upon request.

2.11 Table 2.3 above presents the crop values, input costs, and cost shares in real 2001 TL. The ratio of total input costs to gross crop value is another indicator of the deteriorating terms of trade. From 1999-2001, this ratio increased from 25 percent to 31 percent. In 1998 this was only

⁴ It might be again the increasing number of machinery used or maybe the growing fruit and vegetable cultivation may require more pesticides.

19 percent. The main changes in cost shares have been a jump in the share of fuel costs and reductions in the shares of seeds and chemical fertilizers.

B. Producer Support Estimates and Total Support Estimates

2.12 OECD Statistics on Total Support Estimates (TSEs). The source of TSEs, Producer Support Estimates (PSEs), and Consumer Subsidy Estimates (CSEs) presented in this section is the Organization for Economic Cooperation and Development (OECD), which publishes the estimates of support to agriculture for its member countries. The PSE is a measure of the part of agricultural producers' revenue which accrues from market price support (MPS – farm gate prices relative to border prices) as well as support to farmers through payments based on their output and input usage. The TSE is the sum of the PSE and a measure of the farmer's indirect support through subsidies not provided on the basis of outputs or inputs (known as the General Services Support Estimate, or GSSE). The CSE, when negative as in the case of Turkey, is a measure of the part of the GSSE which is paid for by consumers through consumer prices which are above border prices (adjusted to reflect retailing margins)⁵. Since these estimates are frequently revised, it is not possible to complete a long time series, but Table 2.4 below presents data for the years 1998-2001. Earlier data is also available but is not comparable to more recent statistics, as the share of commodities for which MPS estimates were available was less than 50 percent for Turkey. For the later years this share has increased above 60 percent and has become comparable to other OECD countries.⁶

2.13 Large Support to Agricultural Producers.⁷ Support to producers, as measured by the percentage PSE, has increased in Turkey to 25 percent of farm receipts in 1999, just prior to the reform of agricultural subsidization. MPS (either in the form of tariff/non-tariffs or governmental price support programs) accounted for three-quarters of this PSE, and the remaining quarter was largely input subsidies. Additional transfers for “marketing and promotion” included under the General Services Support Estimate (GSSE) were almost as large as the MPS. In Turkey, these “marketing and promotion” transfers include the large amount of losses of agricultural marketing parastatals and credit subsidies and debt write-offs covered by the budget. In 1999, the TSE (sum of the PSE and GSSE) totaled US \$9.8 billion, and this was a reduction from the peak level of US \$10.8 billion in 1998.

2.14 Support Largely Paid by Consumers Through Taxation. Though the flows to the agricultural sector embodied by the TSE served a relatively large agricultural population, they imposed a heavy burden on consumers and taxpayers. In 1999, the CSE reached a level of –US \$5.2 billion, and one fifth of outlays by consumers on agricultural products consumption was a transfer from consumers to producers (above what farmers would have received if consumers paid

⁵ Since the PSE and CSE are measured relative to border prices they are usually considered a better measure of the impact of changes in agricultural policies since they would not reflect trends in international prices if agricultural policies were neutral and allowed complete transmission of international prices into domestic markets. In this important way they are different than the measure of output terms of trade which does not isolate the impact of movements in international prices. When expressed as a percentage, the PSE reflects the share of agricultural producers' revenue which accrues from the MPS and the indirect support to farmers through payments based on their output and input usage

⁶ Along the standard list of crops -- wheat, maize, other grains, rice, oilseeds, sugar (beet) -- tobacco, cotton, apples, tomatoes, grapes and potatoes are now also considered. As these products are not listed explicitly but are covered, they are included in the estimates for “other products.”

⁷ See for more details, OECD (2002) *Agricultural Policies in OECD Countries, Monitoring and Evaluation*, Paris, p.142-146.

prices which directly reflected border price levels). Moreover, as the ratio of support to GDP in Turkey, the TSE in 1999 was 6.5 percent, one of the highest in the OECD countries.

