

WHAT IS NEXT FOR TURKEY? IMPLICATIONS OF INCORPORATING AGRICULTURE INTO THE CUSTOMS UNION WITH THE EU

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ABSTRACT:

In this paper, we analyzed the implications of integrating Turkey's agriculture with the EU in the context of the CU, which has not been analyzed previously. The experiments included various integration scenarios from free trade area to the Customs Union with and without agriculture. We also looked at the affect of factor mobility on various aggregate variables.

The results showed that integrating agriculture will be beneficial for Turkey in terms of equivalent variation, per capita utility, per capita income, investments and real growth. When agriculture is excluded from the integration all primary agricultural sectors and all manufacturing sectors except textiles will shrink. On the other hand, when the CU is extended to include agriculture, 5 out of 6 expanding sectors in terms of output and exports will be primary agricultural and food processing sectors. Turkey's trade balance will deteriorate in all manufacturing sectors except for the textile and wearing apparel sector. Welfare, income and TOT gains will get higher, the higher the level of integration. When agricultural integration is accomplished and trade negotiations with CEE and EFTA countries are completed, Turkey's welfare as measured by the equivalent variation is estimated to be around \$2.6 billion, income per capita to go up by 5.2%, TOT by 4.73%, and investments by 4.68%. When agriculture is taken into account, real factor returns on land show the highest increase among all four primary factors. In this case real return on unskilled labor also goes up faster than skilled labor reflecting the unskilled labor-intensive character of the primary agricultural sectors. The results also indicated that labor mobility will be an important factor in determining the impact of Turkey-EU integration on various aggregate variables. Mobile labor will generate higher output, higher trade volume, higher income, faster GDP growth and higher welfare for Turkey. Turkey's welfare gains will largely follow from the TOT improvements caused by export price increases.

I. INTRODUCTION

The objective of this paper is to quantify and analyze the implications of incorporating agriculture into the economic integration process between Turkey and the EU in a multi-country, multi-sector general equilibrium framework. After a long period of negotiation, Turkey and the European Union (EU) signed a Customs Union (CU) agreement in 1995, which has been effective since 1996. The agreement basically proposed integration, over five years time, in industrial sectors by eliminating all tariffs on industrial commodities. Turkey agreed to adopt Common External Tariffs (CET) of the EU for these sectors. In return, the EU agreed to remove the existing export quotas on Turkish textiles and clothing industries. The CU agreement excluded agricultural sectors, but confirmed the possibility of eventual agricultural integration in the course of time.

Currently available empirical evidence on the actual effects of a Turkey-EU Customs Union on the Turkish economy does not permit us to draw any firm conclusions about the current agreement, which is due to be fully implemented by the year 2001. There are two important factors, which make it difficult to identify the CU's impact. The first is the severe macroeconomic turbulence in the country since early 1994. The second factor is the economic difficulties associated with the spillovers of the Asian crisis.

However, two analytical studies attempted *ex ante* assessments of the effects of CU. Their findings are mixed. Mercenier and Yeldan (1997) found that Turkish economy is likely to suffer from welfare losses due to the presence of non-tariff barriers imposed by the EU against Turkish exports and imperfect competition in certain sectors in both regions. Harrison et. al. (1997), on the other hand, reported positive welfare gains from such an integration.

One important dimension to the issue in question, which would help clarify this uncertainty, is that of agricultural integration. None of the studies so far looked at the implications of extending the CU to include the agricultural sectors. Given the fact that Turkey is still heavily rural and much more reliant on agriculture than most EU countries, the omission of agriculture from the CU represents an important gap. This study aims to fill this gap by extending the earlier work in terms of including agricultural integration into the analysis. Two main hypotheses of the paper are that when agriculture is included, benefits of CU are unambiguous, and that gains will be heavily affected by factor mobility.

The rest of the paper is organized as follows. In the following section Turkey-EU relations are discussed in a historical perspective where the key political and economic factors affecting Turkey-EU relations are highlighted and some details of 1995 CU agreement are provided. In section III the model, data and experimental design are presented. Then, the simulation results are analyzed, including a discussion of the general results of various experiments, the impacts of alternative integration scenarios on major aggregate variables, and the welfare implications. Concluding remarks follow.

