The Impact on the Turkish Agricultural Sector of the Potential Extension of the CU Agreement to Cover Agricultural Commodities

Cagatay, S., C. Saunders and R. Amor[1]

Abstract

Turkey signed a Customs Union (CU) Agreement in 1995 with the European Union (EU) which is one of the major trade partners of Turkey both in agricultural and non-agricultural commodities. The CU Agreement proposed trade policy adjustment in industrial products in the following five years after the agreement and initially excluded the agricultural sector. However possible integration of the agricultural sector to the CU in the course of time was also confirmed. This paper analyzes the possible impact on the Turkish agricultural sector of the CU, which is extended to cover the agricultural sector, by using a partial equilibrium agricultural multi-country, multi-commodity trade model. The paper also investigates the impact on the Turkish and the EU's agricultural sectors of a possible EU enlargement that includes Turkey in the longer term. Hence, the policy analysis also considers the impact of the Common Agricultural Policy (CAP) of the EU in the context of the commitments in the World Trade Organization (WTO).

Keywords: Turkey-EU integration, Customs Union, Common Agricultural Policy.

JEL Classification: F15, Q17.

1. Introduction

The agricultural sector is particularly important in Turkey (TR). Around 35 percent of the population in TR lives in rural areas. The agricultural sector, on the average, contributed around 16 percent to gross domestic product (GDP) in the last decade and it also accounted around 45 percent of total employment in the same period (Yukseler, 1999). The importance of agriculture in terms of employment, the dominance of small scaled farms in production and low levels of per capita income in this sector induced the implementation of wide variety of support measures as agricultural policy instruments. Agricultural policies are therefore important both in terms of the viability of the agricultural sector and sustainable rural development. The viability of the agricultural sector at the same time is crucial for maintaining stable trade and economic relations with other countries.

Turkey has held aspirations to become a full member of the EU. Although TR's official re-application for full membership in 1987 was rejected, it unilaterally continued its trade liberalization efforts in relation to the EU since the EU is one of the biggest trade partners of Turkey[2]. For instance, in the last decade on the average around 50 percent of TR's total exports were to EU and around 46 percent of total imports was from the EU (Acar, 1999). According to FAO (1997) almost 50 percent of agricultural exports went to the EU and 30 percent of agricultural imports originated from the EU. Turkey decided to harmonize its tariffication structure with that of the EU with the CU Agreement signed in March 1995 and effective from January 1996. Initially this agreement excluded the agricultural sector however possible

[1] The first and the third authors are Research Associates, second author is a Professor in the Commerce Division, Lincoln University, New Zealand.

[2] Turkey is a relatively minor trading partner of the EU for the group of agricultural products as a whole.

integration of the agricultural sector to the CU in the course of time was also confirmed. According to Turkish authorities, this move was the first step towards the country's integration into the EU.

In this study the impact of the potential extension of the CU Agreement to cover agricultural commodities is analyzed. The study focus on five commodities which are considered as the “core products” in the CAP and on which high specific duties are applied in the EU. These products are wheat, coarse grains, sugar (refined), beef and veal and sheepmeat. These products are protected and supported by domestic and border policies both in the EU and Turkey. While the EU is a net exporter in these products (except sheepmeat) Turkey is a net importer in the international markets. However, except for coarse grains Turkey’s net trade position has varied in time. In the event of a CU these products would be directly affected because Turkey's exports to the EU are not tariff free.

The paper continues by summarizing the agricultural policy instruments and developments in Turkey and in the EU in the second and third sections respectively. In the fourth section a brief review of the applied studies that focus on the agricultural trade relations between the EU and Turkey is provided. In the fifth and sixth sections the empirical methodology used in the analysis and policy analyses are explained respectively. Finally the results are pointed in the last part.

2. Agricultural Policy Instruments and Policy Developments in Turkey

The Turkish government has implemented a wide variety of measures to meet its objectives in the agricultural sector. These measures can be grouped under output price support, reduction in input costs, direct payments, supply control measures, general services and trade policies (Kasnakoglu and Cakmak, 1997).

Output price support has been the most widely used instrument of agricultural policy in Turkey. Since 1994, support purchases have been limited to cereals, tobacco, tea and sugarbeet. Output support prices are announced by government and related state economic enterprises (SEEs) and agricultural sales cooperatives (ASCUs) are commissioned to buy at floor prices set by the government. These crops can also be sold to independent buyers (including sugarbeet from 1993 on). In 1993 a similar system to deficiency payments was introduced to replace the policy of floor prices. In this new system a target price was announced, together with a low intervention price based on the world price. Farmers selling their crop either to ASCUs or at commodity exchanges were paid a deficiency payment equal to the difference between the price obtained and the target price. The payment was made by the Agricultural Bank and reimbursed by the Treasury, however, due to the budgetary problems the deficiency payment system was abandoned in 1994.

Input subsidies constitute the second most important component of agricultural support policies. The most important forms of input subsidies are: capital grants (including reductions in customs duties, incentive credits, income tax reductions and Resource Utilization Support Premia), interest concessions, fertilizer, seed and pesticide subsidies, cultivation services, irrigation and feed subsidies and improvement of breeding stock.

Direct payments constitute a minor form of output price support in Turkey. Direct payments observed in Turkey are given to the livestock farmers as incentive premiums, to sugarbeet producers with the return of sugarbeet pulp to producers after processing and also to compensate for the effects of natural disasters.

Supply control measures have limited use in agricultural policy. These measures have been used to control the cultivated-area of tobacco, hazelnut and tea since 1986, 1983 and 1987 respectively. Sugarbeet output is indirectly controlled by Turkish Sugar Factories Inc. (TSF) through contracts.

General services provided to agricultural producers include research, training and extension services and inspection services. These are provided either free or at subsidized cost.

Prior to 1980, the imports of agricultural commodities were highly restricted. Agricultural commodities allowed to be imported only by SEEs. Import tariffs, complemented by administered prices in some cases used to provide support for domestic production. A ban on imports of livestock has been applied for sanitary purposes. Prior to 1980, restrictions in the form of licensing and registration requirements widely applied on export of agricultural products and inputs Export levies were applied on relatively high-value products to raise revenue and to regulate domestic supplies. Subsidies also existed to promote exports. Since 1980, many licenses and monopolies have been eliminated, and export duties reduced or replaced by special fund taxes. Export subsidisation continued for a number of products.

In the last decade Turkey has become a part of three agreements which were expected to shape the future of the agricultural policy instruments and developments. The first agreement was the Uruguay Round (UR) of the GATT (General Agreement on Tariffs and Trade) which Turkey took part in the negotiations and signed the resulting Agreement in April 1994. The second one was the CU agreement with the EU in 1995. Lastly, Turkey has signed an agreement with International Monetary Fund (IMF) in December 1999.

2.1. Turkey's Commitments under GATT/WTO

Turkey has been striving to improve and increase the competitiveness of its agricultural sector on the basis of the UR Agreement. With this Agreement Turkey has committed itself to comply with certain general rules on agricultural support and protection. In addition, like all member countries Turkey made specific commitments in the areas of market access, export competition and domestic support. Turkey's commitments under the WTO is summarized below accordingly with these areas.

Market access

As the general rule, firstly all nontariff barriers, with very few exceptions, had to be converted to tariffs and to be bound. Secondly, as a developing country Turkey had to reduce its applied tariffs by 24 percent on average until the year 2004 (which is 36 percent until 2000 for developed countries). As Turkey did not apply any nontariff barriers (like variable levies and import quotas) before the conclusion of the UR, no border measures had to be tariffied. According to Agreement on Agriculture (AoA) developing countries were free to bind their former unbound tariffs at any level, provided that no other country had any objections during the verification process of the schedules (whereas developed countries had to bind their tariffs at the level applied at 1 September 1986). Turkey, by basing upon this provision, specified its tariff bindings at a generally high level and above the applied tariffs in most cases. As a result Turkey does not need to adjust its tariffs because of its WTO commitments. Therefore the reduction of tariff bindings during the implementation of the UR will have only little impact on the Turkish agricultural sector because of the high initial level of most tariff bindings.