Table 2.4: Estimates of Support to Agriculture (Real 2001 Prices – TL Billion)

	1998	1999	2000	2001
Total Value of Production (at farm gate)	35,775,693	30,963,384	30,605,996	26,861,614
<i>of which share of MPS commodities (%)</i>	64	64	63	63
Total Value of Consumption (at farm gate)	28,498,809	27,087,904	25,277,835	24,390,422
PRODUCER SUPPORT ESTIMATE (PSE)	9,467,519	7,567,047	6,559,971	2,764,989
Market Price Support (MPS)	7,609,620	5,626,934	5,478,683	1,909,348
of which MPS commodities	4,882,082	3,577,990	3,455,037	1,201,294
Payments based on output	110,695	264,939	307,651	557,997
Payments based on area planted / animal numbers	0	0	0	0
Payments based on historical entitlements	0	0	0	83,640
Payments based on input use	1,747,204	1,675,174	773,638	214,004
Percentage PSE	26.46%	24.44%	21.43%	10.29%
Nominal Protection Coefficient – NPC	1.28	1.24	1.23	1.10
Nominal Assistance Coefficient – NAC	1.36	1.32	1.27	1.11
GENERAL SERVICES SUPPORT ESTIMATE (GSSE)	3,694,443	4,350,400	3,611,820	3,879,726
Research and development	36,606	28,525	22,534	36,680
Agricultural schools	6,532	4,668	5,277	3,984
Inspection services	72,789	65,779	72,823	69,490
Infrastructure	9,080	8,130	4,807	4,729
Marketing and promotion	3,555,339	4,234,190	3,495,033	3,751,569
Public stockholding	0	0	0	0
Miscellaneous	14,097	9,109	11,346	13,274
GSSE as a share of TSE (%)	28%	37%	36%	58%
CONSUMER SUPPORT ESTIMATE (CSE)	-7,200,868	-6,045,079	-5,485,991	-1,894,429
Transfers to producers from consumers	-7,750,762	-6,411,071	-5,588,728	-1,870,852
Other transfers from consumers	-135,034	-202,256	-207,760	-53,071
Transfers to consumers from taxpayers	0	0	0	0
Excess feed cost	684,928	568,249	310,498	29,494
Percentage CSE	-25%	-22%	-22%	-8%
TOTAL SUPPORT ESTIMATE (TSE)	13,161,962.46	11,917,447.63	10,171,791.26	6,644,715.00
Transfers from consumers	7,885,795.42	6,613,327.25	5,796,488.64	1,923,923.00
Transfers from taxpayers	5,411,201	5,506,377	4,583,063	4,773,863
Budget revenues	-135,034	-202,256	-207,760	-53,071
Percentage TSE (expressed as share of GDP)	6.74%	6.50%	5.21%	3.77%

Source: The years 2000 and 2001 are taken from an unpublished OECD draft-document. Data for 1999 is taken from Agricultural Policies in OECD countries 2002 and 1998 from Agricultural Policies in OECD countries 2001.

2.15 Reforms reduced the levels of indirect support to farmers and costs to consumers. Once agricultural subsidy reform began, the PSE fell to 10 percent by 2001. Preliminary calculations for 2002 show an increase to 13 percent. This increase is largely owing to the payments initiated in 2001 under the DIS Program, since the bulk of the payments under the 2001 DIS Program were made in calendar year 2002. At a level of 10-13 percent, Turkey's PSE is among the lowest across

OECD countries. Transfers from consumers have fallen to only US \$1.6 billion annually, indicating a much lower level of support to farmers paid by consumers. The fall in this support (roughly US \$1.9 billion⁸) is the market wide (non-fiscal) effect on agricultural income of adjustments to reductions in marketing interventions. It is more than half the total impact over the period 1999-2002 (US \$2.7 billion), and exceeds the net reduction in fiscal transfers (found in Chapter One to be on the order of US\$ 1.45 billion). Though the TSE has fallen by almost 50 percent to US \$5 billion, it is still relatively high at 3.8 percent of GDP. This is because the GSSE, in Turkey's case largely budget support to agricultural parastatals, has remained important throughout the reform period.

2.16 Reforms of the agricultural subsidies explain most of the fall in agricultural income. Movement in the Nominal Assistance Coefficient (NAC) summarizes the impact on farm income of reduced subsidization of both outputs and inputs. (The NAC is simply the ratio of total farm revenue including all direct subsidies reflected in the PSE relative to the underlying value of farm output at border prices without other output and input-based subsidies.) From 1999-2001, as market intervention levels and support prices for grains, hazelnuts, tobacco, sugarbeet, and tea declined, and other payments based on output and input use were also reduced significantly, the NAC declined by 16 percent, explaining two-thirds of the fall in agricultural income observed between 1999 and 2001. Preliminary data indicate that transfers to agriculture rose by almost 5 percent as the DIS program accelerated in 2002. Thus, over the whole period 1999-2002, subsidy reform was responsible for about 80 percent of the total (16 percent) fall in agricultural income.