II. TURKEY-EU RELATIONS AND THE CUSTOMS UNION AGREEMENT

1. Key Factors in Turkey-EU Relations

The factors that play a key role in Turkey-EU relations can be grouped into either political or economic factors. One has to take both groups of factors into account in order to understand the course of events and European reaction to Turkey's demands. In this context the objective of this section is to provide the reader with a historical perspective on the Turkey-EU political and economic relations.

Among the several factors that are political in nature and have a considerable effect on Turkey-EU relations, the relatively more important ones are the Ottoman legacy, civilization choice between East and West, democracy and human rights, disputes with Greece, and Turkish labor force in Europe.

The legacy, which Ottomans left behind after five centuries (14th -19th c.) of dominance in the Balkans and Central and Eastern Europe affected the minds of Europeans deeply. Among the several events that changed the course of history during this period, maybe the most striking one is the collapse of the Eastern Roman (Byzantium) Empire when Ottoman Sultan Mehmet II conquered Istanbul, the center of Orthodox Christianity, in 1453. It took more than two hundred years for the Europeans to end Ottoman hegemony in Europe after the Empire started to lose power in late 17th century.

After the collapse of the Ottoman Empire following WWI, founders of the Turkish Republic made radical reforms in the political, judicial and social structure of the country. One aspect of this process had to do with switching the choice of civilization as a point of reference from East to West. The rhetoric of East vs. West or Islam vs. Secularism is still a hot debate today. It is still a point of controversy in the political, military, academic and intellectual circles in the country as to which direction the country should be headed. For some, Western civilization should be the point of reference and the country should do its best to join the European civilization. Joining the EU has been viewed as an effective means to achieve this goal. This is not an easy task, however, as the course of events in recent decades has proven.

Human rights have long been a factor that created frictions in Turkey-EU relations. Turkey frequently receives strong criticism from Europe with respect to democratic standards and human rights. A closely related issue that goes hand in hand with the human rights is the Kurdish problem. This problem has several dimensions including political, economic and international balance of powers in the Middle East, which cannot be fully addressed here. The methods used by the Turkish governments to topple down the terrorist activities conducted by the Kurdish militants in South Eastern part of the country have received severe criticism from the EU on numerous occasions. Besides these, Turkey and Greece have disputes over the status of Cyprus, territorial boundaries in the Aegean Sea, and the civil rights of Turkish minority living in the northern part of Greece (Western Thrace). The EU has consistently emphasized the resolution of these issues as prerequisites before the relations between Turkey and the EU can be taken to

further stages (Agenda 2000).

Among the economic factors that affect Turkey-EU relations are the remarkable share of the EU in Turkey's foreign trade, potential welfare gains from the CU, and existence of Turkish labor force in Western Europe. In addition to the potential welfare gains that would be expected from a CU, Turkey hopes to accelerate the process of technology transfer and encourage foreign direct investments by joining the EU. This process would stimulate technological improvements, increase the product quality and the competitiveness of domestic industries. This, in turn, would contribute positively to economic growth.

The existence of a considerable Turkish population in Western Europe is another factor that should not be excluded from the equation. The first generation of Turkish workers migrated to Europe upon demand by Germany in the early 1960s. Migration continued in the following decades. Currently more than 3 million people are living in different parts of Europe. Today the Turkish population constitutes the largest minority in Germany¹. France, Holland, Austria and Belgium are also important destinations for Turkish workers. The share of the EU in total Turkish workers abroad is 81.5%.

The importance of these overseas workers for foreign exchange for developing countries for financing imports, debt servicing and coping with the balance of payments difficulties cannot be overemphasized. Workers' remittances sent from Europe have always been of crucial importance in this regard. For instance, workers' remittances from Germany alone, between 1992 and 1996, amounted to DM 2.6-3.0 billion annually². Combined with the contributions of workers from the other countries, every year Turkey receives around \$ 3-3.5 billion from workers abroad.

Chronically high inflation in Turkey³, unemployment, huge public deficits and resulting high rates of PSBR, potential budgetary cost of absorbing Turkey into the EU, and fear from a new wave of labor migration from Turkey in the case of free movement of persons are other sources of concern.

2. Turkey-EU Relations

Since WWII, economic relations between Turkey and Western Europe have been quite strong. Germany, Italy and France have always been among the major trading partners of Turkey. As of 1995, eight out of eleven top trading partners of Turkey were the EU members. The other three countries were the US, Former Soviet Union (FSU) and Saudi Arabia. The following table shows the share of the EU, Organization of Islamic Conference (OIC) and FSU in Turkish foreign trade in recent years.