Export subsidies

According to the AoA all existing export subsidies had to be bound based on historical export subsidies of the years 1986-88, and as a developing country Turkey had to reduce its export subsidies by 24 percent (outlays) and 14 percent (quantities) until 2004 (which is 36 percent (outlays) and 21 percent (quantities) by the year 2000 for developed countries). Turkey had bound export subsidies for 44 products/product groups but Turkey was below the bound limits for most products and close to the limit (quantity or budget) for a few products only. The total amount of the final (2005) bound for export subsidies is about US$95 million in 2005 and this is less than 4 percent of Turkey's agricultural exports and less than 0.25 percent of the value of agricultural production in 1994 (FAO, 1997). In addition, in 1996 Turkey reduced the coverage of export subsidies to a group of five products (potatoes, tomatoes, onions, citrus fruit and apples). These numbers show that export subsidies in Turkey do not have the same importance as means to get rid of structural surplus in agriculture as they have in major industrialized countries.

Domestic Support

According to the AoA all domestic support policies which are not in one of the categories exempted from reduction commitments had to be bound at the level of 1986/88 or 1986. As a developing country Turkey has to reduce its aggregate measure of support (AMS) by 13 1/3 percent (which is 20 percent for developed countries) during the implementation period. Four different categories of policies are exempted from reduction commitments:

1. The so called Green Box policies. Policies with no, or at most minimal, trade distorting effects or effects on production for example environmental programmes, research, extension and others.
2. Support which is covered by the so called *de minimis* rule. This is support which would otherwise be required to be included in the base AMS subject to reduction commitments if it does not exceed 10 percent (for developed countries 5 percent) of the value of the product supported (for product specific support, for example price support) or of the value of total agricultural output (for nonproduct specific support, for example input subsidies).
3. Direct payments under production-limiting programmes, the so called Blue Box policies. This specific exemption was negotiated between the EU and the United States in order to cover the United States deficiency payments and the EU's compensation payments after the MacSharry reform.
4. Some policies which would otherwise be required to be included in the base AMS subject to reduction commitments if they are applied by developing countries The policies concerned are: investment subsidies generally available to agriculture, agricultural input subsidies targeted to low-income farmers, support for diversification from growing illicit narcotic crops.

Turkey has bound *de minimis* support for all products. This means that domestic product specific support policies applied by Turkey are not allowed to exceed 10 percent of the production value of the product concerned and that nonproduct specific support policies are not allowed to exceed 10 percent of the value of agricultural production. Turkey's commitments in the area of domestic support is still open to discussions. This is basically based on the way Turkey has calculated its product based AMS. The product based support in Turkey was calculated by using the method equivalent measure of support (EMS) instead of AMS. According to FAO (1997) Turkey easily meets the *de minimis* provision for individual products (so doesn’t have to reduce domestic support) as long as the EMS calculations are done according to the methodology applied to the base period. However, for the calculations of EMS

in he base year Turkey did not report any product specific support other than market price support (except intervention buying) and these other product specific support measures are not included in the EMS. Therefore, whenever such policies do exist (for example product specific premiums and credit subsidies) it should be calculated whether they are *de minimis* or not. Furthermore, in the area of nonproduct specific support Turkey did not report any policies which would be subject to reduction commitments if they exceeded the *de minimis* level. For example, input subsidies are an important means of agricultural policy in Turkey. Turkey basing upon "Measures Exempt from Reduction Commitment - Special and Differential Treatment (which are exempt from reduction commitments in the case of developing countries)" declared the eligibility of these subsidies to be included in the exemption category. However, it is not clear whether these subsidies are for low income farmers as stated in the above statement. Similarly, credit subsidies are not reported in Turkey's calculation of the base level of domestic support and in Turkey's notifications by basing upon the developing country exemption of "... investment subsidies which are generally available to agriculture..." (AoA Art. 6:2). According to FAO (1997) it is not clear to what extent these subsidies are eligible for exemption. This is because only part of these subsidies is for investments, the other part being granted for inputs like fertilizer and seed. Credit subsidies granted for inputs, however, are not investment subsidies and should therefore be below *de minimis*. FAO (1997) shows that Turkey would have exceeded its *de minimis* commitment for example in 1995 and 1996 if it had calculated an AMS by considering the factors above.

2.2. Turkey's Commitments under CU

Turkey and the EU signed a CU Agreement in 1995. The agreement basically proposed integration over five-year time in industrial sectors by eliminating all tariffs on industrial commodities. The agreement excluded agricultural sectors initially but confirmed the possibility of eventual agricultural integration in the course of time (2001). The CU agreement became effective at the beginning of 1996. It proposed:

1. The mutual elimination of tariffs and levies on imports of manufacturing products between the EU and Turkey.
2. Adoption of Common External Tariff (CET) of the EU by Turkey on imports from the third regions.
3. Turkey is obligated to provide preferential access to its markets to all countries to which the EU grants preferential access. These countries include: Central and Eastern European countries (CEEC) with whom the EU has association agreement, EFTA countries, Mediterranean countries that are covered by the Mediterranean Policy of the EU and African and Pacific countries included in the Lome Convention.
4. There will be no restrictions on tariffs imposed by Turkey on imports of agricultural products.
5. The agreement proposes no restrictions on export subsidies to third countries or export subsidies in agricultural products to any country.

EU Preferences Granted for Agricultural Products Originating from Turkey

The EU granted tariff preferences for agricultural products originating from Turkey and at various stages these preferences have been extended. Since 1987 almost all *ad valorem* tariffs have been abolished and in some cases reduced rates were granted also for specific duties[3]. The preferences granted by the EU for Turkey can be grouped under four categories

[3] These specific duties in the EU mainly apply to meat, dairy products, sugar and cereals, i.e. products which were protected by variable levies before implementation of the UR.

based on the import regime applied by the EU to agricultural imports originating from Turkey. These groups are as follows:

1. Products for which no most favoured nation (MFN) import barriers exist (MFN tariff = 0; no minimum import price).
2. Products with a MFN tariff and/or a minimum import price, no preference for Turkey.
3. Products with a MFN tariff and/or an minimum import price, partial preference for Turkey (for example a reduced MFN tariff rate).
4. Products with a MFN tariff and/or an minimum import price, no import barrier for Turkey (tariff= 0 and no minimum import price).

According to FAO (1997) about 9 percent of Turkey's agricultural exports are in category 1, where preferential treatment was technically impossible. This group consists mainly of products of guts, bladders, stomachs, oilseeds and oleaginous fruit, cotton and wool. Approximately 20 percent of Turkey's agricultural exports to the EU are in category 2 which are subject to a tariff (and, in some cases, a minimum import price) at MFN conditions. Hazelnut, grapes and melons are in this group. Around 71 percent of agricultural exports (categories 3 and 4) are under preferential conditions (being about 11 percent in category 3 and 60 percent in category 4). Category 3 consists mainly of olive oil (with a minimal reduction of the specific MFN duty) and various fruit and vegetables subject to MFN minimum import prices but not to the MFN *ad valorem* duty. The most important product groups in category 4 are preparations of vegetables and fruits, and vegetables.

Therefore around 70 percent of Turkey's agricultural exports enter the EU market tariff free and without any other restrictive border measure. Again around 70 percent are subject to preferential conditions. However, high specific duties for almost all "core-products" of the Common Agricultural Policy (CAP) like cereals and cereal products, sugar and sugar products, dairy, meat and live animals and for some other products of importance for Turkey like olive oil still exists.

Turkey's Preferences Granted for Agricultural Products Originating from the EU

Turkey has granted only very few preferences for agricultural imports originating from the EU and most of these preferences are relatively insignificant (FAO, 1997). Significant preferences are limited to fish and other marine animals, some alcoholic beverages and pectic substances. Some more highly processed products are covered by a special import regime for processed agricultural products. These are the so called "Non-Annex II Products". Import tariffs for these products reflect, in addition to the protection granted to the processing industry, the protection granted for the incorporated agricultural raw products. Non-Annex II products are protected by a fixed "industrial" component of the tariff and an "agricultural" component that is charged based on the contents of certain "basic agricultural products" and the (agricultural) tariffs charged on these basic products. Basic products for this purpose are dairy products, cereals and sugar. The industrial component of the tariffs of these products is included in the CU, i.e. no industrial component applies to trade between the EU and Turkey. The agricultural component charged on trade of Non-Annex II products is exempted from the CU. If preferences are granted for basic agricultural products, these preferences must be taken into account if an agricultural component is calculated to be charged on any Non-Annex II product traded between Turkey and the EU. A second group of processed agricultural products are considered as being industrial products and are therefore fully included in the CU.