Table 2.5: Turkey - Main PSE Indicators by Commodity (Billion Real 2001 TL)

		1998	1999	2000	2001
Wheat	PSE (TL. bn)	1,575,871	1,254,393	588	-157,257
	Percentage PSE	42	42	21	-6
	NAC	1.72	1.72	1.27	0.94
Maize	PSE (TL. bn)	183,722	141,555	101,055	20,068
	Percentage PSE	45	39	32	7
	NAC	1.82	1.64	1.47	1.08
Other Grains	PSE (TL. bn)	702,282	515,792	260,128	44,218
	Percentage PSE	55	48	27	5
	NAC	2.22	1.92	1.37	1.05
Oilseeds	PSE (TL. bn)	134,300	156,795	114,545	71,992
	Percentage PSE	35	41	42	27
	NAC	1.54	1.69	1.72	1.37
Sugar	PSE (TL. bn)	1,078,794	860,893	564,918	184,181
	Percentage PSE	65	70	56	30
	NAC	2.86	3.33	2.27	1.43
Other Crops	PSE (TL. bn)	3,113,186	1,809,413	2,704,841	1,479,235
	Percentage PSE	13	9	13	8
	NAC	1.15	1.10	1.15	1.09

⁸ To be compared to the measure of agricultural income in US dollars, the 5.3 quadrillion TL reduction in the CSE is converted into US dollars (at the average 2002 TL exchange rate) and then from gross agricultural output terms to agricultural income at a factor of 0.6, the average share of value added in gross value.

Total Crops	PSE (TL. bn)	6,788,154	4,738,841	4,333,278	1,642,437
	Percentage PSE	22	18	17	7
	NAC	1.28	1.22	1.20	1.08
Livestock	PSE (TL. bn)	2,679,365	2,828,209	2,226,693	1,122,553
	Percentage PSE	42	42	44	25
	NAC	1.72	1.72	1.79	1.33
Total	PSE (TL. bn)	9,467,519	7,567,050	6,559,971	2,764,990
	Percentage PSE	25	23	21	10
	NAC	1.33	1.30	1.27	1.11

Source: OECD and own calculations.

2.17 Crops, in particular grains and sugar, account for the bulk of the decline in support for farmers. Table 2.5 above demonstrates the size of the relative declines in support for different types of agricultural production by tracing the evolution of the PSE by commodity. Overall, the reduction in support is in line with the reduced market intervention during the 2000-2001 period and lower levels of deficiency payments. Before the introduction of agricultural reforms, almost 70 percent of the aggregate PSE was accounted for by the crop component, while the livestock sector garnered about one-third. Since 1999, the support to the crop component decreased by over 3.1 quadrillion TL (US \$2.5 billion), with the grains sector absorbing about two thirds of this reduction. The sugar sector absorbed about 20 percent of the reduction. Support to the livestock sector dropped by about 1.7 quadrillion TL; proportionally less than in the crops sector. Hence, the relative importance of support to animal production has increased, to over 40 percent of the aggregate PSE.

2.18 Regional PSEs. Turkey's PSE has been regionally disaggregated in order to provide insights into how the reform of MPS has been shared among regions and crop sectors in each region. The support calculated for commodities by the OECD (Table 2.5) has been distributed to Turkey's 81 provinces in proportion to the provincial share in each of the commodities' production values at the national level. These PSE values for each province by commodity have then been aggregated at the regional level. One assumption made in this methodology is that the PSE for the category for "other commodities" includes only crops for which PSEs have not been separately reported by the OECD.

2.19 The aggregated regional PSEs are presented below in Table 2.6. As in Tables 2.4 and 2.5, the values shown have been computed using the current year values for 1999 reflatd to 2001 real TL. Each crop and livestock product's direct contribution to the regional PSE may be seen from the disaggregation in each column of Table 2.6. Similarly, each region's contribution to the overall PSE may be seen from the row totals. The lower part of the table shows the aggregate changes from 1999 to 2001, along with percentage reductions from the 1999 base year levels. The totals have been calculated for both crop and livestock components separately and then aggregated (in the final row of the table).

2.20 Reduced Grain and Sugar Support Cause Largest PSE Decline in Central Anatolia. In the crops sector, Central Anatolia has absorbed more than a third of the 3.1 quadrillion TL decline in the PSE, with losses there being about 60 percent in the grains sector and 40 percent from sugarbeet. The Marmara, Black Sea, and Mediterranean regions have all seen losses on the order

of 400 trillion TL. Losses in the grain sector have been dominant in all three regions, but the Black Sea region has also suffered substantially reduced flows of producer support in the sugarbeet and “other crops” category (e.g., hazelnut). The East Anatolia and Southeastern Anatolia regions have suffered losses mainly in the grains sector, each of these represent only about 10 percent of the fall in the grain sectors’ PSEs nation-wide. Being the most diverse region agriculturally, it is not surprising that the Aegean’s losses have been more evenly distributed across the grains, sugarbeet, and “other crops” categories.