¹ As of 1995, 28.1% of 7.1 million foreigners in Germany was counted for by Turks (Sanay, 1997).

² Ministry of Labor and Social Security, 1996 Yearbook, p.13.

³ Average annual inflation rate in the 1980s and 1990s have been in the range of 60%-100%.

Table 2.1: Share of the EU, OIC and FSU in Turkish foreign Trade (% of total)

	Exports			Imports		
	EU	OIC	FSU	EU	OIC	FSU
1990	53.2	12.5	4.1	41.8	6.0	5.6
1991	51.8	12.9	4.5	43.9	9.6	5.2
1992	51.7	17.7	4.6	42.9	14.1	5.4
1993	47.5	18.2	6.2	44	12	5.8
1994	47.7	17.5	7.8	46.9	15.1	7.8
1995	51.2	16	9.7	47.2	12.7	9.4
1996	49.7	17.7	11.5	53	12.8	7
1997	46.6	15.3	13.4	51	10.8	7.4

Source: SIS Statistical Indicators, pp. 278-293, and Isbank Annual Report.

As the table shows, about half of the Turkish foreign trade is accounted for by the EU. The share of the OIC in this period ranged between 12.5% and 18.2% for exports, between 6.0% and 15.1% for imports. It is also noticeable that the share of FSU in Turkish foreign trade has been increasing. In addition to the above figures, it should be noted that about 50% of the foreign tourists visiting Turkey each year come from the EU countries, which generates a considerable portion of Turkish annual tourism revenues of around \$5 billion. For instance, out of 9.6 million tourists who visited Turkey in 1997, 24.1% came from Germany alone, 9.4% from England, 62.1% from OECD countries, and 25.5% from Eastern European Countries.

Turkey's interest in integration with Europe goes back to late 1950s. Only two years after the formation of the European Economic Community in 1957, Turkey applied for membership in 1959. Following a period of negotiations, Turkey-EU relations were put into a formal framework with the Ankara Agreement signed in 1963.

The Ankara Agreement proposed a twenty-five-year transition period during which both sides agreed to reduce the tariffs and other trade barriers on manufacturing products on a reciprocal basis. At the end of the transition process, all barriers would be eliminated, with the exception of agricultural products (Turkey-EC Relations, 1993). After a long period of ups and downs, Turkey and the EU signed CU agreement in 1995. Currently Turkey is the only country who established CU but not a full member of the EU.

3. The CU Agreement:

The CU agreement became effective at the beginning of 1996. It proposed elimination of tariffs and levies on imports of manufacturing products originating from the EU, and adoption of Common External Tariff (CET) of the EU on imports from the third regions. Practically this implies a substantial reduction of tariffs imposed by Turkey on its imports from the non-EU countries. The most favored nation tariff rate of the EU is around 7-8 % on average.

Also, 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 with whom 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.

According to the agreement, by 2001 Turkey is supposed to negotiate preferential trade agreements with all countries with which the EU has a preferential agreement. In this context, by the year 2001, based on Turkey's current import shares, the average tariff on non-agricultural imports will be less than 2% (zero for imports from the EU and around 3% on average for other countries). Coupled with liberalization attempts since early 1980s Turkey will become a rather open economy in the post-CU era. There will be no restrictions on tariffs imposed by Turkey on imports of agricultural products. As a result, agriculture will become highly protected relative to manufacturing unless Turkey takes unilateral action to reduce protection on agriculture. The agreement proposes no restrictions on export subsidies to third countries or export subsidies in agricultural products to any country (Customs Union With EU, 1995).

4. Turkish Economy in 1990s:

The Turkish economic experience in recent years can be described as a typical *boom-and-bust cycles* (Yeldan and Diao, 1998). Looking at the real GDP growth rates after 1990 reveals this fact clearly, fluctuating between 10% and - 5%.⁴ These fluctuations are closely related to the availability of foreign resources to finance the domestic deficits. In general, the economy showed a high positive growth performance in the years when external resources were sufficient to finance current account deficit. Real output growth slowed down or even declined when foreign resources were not available. Economic and political stability was the primary factor affecting the accessibility of foreign resources.