2.3. Turkey's Commitments under IMF Agreement

Turkey has signed an agreement with the IMF in December 1999. With this Agreement Turkey committed to phase out current production-oriented agricultural support and to replace it by income support payments during the 2001-2004 period. The Turkish Government has developed the Agricultural Reform Implementation Project (ARIP) to pursue the aim of this Agreement. The project particularly aims a restructuring in government institutions and encouragement of sectoral investment, with emphasis on harmonisation of Turkey's regulations and procedures in preparation for EU accession. According to ARIP:

1. In 2000 a pilot programme of income support payments has started in four selected regions. The programme will be extended nation-wide in 2001-2002 on the basis of the results of the pilot programme.
2. Simultaneously with the application of income support payments programme, price supports and input subsidies will be phased out. For example, the rate of the fertiliser subsidy will continue to be reduced, as it has been since 1997, and price support for grains will also be reduced with the aim of eliminating it by 2002. At the same time, import tariffs will be gradually reduced.
3. In the longer run, most agricultural state enterprises will be privatised. The ASCUs will be restructured. The legal framework for privatising the processing facilities of TEKEL (tobacco) will be established, and the privatisation of the tea factories of Caykur and the sugar plants of TSFAS will be initiated in 2001. Some firms will be liquidated, such as TZDAS (the state firm responsible for input supply).

2.4. Recent Policy Developments at Commodity Level

Wheat and Coarse Grains

Import tariffs and administered prices in the case of cereals provide support for domestic production. Percentage producer support estimate (PSE) (percentage of value of production) for wheat has varied from –3 (1995) to 54 (1991) percent since 1986. For coarse grains the same measure changed between 5 (1995) and 55 (1998) percent. The support prices for wheat and coarse grains became higher in Turkey compared to support prices in the EU especially after the decrease in prices in 1995 due to the CAP reforms. Until 1995 cereals were more protected in the EU. With the recent developments the government fixed the support prices for cereals for 2000 at a level no greater than 35 percent above the projected c.i.f. import prices to progressively eliminate market price support policies. In 2000, support prices increased by around 27 percent for wheat and rye and by about 36 percent for barley, oats and maize, leading once again to the purchase of a large volume of grains by the Turkish Grain Board (TMO).

Tariff bindings for cereals determined under the WTO are above the currently applied levels for cereals except for some processed cereal products which force the currently applied tariffs for these products to be reduced. The nominal protection coefficient (NPC) for wheat varied in the range of 1.36 to 1.54 since 1986 showing the domestic market price for wheat was between 36 and 54 percent higher than the world prices. This measured changed between 1.33 and 2.03.

Sugar

Import tariffs, complemented by administered prices in sugar provide support for domestic production. Sugarbeet production is also controlled by contracting. Since 1986 the

percent PSE varied between –16 (1994) and 70 (1999) percent. More than 80 percent of produced sugarbeet is purchased at the administered price by a state enterprise in Turkey. Although no export subsidy is explicitly announced, export subsidies are implicit in the losses made by state owned companies since the domestic purchasing price is above the selling price in the world market. The support price for sugar beet was increased by 25 percent, while the production quota was reduced by 22 percent to 12.5 million tonnes of sugar beet. The maximum over-quota quantity permitted (without penalty) was reduced from 25 percent to 15 percent of a farmer's individual quota. The rate of support for sugar was over the double of the rate for cereals and has remained by far the highest rate of commodity support in Turkey. The NPC for sugar has varied between 1.10 (1986-88) and 3.27 (1999) since 1986.

Meat

Over the period 1986-99 the percent PSE for beef and veal has changed between 0 and 58 percent and between 8 and 41 percent for sheepmeat. Currently the tariff bindings are above the applied levels for meat. The sanitary ban on imports of live animals (dairy and beef cattle, sheep and goats) and meat (from cattle, sheep and goats), enforced since August 1996, remained in place for feeder and slaughter cattle, and beef imports. In 2000, about USD 1.5 million was provided to farmers for animal losses due to natural disasters. A regulation fixing the initial targets of the Livestock Development Programme was officially published in June 2000. Some USD 55 million was spent for the first year of the programme to provide incentives for fodder crop production; purchases and artificial insemination of pedigree cattle; and establishing new artificial insemination enterprises. Although producer prices are estimated to have increased more than world market prices beef, support to producers decreased to a percent PSE of 42 percent and 47 percent respectively due to a reduction in input subsidies in 2000. The sanitary ban on imports of livestock and meat products remained in place, but a number of import approvals were issued to importers of breeding cattle. Import tariffs above 50 percent continued to apply to a number of livestock and livestock products. Throughout 2000 these tariffs remained at the levels established at the end of 1999. The NPC for beef and veal has varied between 1 and 2.03 and between 1.17 and 1.29 for sheepmeat.

2.5. Overall Evaluation of Domestic and Border Support

Total PSE, measured as percentage of the total value of farm production, has varied considerably in the range of 13 to 25 percent since 1986. While percent PSE peaked at 25 percent in 1998, it was measured as 13 percent in 2000[4] (OECD, 2001). Market price support and output based direct payments remained as the main part of this support and these are the categories of support that potentially have the greatest effects on production and trade. Since 1986 these two support categories comprised from 72 to 78 percent of the total PSE (Kasnakoglu and Cakmak, 1997). In 2000 market price support and output based direct payments measured to be 78 percent of the total PSE.

In 2000 prices received by farmers were on average 13 percent higher than those in world markets. This is measured by the NPC for producers which changed between 12 and 30 percent since 1986.

Governments' expenditure to support SEEs and ASCUs involved in marketing and implementing market support policies continued to increase. This expenditure represents the total transfers in favour of general services provided to agriculture. During the period 1986-

[4] Twelfth among the lowest rates of support within the OECD.

2000 general services has varied between 11 and 47 percent of total support estimate (TSE)[5]. Government expenditures in favour of other general services, such as research, education, extension and training only represented 4 percent in 2000. The transfers associated with all these policies reached 3.5 percent share of the TSE in GDP[6] (OECD, 2001).

Input based support which has potentially significant effects on production and trade is the other category which had a significant share in total support to agriculture. Total input based support given in various categories such as interest concessions, subsidy on fertilisers and pesticides, expenditure on seed subsidies, artificial insemination and on-farm veterinary services reached 25 percent of the total PSE over the period 1986-2000 (Kasnakoglu and Cakmak, 1997).

3. Agricultural Policy Instruments and Policy Developments in the EU

Agricultural policy and policy instruments in the EU have been based on the CAP. The basic principals of the CAP were free trade between member countries, a common price throughout the EU and a common external barrier to trade. The main support system was based upon influencing prices or fixing a target price which producers should get. There was an intervention price (minimum price) at which Government agencies remove the products from market and a threshold price (generally above the intervention price) from which the imports were allowed into domestic economy. Besides target price policy, grants to farmers in less favored areas, grants for special equipment and producer and consumer subsidies were the other domestic policy instruments (Saunders et al., 1987).

There have been various reforms to the CAP, on a piece meal basis, especially over the 1980s (Saunders and Cagatay, 2001). These included attempts to improve the structure of agriculture such as early retirement schemes, dairy to beef conversion schemes and farm amalgamation. However, it was the McSharry reforms in 1992 that were the most comprehensive. Whilst these left the basic price structure in place they reduced fixed prices to, or closer to, world market levels and compensated producers with direct payments based upon past production patterns. These reforms also increased the amount of funds available for structural policies which included agri-environmental schemes as well as allowing member states to supplement funding for these schemes. In parallel with, and additional to, the reforms above, recognizing the environmental and social problems with conventional agriculture, the EU has strengthened the measures to encourage the development and continuation of measures/policies to encourage low input (including organic) farming (which was first recognised in EU policy in 1987) (Saunders and Cagatay, 2001).