2.21 Marmara Loses Most in Livestock Support. In the livestock sector, the most affected region has been Marmara, in which the milk, sheep, cattle meat, and poultry sub-sectors have suffered equally. Central Anatolia has been the second hardest hit, with large reductions in support in the areas of milk and cattle meat. The Aegean and Black Sea regions are the next most affected, with losses distributed evenly in much the same pattern as in Marmara. Eastern Anatolia has had the most losses in the milk sector, while the Mediterranean and Southeast Anatolia have experienced relatively greater losses in sheep raising.

Table 2.6 - Regional PSEs by Crops and Livestock Product, 1999 and 2001, Billion Real 2001 TL

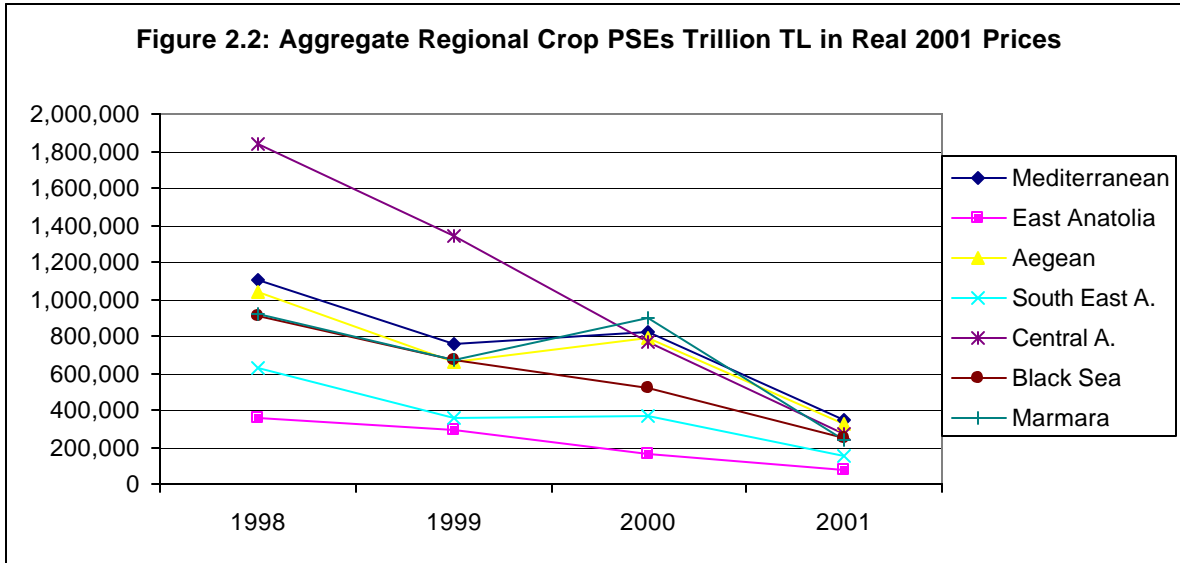
	1999	Mediterranean	East Anatolia	Aegean	South East A.	Central A.	Black Sea	Marmara	Turkey
Crops	Wheat	213,995	91,632	114,205	122,191	380,724	142,287	189,358	1,254,391
	Maize	60,115	438	10,267	2,468	380	42,328	25,563	141,558
	Other grain	31,246	37,849	65,681	54,610	221,475	47,573	57,354	515,788
	Sugar beets	48,840	94,044	68,024	2,789	464,672	139,491	43,033	860,893
	Oil seeds	21,490	954	13,618	2,838	11,952	6,934	99,012	156,797
	Other	385,682	64,406	389,842	166,980	264,909	286,771	250,822	1,809,413
	Total Crops	761,368	289,323	661,636	351,875	1,344,111	665,383	665,142	4,738,839
Livestock	Milk	115,381	181,127	111,046	69,111	164,547	177,952	148,933	968,097
	Sheep Meat	41,953	25,047	42,262	39,631	37,936	15,282	55,062	257,173
	Cattle Meat	62,149	110,755	197,267	30,191	228,906	165,513	243,241	1,038,022
	Poultry	5,671	15,933	51,549	2,184	40,172	91,562	142,929	350,001
	Hen Eggs	8,661	6,595	46,490	6,051	66,648	31,255	49,215	214,916
	Total Livestock	233,816	339,457	448,614	147,168	538,210	481,563	639,380	2,828,209
Total		995,183	628,781	1,110,250	499,043	1,882,321	1,146,947	1,304,522	7,567,047
	2001		East Anatolia	Aegean	South East A.	Central A.	Black Sea	Marmara	Turkey
Crops	Wheat	-26,032	-12,757	-13,738	-24,638	-38,108	-16,368	-25,616	-157,257
	Maize	7,313	36	1,623	414	249	5,364	5,068	20,067
	Other grain	2,665	3,536	4,731	10,649	13,599	4,022	5,018	44,220
	Sugar beets	11,926	25,479	17,375	596	89,758	25,799	13,248	184,181
	Oil seeds	13,501	513	8,574	1,218	4,789	2,496	40,901	71,992
	Other	338,392	54,581	307,534	158,532	196,835	226,840	196,521	1,479,235
	Total Crops	347,765	71,388	326,099	146,771	267,122	248,153	235,140	1,642,438