The other main reform to the CAP was the agreement Agenda 2000 which provided the basic legislative framework governing agricultural policies for the period 2000-06 (OECD, 2001). The Agenda 2000 not only deals with CAP reform, but also the future financing of the CAP in relation to agriculture, the structure funds and EU enlargement, and most radically it defines rural policy. The agricultural policy reforms under Agenda 2000 were cautious and built on the McSharry reforms. Market price support (with a decrease in prices) and area and headage payments are the main policy instruments under the Agenda 2000. Market price support, where applied, is provided through administered prices, export subsidies, tariffs and tariff-rate quotas (TRQs). Market price support policies are often combined with production quotas or land set-aside. A number of measures aimed at promoting structural adjustment, rural development, marketing and promotion, research and extension, input subsidies and

[5] Includes transfers from consumers, taxpayers and budget revenue.
[6] Thirteenth among the highest shares in the OECD.

improved agri-environmental performance, are either co-financed or are entirely financed by the EU member States. Agenda 2000 is a further step in the direction of trade liberalisation.

The most radical reform in Agenda 2000 is the development of a rural policy which integrates and simplifies existing policies but more radically opens up the possibility of the agricultural budget being diverted into support for rural areas. Agenda 2000 includes a revision of rural policy with the reform of structure funds. The agricultural budget can now directly fund rural development schemes. It is well recognised that the CAP can only support a small part of rural Europe and historically the funding for rural areas has been small especially when compared to the support for agriculture. Saunders and Cagatay (2001) summarize the new objectives for rural policy under Agenda 2000 are as follows:

1. Increased competitiveness internally and externally.
2. Food safety and food quality are a fundamental obligation towards consumers.
3. Integration of environmental goals into the CAP.
4. Creation of alternative job and income opportunities for farmers and families.
5. Simplification of EU legislation.
6. Ensuring fair standard of living for the agricultural community and contributing to the stability of farm incomes.

These differ from the original objectives of agricultural policy and do show the change in emphasis from the EU. They also illustrate areas that may cause tension in the next WTO round of negotiations such as the emphasis on food quality and the environmental objectives.

3.2. Recent Policy Developments at Commodity Level

Wheat and Coarse Grains

The main agricultural policy instruments in the EU in wheat and cereal markets are area payments, intervention prices and set-aside policies. Area payments for cereals are based on historic, regional yields and are paid on condition that producers set-aside a defined percentage of their arable land. Payments are also made in respect of the land that is set-aside. However, small-scale producers are exempted from the set-aside requirement. Cereal prices are to be reduced by 15 per cent over two-years starting in 2000/01. These reductions are to be compensated by increases in arable area payments, set-aside is also to continue at 10 per cent over period 2000 to 2006. To compensate partially for the reduction in the cereals intervention price, the rate of area payments related to cereals was increased in 2000/2001. For durum wheat, the standard additional per hectare payment remained unchanged (at US$ 317.5 per hectare for the traditional areas and US$ 128 per hectare for other areas) subject to the maximum guaranteed areas set by the EU member States, and on condition that certified seed is used (OECD, 2001).

Special duties in the form of import tariffs are applied to the imports of cereals and wheat in the EU. Tariffs are determined by the difference between the world market prices, and the intervention price multiplied by 1.55. The EU price could, theoretically, vary between the intervention price and the duty paid import price depending on the net trade position. As the EU is a net exporter the price is, in the event of low world market prices, likely to be near the intervention price. The Commission can however keep the EU price above the intervention price in a net exporting situation by means of its export refund policy (FAO, 1997).

Sugar

The main elements of sugar production and trade policy in the EU are administered prices and production quotas used in conjunction with import protection and export subsidies. On 4 October 2000, the European Commission adopted a proposal for modifying the sugar support regime. Its main elements comprise a permanent cut in production quota of 115000 tonnes and the abolition of the reimbursement of storage costs to producers. The production quota system, production levies and preferential import arrangements from African, Caribbean and Pacific (ACP) countries and India are to be continued until the 2002/2003 marketing year.

Meat

Beef is supported through administered prices, aid for private storage, headage payments, TRQs and export subsidies (OECD, 2001). Headage payments for beef and veal were increased in 2000 and the regional ceilings for the special premium and the national ceilings for the suckler cow premium were reduced. Claims for both the special premium and the suckler cow premium are subject to a maximum stocking density limit of two livestock units per hectare of forage area. An additional premium payment is made to producers receiving the beef special and suckler cow premia if the stocking density of their holding is within certain limit (extensification premium). European Union member States have the option of introducing either a single rate per beef special premium and suckler cow premium of US$ 92 per head where the stocking density is less than or equal to 1.4 livestock units per hectare or a two-tier system with differentiated rates depending on stocking densities. A slaughter premium was introduced. The intervention price for beef is also to be reduced by 20 per cent in three stages from 2000. Again this fall in intervention price is to be compensated by increases in headage payments (OECD, 2001).

Support for sheepmeat, comprises a pricing system based on a ewe premium and import tariffs. Headage payments for sheepmeat were reduced. The definition of a sheep producer in a less-favoured area, which has given rise to problems of interpretation and has also made checks difficult by obliging the physical presence of animals on the land to be verified, has been amended.

3.3. Overall Evaluation of Domestic and Border Support

Overall, total support to agriculture has been following a declining trend since 1986. Agricultural support (percentage PSE) declined from an average of 44 percent in 1986-88 to 42 percent in 1992-94 and to 40 percent in 1998-2000 (OECD, 2001). In 2000 the decline continued down to 38 percent. However according to OECD (2001) the percentage PSE in the EU is 4 percentage points above the OECD average. There has been a change in the composition of support since 1986. In the EU agricultural support policies have shifted away from market price support and towards area and headage payments which have reduced protection and the effects of support on production and trade. However, market price support and payments based on output which potentially have the largest effects on production and trade still constitute the predominant type of producer support. Market price support for all commodities (except poultry) has decreased. The combined share of market price support and payments based on output fell from 91 percent of the PSE in 1986-88 to 66 percent in 1998-2000. However, it is still above the OECD average. The other categories of budgetary support to farmers remained relatively stable since 1986, except payments based on input use which have declined in 2000 by 11 percent. The producer NPC has been declining since 1986 from 85 percent to 37 percent in 2000, showing the declining ratio of prices received by farmers in the EU to world market prices.

4. Literature Review

There have been a few studies examining the potential impact of the CU Agreement with the EU on the agricultural sector of Turkey. This section reviews these applied studies. The review summarizes the sectoral and regional coverages of the studies, their policy focus and the methodology (briefly) used to derive the policy impact. However, the findings of the studies are not compared and discussed since it is not the aim here.

FAO (1997) employs separate farm supply, product demand and agricultural processing modules to analyze the impact of various trade and domestic policy changes. This framework can be considered as a partial, single country analysis. FAO (1997) includes 25 crop and livestock products and simulate the policy effects to 2005. This study derives the effects on supply, demand and net trade of products as well as the changes in budget outlays and revenues sourced by the policy changes. The policy scenarios in this study focus on the removal of all existing import tariffs and export subsidies in Turkey, conversion of the export subsidies, premiums and input subsidies in Turkey to direct payments, abolition of all border measures between the EU and Turkey, Turkey's adoption of the EU's support prices, elimination of fertilizer subsidy in Turkey, adjustment of Turkey's MFN tariffs to those of the EU's, continuation of the WTO bound EU tariff reductions until 2005 and substantial/no substantial CAP reform in the EU.

Harrison et al. (1997) employs a single country CGE model to quantify the impact of the CU between Turkey and the EU. They specifically examine the welfare, employment, sectoral-value added, government revenue and the real exchange rate effects of the CU. The policy scenarios they simulate include tariff reductions on imports from the EU and adoption of CET of the EU, improved access to markets where the EU has preferential access, export subsidy reduction and removal in the EU and reduction in the costs of importing from and exporting to the EU. However, they do not explicitly explain the industrial focus of their model and the commodity disaggregation they apply to agricultural sector.

Mercenier and Yeldan (1997) analyze the welfare impact of the CU agreement on Turkey by using an intertemporal GE model of trade and production. Seven regions (including Turkey) is included in their model: Great Britain, Germany, France, Italy, the rest of the EU and the rest of the world. Each country in the model has nine sectors of production and four of these are perfectly competitive. The other five sectors are differentiated in demand by geographical origin. The perfectly competitive sectors are primary agriculture and based processing industries: primary production, food, beverage and tobacco. Their policy scenarios cover the removal of all tariffs on the imports from the EU and adoption of the EU’s tariff rates on imports from the ROW, and adoption of single price both in the EU and Turkey.

Acar (1999) analyzes the implications of integrating Turkey’s agriculture with the EU in the context of the CU. He uses the CGE model GTAP and disaggregates the world into 6 regions: Turkey, EU (15), CEE, EFTA, Middle East and North Africa and rest of the world. Industrial production is disaggregated into 16 sectors and the primary agriculture and primary processing industries are gathered under nine sectors: grains and oilseeds, livestock, fruits and vegetables, other crops, forestry and fishing, meat products, dairy products, beverages and tobacco products, and other food products. The framework allows product differentiation with respect to origin of production and therefore allows to track bilateral trade flows. Acar (1999) derives the impact on industrial output, factor returns, welfare gain and bilateral trade between the EU and Turkey of various policy scenarios. These scenarios include the removal of all the

import tariffs between integrating regions (excluding all food sectors)-FTA, adoption of CET of the EU by Turkey (excluding agricultural sectors)-CU, enlargement of free trade area to include CEE, EFTA and Turkey, extension of CU to include all traded products-CUCAP, and CUCAP extended to include CEE and EFTA.

Bayar et al. (2000) use a nine-region intertemporal GE model to examine the short- and long-run economic impact of alternative trade and investment policies on agricultural production, foreign trade, resource allocation, accumulation, consumer welfare and income distribution. Their regional focus is on Turkey, the EU and Middle East and Transition Economies (MENA) and they disaggregate the sectoral production into nine sectors. Agriculture and related processing industries are gathered under grain crops, vegetables-fruits-oils, sugar, other agriculture, animal products and processed food. Bayar et al. design three main experiments. In the first one they analyze the effects of bilateral trade integration between the EU and each country separately. In the second experiment they look at the impact of bilateral trade integration between the countries in the MENA group. Finally, they examine the impact of full-global trade liberalization.

Augier and Gasiorek (2000) explore the potential impact of trade liberalization on the manufacturing production and welfare of Southern Mediterranean countries (SMC). They specifically focus on the trade relations between the EU and the SMC. Augier and Gasiorek use a static CGE model which allows for imperfect competition in product markets. They disaggregate world into 10 regions (Turkey is included explicitly) and production in each region is disaggregated into 11 sectors. Agricultural based manufacturing is gathered under the sector food-beverages-tobacco. Their policy focus is on the effects of tariff reductions and removals, increased access to the EU markets and potential increases in the productivity of SMC countries.

This research extends the commodity coverage of the studies above (except FAO, 1997) up to 18 agricultural products. It also differs from FAO (1997) since the latter doesn't have a global focus. In addition, the regional coverage in this study is also expanded to 17 countries. The policy focus here is narrower compared to for example Bayar et al. (2000), Acar (1999) and Harrison (1997) since their methodology allows to model bilateral trade relations and therefore to model the CET policy of the EU or other bilateral preferential access policies. Some of the studies above that employ a CGE type framework are able to focus on multi-sectoral relations and also on government budget accounts, real exchange rate dynamics et cetera. However, their sectoral coverage is more aggregate compared to this research and therefore their sectoral focus shifts away from agricultural products to more aggregate industries.

5. Empirical Methodology

LTEM (Lincoln Trade and Environment Model) is a multi-country, multi-commodity PE framework which focuses on the agricultural sector i.e. the linkages of the agricultural sector with the rest of the economy are not considered. LTEM is used in this research to quantify the price, supply, demand and net trade effects of various policy changes relating to extension of the EU to include Turkey. The model is used to derive the medium- to long-term policy impact in a comparative static fashion. The included products are treated as homogenous and therefore perfectly substitutable in international markets. It is a non-spatial model in which the framework derives the net trade of each regions. The bilateral trade relationships are not explicit in the model but the supply and demand shares of countries in

trade can be traced down. It allows the application of various domestic and border policies explicitly such as production quotas, set-aside policies, input and/or output related producer subsidies/taxes, consumer subsides/taxes, minimum prices, import tariffs and quotas, export subsidies and taxes. The economic welfare implications of policy changes are also calculated in the LTEM framework by using the producer and consumer surplus measures.

The LTEM framework includes 18 commodities and 17 countries. These are presented in Appendix Tables A1 and A2. The dairy sector is modelled as five commodities, raw milk is defined as the farm gate product and then is allocated to either the liquid milk, butter, cheese, whole milk powder or skim milk powder markets depending upon their relative prices subject to physical constraints. The meat sector is disaggregated into sheepmeat, beef and pig meat in the current version of LTEM. However, this sector can be disaggregated into more specific categories based on the availability of the data and related parameters, as the modelling framework allows for replacement of products that are already built in. Six crop products (wheat, sugar, coarse grains, oilseeds, oil meals, oil) as well as the poultry sector (poultry meat and eggs) and wool are also explicitly modelled in LTEM framework.

The general equation structure of each commodity at country level in LTEM framework is represented by six (seven for crops) behavioral equations and one economic identity as in the equations (1) to (8).

$$pt_{ij} = f(WDpt_i, ex_j) \quad (1)$$

$$pp_{ij} = g(pt_{ij}, Zs_j) \quad (2)$$

$$pc_{ij} = h(pt_{ij}, Zd_j) \quad (3)$$

$$qs_{ij} = l(ssft_{ij}, Z_j, pp_{ikj}) \quad (4)$$

$$qd_{ij,fo} = m(dsft_{ij}, pc_{ikj}, pinc_j) \quad (5)$$

$$qd_{ij,fe} = m'(dsft_{ij,fe}, pc_{ikj}, qs_{ij,liv}) \quad (6)$$

$$qst_{ij} = n(stsft_{ij}, qs_{ij}, pc_{ij}) \quad (7)$$

$$qt_{ij} = qs_{ij} - qd_{ij} - \Delta qst_{ij} \quad (8)$$

The trade price (pt) of a commodity ($_i$) in a country ($_j$) is determined as a function of world market price ($WDpt_i$) of that commodity and the exchange rate (ex_j). The total effect of world market price on trade price of the country is determined by the price transmission elasticity. The domestic producer (pp_{ij}) and consumer prices (pc_{ij}) are defined as functions of trade price of the related commodity and commodity specific production and consumption related domestic support/subsidy policies, (Zs_j, Zd_j). The domestic supply and demand equations are specified as constant elasticity functions that incorporate both the own and cross-price effects. Domestic supply (qs_{ij}) is specified as a function of the supply ($ssft_{ij}$) shifter, which represents the economic factors that may cause shifts, a policy variable (Z_j) that reflects the production related policies, and producer prices of the own and other substitute and complementary commodities (pp_{ijk}). Domestic demand (qd_{ij}) is specified as a function of the demand ($dsft_{ij}$) shifter, consumer prices of the own and other substitute and complementary commodities (pc_{ijk}) and per capita real income ($pinc_j$) created in the economy. The total demand for crops is separated into feed and food demand (and processing industry demand in some cases). In feed demand (qd_{ij}) function domestic supply of livestock ($qs_{ij,liv}$) sector is also included as an explanatory variable. The stocks (qst_{ij}) are determined as a function of the stock shifter ($stsft_{ij}$), quantity supplied (qs_{ij}) and consumer price (pc_{ij}) of the commodity. Finally, net

trade (qt_{ij}) of the country ($_j$) in commodity ($_i$) is determined as the difference between domestic supply and the sum of domestic demand (also includes ($qd_{ij,fe}$) in case of crops) and stock changes in the related year. LTEM is a synthetic model since the parameters are adopted from the literature.

Basically, the model works by simulating the commodity based world market clearing price on the domestic quantities and prices, which may or may not be under the effect of policy changes, in each country by basing on 1997. Excess domestic supply or demand in each country spills over onto the world market to determine world prices. The world market-clearing price is determined at the level that equilibrates the total demand and supply of each commodity in the world market. LTEM framework can capture the disequilibrium situations in the economy that may result from temporary shortages or excess supply situations by allowing the determination of stock levels endogenously.