Table 2.6 (cont.)

Livestock	Milk	46,392	62,882	38,868	24,891	63,642	59,867	52,936	349,478
	Sheep Meat	-16,284	-11,477	-18,512	-13,799	-17,453	-7,076	-28,147	-112,748
	Cattle Meat	43,846	71,365	108,401	17,441	117,969	107,750	139,123	605,895
	Poultry	10,765	3,498	12,473	224	10,413	34,494	56,456	128,323
	Hen Eggs	8,036	5,142	40,208	5,665	37,834	24,987	29,730	151,602
	Total Livestock	92,755	131,410	181,438	34,422	212,405	220,022	250,098	1,122,550
Total		440,520	202,798	507,537	181,193	479,527	468,175	485,238	2,764,988
	Change, 2001-1999		East Anatolia	Aegean	South East A.	Central A.	Black Sea	Marmara	Turkey
Crops	Wheat	-240,027	-104,389	-127,943	-146,829	-418,832	-158,655	-214,974	-1,411,648
	Maize	-52,802	-402	-8,644	-2,054	-131	-36,964	-20,495	-121,491
	Other grain	-28,581	-34,313	-60,950	-43,961	-207,876	-43,551	-52,336	-471,568
	Sugar beets	-36,914	-68,565	-50,649	-2,193	-374,914	-113,692	-29,785	-676,712
	Oil seeds	-7,989	-441	-5,044	-1,620	-7,163	-4,438	-58,111	-84,805
	Other	-47,290	-9,825	-82,308	-8,448	-68,074	-59,931	-54,301	-330,178
	Total Crops	-413,603	-217,935	-335,537	-205,104	-1,076,989	-417,230	-430,002	-3,096,401
	%	-54%	-75%	-51%	-58%	-80%	-63%	-65%	-65%
Livestock	Milk	-68,989	-118,245	-72,178	-44,220	-100,905	-118,085	-95,997	-618,619
	Sheep Meat	-58,237	-36,524	-60,774	-53,430	-55,389	-22,358	-83,209	-369,921
	Cattle Meat	-18,303	-39,390	-88,866	-12,750	-110,937	-57,763	-104,118	-432,127
	Poultry	5,094	-12,435	-39,076	-1,960	-29,759	-57,068	-86,473	-221,678
	Hen Eggs	-625	-1,453	-6,282	-386	-28,814	-6,268	-19,485	-63,314
	Total Livestock	-141,061	-208,047	-267,176	-112,746	-325,805	-261,541	-389,282	-1,705,659
	%	-60%	-61%	-60%	-77%	-61%	-54%	-61%	-60%
Total	Change	-554,663	-425,983	-602,713	-317,850	-1,402,794	-678,772	-819,284	-4,802,059
	%	-56%	-68%	-54%	-64%	-75%	-59%	-63%	-63%

Source: OECD and own calculations.

2.22 Given the large reductions in PSEs across all sectors, no region has been able to escape the impact of reduced MPS. As the last row of Table 2.6 indicates, the PSE reductions by region as measured from the 1999 base level have all been on the order of 55-75 percent. As can be seen from a comparison of the slopes of the trend lines in Figure 2.2, Central Anatolia has had the greatest proportional reduction and the largest absolute drop in aggregate regional PSEs. The least affected in proportional terms have been the Mediterranean and the Aegean regions, and the absolute reductions in their total PSEs have been below average. Unfortunately, the two regions traditionally considered the weakest, Eastern Anatolia and Southeast Anatolia, have suffered more than average, partially because of their greater specialization in livestock production.



Source: OECD and own calculations.