6. Policy Analysis

The base year of the LTEM is 1997. The model is then simulated to 2010 to show the impact in the EU and Turkey of various policy scenarios. Scenario 1 is the base for scenario comparisons and it assumes that the current (1997) policies remain in place both in the EU and Turkey. These policies include the ongoing administered or intervention prices in the domestic markets and border policies applied either to protect or support domestic industries in 1997. In Scenario 2 it is assumed that Agenda 2000 policy reform was applied and completed in the EU markets. Agenda 2000 here covers the 15 percent price decrease in wheat and coarse grains, 20 percent price decrease in beef and veal and also decrease in the intervention prices (20 percent for wheat and coarse grains and 36 percent for beef and veal). No policy changes are assumed for Turkey in Scenario 2 compared to Scenario 1. Therefore Scenario 2 is simulated in order to see the impact of the Agenda 2000 policies in the EU market. In addition this is simulated to see whether unilateral policy reform in the EU has impact on the producer prices and production in Turkey, particularly in wheat and coarse grains markets since the EU can be considered a large country in these products.

In Scenario 3 and 4 the CU Agreement with the EU is assumed to be extended to include agricultural products. In the event of a CU in agriculture Turkey has to harmonize its domestic and border policies with those of the EU's, particularly in the product based support policies. Specifically tariffs applied on the imports of agricultural products between the two regions have to be eliminated. Therefore, by assuming the homogeneity of these products in the international markets the only factors effecting the prices in these two regions remain to be the transportation cost differences and market imperfections. If these are eliminated for the purpose of this scenario, then in the event of a CU in agriculture the prices in the domestic markets have to equalize since the tariffs are eliminated. The enlargement of the CU to include agricultural products is simulated by two different scenarios by applying the EU's domestic and intervention prices in Turkey. In Scenario 3 it is assumed that the CU in agriculture occurred before the application of the Agenda 2000 in the EU. In Scenario 4 it is assumed that the CU in agriculture occurred after the Agenda 2000 became effective and completed. However, it has to be mentioned that the adoption of the EU's CET and preferential access policies to third countries by Turkey is not simulated here.

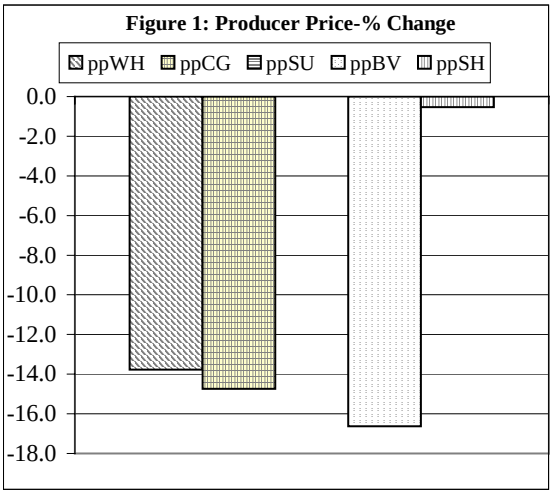
In the last scenario, Scenario 5, it is assumed that the EU applies the Agenda 2000 policy reform and Turkey liberalizes its domestic and border product specific policies instead

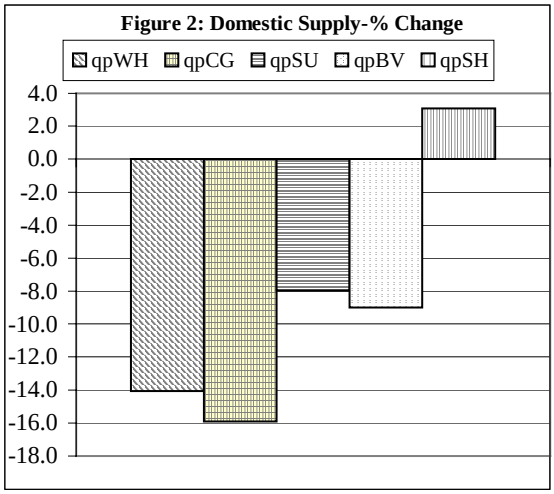
of adopting EU's domestic and intervention prices. Therefore, the CU does not cover agricultural sector but Turkey decides to reduce domestic support on agricultural products.

Results

Comparison of Scenario 2 with Scenario 1: The EU under Agenda 2000

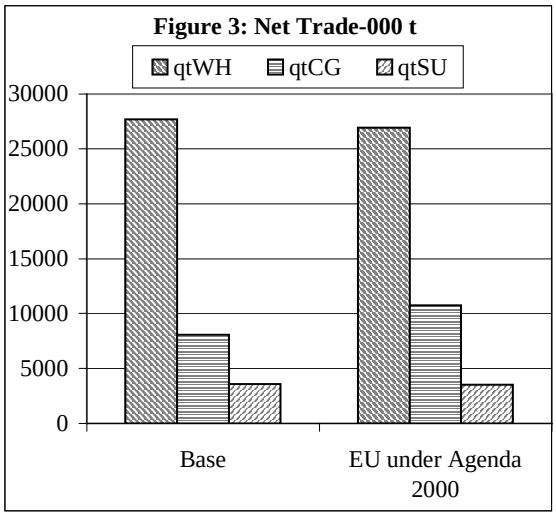
In Figures 1 and 2 the percentage changes in the producer prices and domestic supply in the EU market is presented after the application of the Agenda 2000. The 15 percent decrease in the producer prices of wheat and coarse grains results in a 14 and 16 percent decrease in the domestic supply of these products respectively in 2010. There appears an 8 percent reduction in the domestic supply of sugar also although Agenda 2000 does not cover any price change in sugar. This may be caused because sugar is generally produced as a rotation crop in the EU. In other words the complementarity relationship between wheat, coarse grains and sugar may yield this decrease in the production of sugar. At this stage two important points have to be mentioned which may effect these findings. First of all, the effect of the change in the policies in the EU from price support to direct payments are not incorporated into the model. Therefore the compensating effect of direct payments increase as against the price reduction is not considered in the calculations. Secondly, the effects of the change in the arable land after the policy shocks are not also incorporated into the model. The rising relative price of sheepmeat in the EU after the Agenda 2000 results in an increase in the production of sheepmeat around 3 percent while the Agenda 2000 yields a decrease around 9 percent in beef and veal production.

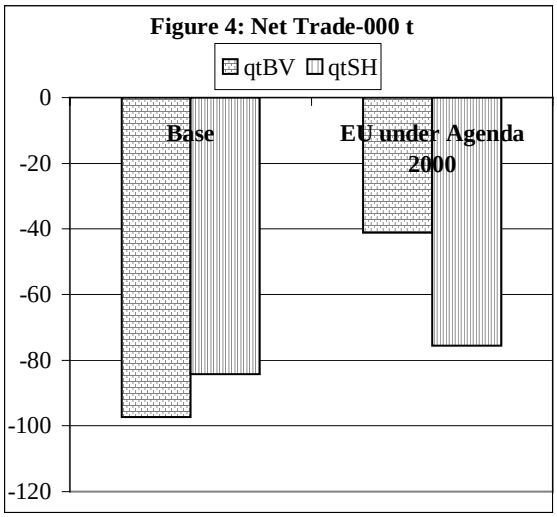




In Figures 3 and 4 the net trade effects of the Agenda 2000 on the EU market is presented. The decrease in the domestic production of wheat and sugarbeet reduces the net exports of these products however, the reduction in the domestic supply of coarse grains has the opposite impact on net exports. The increase in the net exports of coarse grains may result if the decrease in the domestic demand for these products is larger then the decrease in the domestic production. Coarse grains are feed crops demanded by the livestock producers. The decrease in the domestic production of beef and veal after the Agenda 2000 may also cause a decrease in the demand for course grains. At the same time falling prices of coarse grains I the EU may cause a shift in foreign demand for these products which may effect the net exports. Net importer position of the EU in the beef and sheepmeat does not change after the Agenda 2000 but the trade balance in these products appears to improve. This is interesting in beef market since the domestic production decreases. May be one reason could be the shift of

domestic demand away from beef and towards pigs and poultry because of the changing relative prices.





The price and production effects of the Agenda 2000 in Turkey can be considered as insignificant as these effects appear to be between 0 and 1 percent. In coarse grains only the producer price decrease in the domestic market is around 1.5 percent. This may be the result of rising excess supply in the world market because of the EU's rising exports and resulting decrease in the world price of coarse grains around 1 percent.

Comparison of Scenario 3 and 4 with Scenario 1: Turkey adopts EU producer and intervention prices under pre-Agenda 2000 and post-Agenda 2000

The CU's extension to include agricultural products of Turkey is simulated by adjusting Turkey's domestic and trade prices by those of the EU. In other words, since there would be no border policies applied between the two regions on the trade of agricultural products, there would be a single price for these products in the domestic markets of two regions. Also, the trade price that these regions meet with would be the same since the trade policies to third countries is going to be adjusted. Therefore, while simulating the Scenarios 3 and 4 Turkey is assumed to adopt the EU's prevailing producer, intervention and trade prices. Basing upon this, a decrease in the domestic prices of wheat, coarse grains, beef and veal and sheepmeat is expected in Turkey since the EU prices are lower both in 1997 and after the application of Agenda 2000 reform compared to prices in Turkey. Sugar price is expected to be higher in Turkey after the extension of the CU as market price support for sugar (especially the intervention price) in the EU is higher then it is in Turkey. This price development for sugar in Turkey is expected as sugar is not covered in the Agenda 2000 policy reform of the EU.

In Figures 5 and 6 the expected domestic price and supply changes in the Turkish agricultural market are presented. The figures show the CU extension scenario both in 1997 and after the implementation of Agenda 2000 policy reform. At this stage it has to be mentioned that the amount of price change might be overestimated since both the domestic and trade prices prevailing in each region in status-quo is quite different from each other. However, the direction of the change is correct.

If the CU Agreement was extended to include agricultural products in 1997, it appears that there would be around 55, 45, 40 and 25 percent decrease in the producer price of wheat, coarse grains, beef and veal and sheepmeat respectively in Turkey. Based on this, there would

be a decrease of around 18, 4 and 9 percent in the domestic supply of wheat, coarse grains and beef and veal. The sheepmeat production appears to be higher in spite of the producer price decrease. However this might be caused by the response of farmers to rising relative price of sheepmeat compared to beef and veal. For sugar the outcome of CU extension is opposite since this yields a price increase of 12 percent in domestic sugar market in Turkey. Based on this there appears an18 percent increase in domestic supply of sugar. If the extension of the CU occurs after the implementation of the Agenda 2000 policy reform the outcomes in terms of price and production changes in Turkey seem to be more dramatic since the EU prices go down with the Agenda 2000 (except for sugar and sheepmeat). In Figure 6 this impact is obvious in the increase in the changing rate of sheepmeat production as a result of further rise in the relative price of sheepmeat to beef. These scenarios do not incorporate the sugar production quota policy both in the EU and Turkey. The adopted EU sugar price by Turkey here is the "highest" quota price of the EU. In addition, domestic supply increase in sugar in Turkey has to be considered carefully. If Turkey becomes a net exporter in sugar after the CU extension, this can be difficult to defend in the future since Turkey declared zero binding for export subsidies under WTO (which will be implicit in the price differential). Furthermore, Turkey's production quota for sugarbeet has to be considered too.

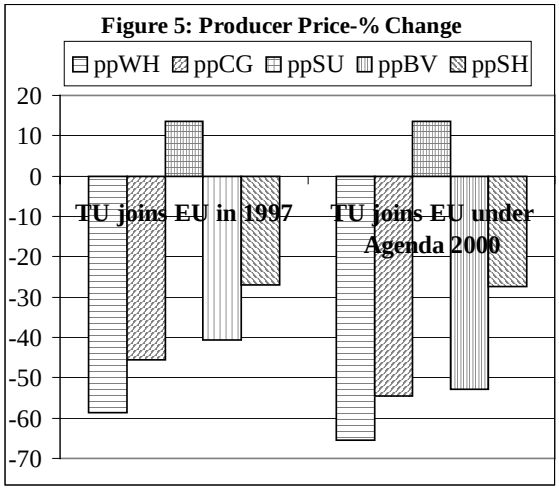


Figure 5: Producer Price-% Change

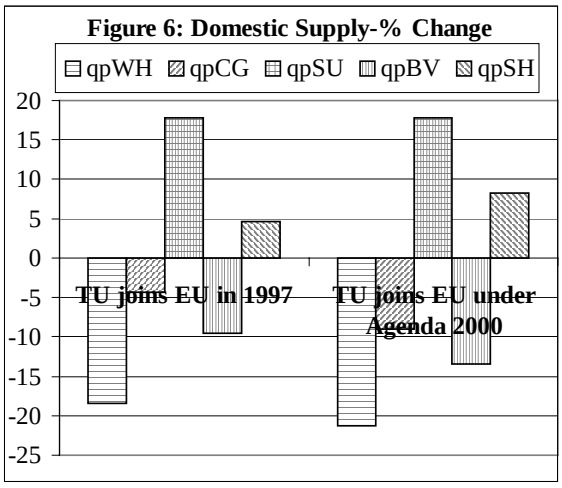
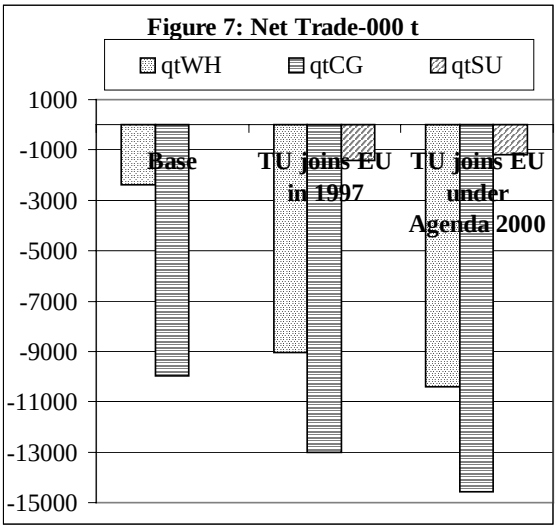
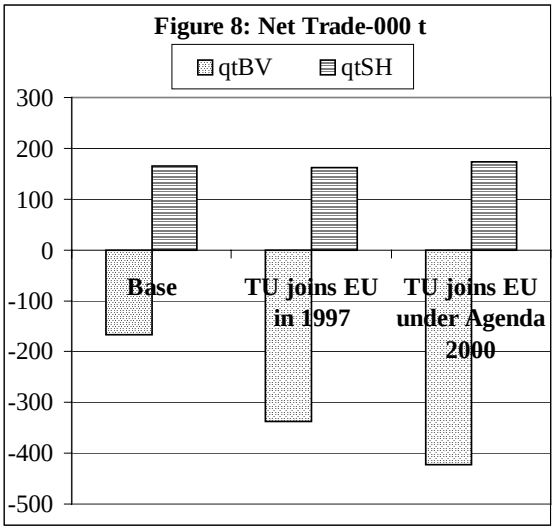


Figure 6: Domestic Supply-% Change

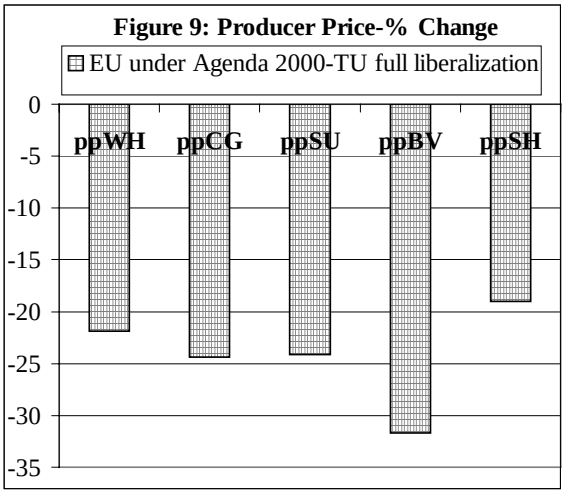
The net trade effects of the CU extension is presented in Figures 7 and 8 in comparison to the base scenario. Turkey is a net importer of wheat, coarse grains and beef in the base scenario, while it is a net exporter in sheepmeat and has almost zero trade balance in sugar. Accordingly with the developments in the domestic supply the trade balance in wheat, coarse grains and beef deteriorates under both CU extension scenarios. The sheepmeat exports appear to be higher under both scenarios, however interestingly Turkey becomes a net importer in sugar in spite of the increase in domestic supply. This can be explained by the shift of demand from domestic markets to international markets because of the rising domestic prices.

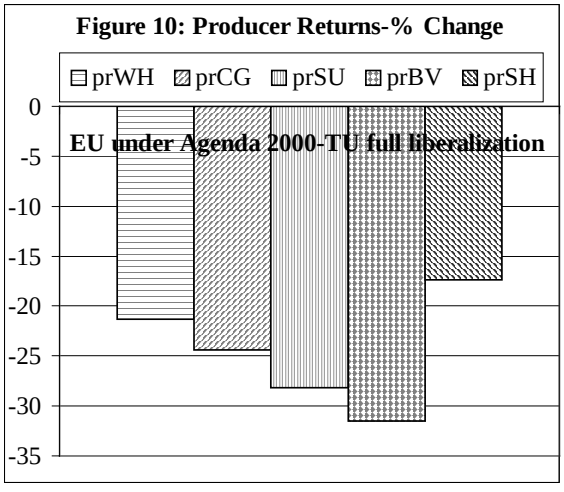


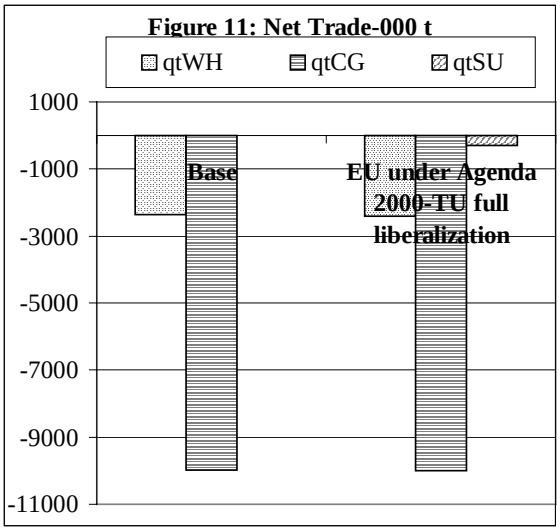


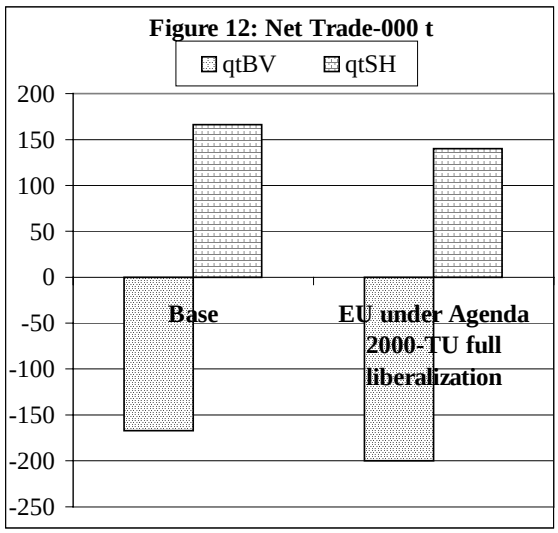
Comparison of Scenario 5 with Scenario 1: Turkey fully liberalise its price related border and domestic policies

In this scenario it is assumed that Turkey removes all the trade related measures and domestic intervention prices. Therefore, all the market price support is assumed to be removed but the compensation for this with the increase in direct payments to farmers is not incorporated to the model. In other words, the analysis only incorporates the price policy changes. The liberalisation scenario brings a decrease in domestic producer prices between 18 to 32 percent which yields a decrease in producer returns in the same range. The net trade effects of liberalization in Turkey is minimal. In Figures 11 and 12 net trade impact of liberalisation is presented. While there is a slight increase in the net imports of wheat, coarse grains, sugar and beef, net exports of sheepmeat decreases slightly. The outcomes of this scenario is not directly comparable to the outcomes of Scenario 3 and 4 due to the price differential in the base year mentioned above.









7. Further Research

Further research in this particular area can lead to two directions: research on specific policy issues that is related to Turkish agricultural policy; research in terms of better modelling of policy issues.

Concerning the policy issues Turkey's commitment under the IMF agreement as to replace market price support with income support payments has to be considered carefully as this may put extra burden on the government budget. In addition, in the case of Turkey's adjustment its domestic support policies with that of the EU's it is still uncertain whether the EU is going to make "area payments" to the new members when they adjust their policy accordingly with the CAP. Therefore, shifting from price support to "area payments" can bring an extra burden on the budget of new member countries. Furthermore, in the next round of WTO possible questions for the Turkish authorities can be: what if the support has to be measured by AMS instead of EMS in Turkey's case and what if credit subsidies and input subsidies has to be included in the calculations of AMS ? Obviously these may put product and non-product support above the *de minimis* level. Turkey did not declare any subsidy bindings for exports of sugar in the last round of WTO. If Turkey becomes a net exporter the intervention price policy and the subsidies implicit in the price differential can be questioned.

In terms of policy modelling a complete approach to quantify these issues has to incorporate the impact of changes in production quotas, direct payments and arable land. Moreover, bilateral trade relations and so, bilateral preferential access policies has to be incorporated to the modelling framework. Finally, government budget can be endogenized to analyze the changing policy impacts on.

References

Acar, M. 1999. To CAP or Not to CAP: The Role of Agriculture in the Turkey-EU Customs Union, **Second Annual Conference on Global Economic Analysis**, June 6-7, Denmark.

Augier, P. and M. Gasiorek, 2000. Trade Liberalization between the Southern Mediterranean and the EU: The Sectoral Impact, paper presented at the **First FEMISE Network**

Conference 17-18 February, Marseilles, France.
Bayar, A., X. Diao and E. Yeldan, 2000. **An Intertemporal, Multi-Region General Equilibrium Model of Agricultural Trade Liberalization in the South Mediterranean NICs, Turkey and the European Union**, Trade and Macroeconomics Division Discussion Paper No. 56, International Food Policy Research Institute, May.
Food and Agriculture Organization (FAO), 1997. **Agricultural Policy Reform in Turkey Relating to WTO and EU Agreements**, final report for the project TCP/TUR/4552 A, Ankara, November.
Harrison, G.W., T.F. Rutherford and D.G. Tarr, 1997. "Turkey's Customs Union with the EU: Economic Implications for Turkey of a Customs Union with the European Union", **European Economic Review,** 41, p. 861-870.
Kasnakoglu, H. and E. Cakmak, 1997. **The Fiscal Burden and Distribution of Costs and Benefits of Agricultural Support Policies in Turkey**, Middle East Technical University, Department of Economics, Ankara.
Mercenier, J. and E. Yeldan, 1997. "On Turkey's Trade Policy: Is a Customs Union with Europe Enough?", **European Economic Review,** 41, p. 871-880.
Organization of Economic Cooperation and Development (OECD), 2001. **Agricultural Policies in OECD Countries, Monitoring and Evaluation**, Paris.
Saunders, C. and S. Cagatay, 2001. **The Impacts on New Zealand Agriculture of Alternative Liberalization Paths for European Union (EU) Tariff Quotas on Dairy, Beef and Sheepmeat Products**, prepared for the Ministry of Foreign Affairs and Trade (MFAT), New Zealand.
Saunders, C., K.G. Willis and J.F. Benson, 1987. **Resource Cost of Agricultural Intensification and Wildlife Conservation**, Working Paper Series No. 1, University of New Castle upon Tyne.
Yukseler, Z., 1999. **Tarimsal Destekleme Politikalari ve Dogrudan Gelir Destegi Sisteminin Degerlendirilmesi**, DPT, Agustos.

Appendix

Table A.1: Countries in the LTEM Model

AR	Argentina
AU	Australia
CN	Canada
CZ	Czech Republic
EU (15)	European Union
HU	Hungary
JP	Japan
MX	Mexico
NI	New Independent States
NO	Norway
NZ	New Zealand
PO	Poland
SL	Slovakia
SW	Switzerland
TU	Turkey
US	United States
RW	Rest of World

Table A.2: Commodities in the LTEM Model

WH	Wheat
CG	Coarse grains
SU	Sugar (refined)
OS	Oilseeds
OM	Oilseed meals
OL	Oils
BV	Beef, veal
PG	Pig meat
SH	Sheep meat
WL	Wool
PY	Poultry meat
EG	Eggs
MK	Raw milk
ML	Milk (liquid, other products)
BT	Butter
CH	Cheese
MW	Whole milk powder
MS	Skim milk powder