Another important phenomenon that characterized the economy in this period was the rapid deterioration in the fiscal position of the government (Boratav, Turel and Yeldan, 1996). Substantial increases in real wages due to political pressures brought about by the 1989 and 1990 elections led to this deterioration. Real wage costs in private manufacturing sector went up by 105.2% from 1989 to 1991. The rapid increase in transfer payments outweighed the modest improvements in government tax revenues. Transfer payments climbed from 6.1% in 1991 to 13.4% of GDP in 1996. In the meantime public sector savings declined sharply and turned into negative after 1992 (Yeldan and Diao, 1998).

As is the case in most developing countries, the Turkish government had to rely on indirect taxation as the main source of government revenues due to the political difficulties associated with direct taxation. A comprehensive tax reform which would involve increasing tax rates and imposing extra measures for efficient tax collection is one of the politically most risky, hence unfeasible tasks for the governments. As a result, indirect tax revenues remarkably exceeded direct tax revenues in the 1990s.

⁴ Real growth was 9.3% in 1990, 0.9% in 1991, 8.0% in 1993, -5.5% in 1994, 7.2% in 1995 and 1996.

On the other hand, CU agreement with the EU required Turkey to harmonize its tariffs with the EU. This practically meant a huge revenue loss for Turkish government from foreign trade taxes, which imposed further difficulties on the fiscal balances⁵.

As a result of these constraints on government's fiscal position, Public Sector Borrowing Requirement (PSBR) rose sharply, reaching 12.1% of GNP in 1993. The 1994 economic crisis broke out in such an environment. Given the limited external sources, the government had to use internal borrowing means extensively for public finance. In order to attract funds from the private sector, real interest rates offered on government bonds climbed to 30% in 1994 and 1996, an incomparably higher return than the real return on time deposits. Heavy domestic borrowing led to the rapid growth of domestic debt stock, which reached 22% of GNP by the end of 1997. Interest payments on domestic debt increased from 2.4% in 1990 to 9.0% of GNP in 1996.

Under these circumstances, short-term capital inflows could be the only way to finance fiscal deficits and foreign trade deficits. Indicating this fact, the current account, which showed a slight positive balance until 1990, turned into a sharp deficit in that year 1990. The current account deficit increased even further in the following years, reaching \$6.4 billion before the 1994 economic crisis. Export performance of the economy in 1980s could not be sustained in the 1990s. One of the major factors contributing to this cause was real appreciation of TL in the first half of 1990s. Imports increased relatively faster, as would be expected in a time of currency overvaluation. Between 1988 and 1993 exports increased only by \$4 billion whereas imports were doubled, from \$14.3 to \$29.5 billion.

A more realistic exchange rate adjustment later on helped reverse the appreciation of the TL and keep exports competitive in the world markets. However, with the annual inflation rate of around 90% real depreciation policy carried high risks of *currency substitution*. Coupled with the difficulties brought about by the Asian crisis, the Turkish economy today suffers from severe financial pressures and uncertainty, which in turn puts its stability and sustainable growth at risk. The following table summarizes the macro indicators of the Turkish economy in 1990s.

⁵ Harrison, Rutherford and Tarr (1997) estimated that value added taxes must be increased by 16.2% to compensate for the revenue loss.

Table 2.2: Main Indicators of Turkish Economy: 1990-1997

		1990	1991	1992	1993	1994	1995	1996	1997
Annual % Change									
GDP		7.9	1.1	5.9	8.0	-5.5	7.2	7.0	6.7
Consumption	Private	13.1	1.9	3.3	8.4	-5.3	4.8	8.5	8.0
	Public	7.9	4.5	3.8	2.3	-3.5	6.8	8.6	4.1
Fixed Capital Formation	Private	19.4	0.9	4.3	35.0	-9.1	16.9	12.1	11.7
	Public	8.9	1.8	4.3	3.4	-34.8	-18.8	24.4	28.4
Exports (\$ m.) ^a		13026	13667	14891	15611	18390	21637	23225	26245
Imports (\$ m.) ^a		22302	21047	22871	29428	23270	35709	43626	48585
Current Acc. (\$ m.) ^a		-2625	250	-974	-6433	2631	-2339	-5380	-4739
As % of GNP									
Budget Balance		-3.1	-5.3	-4.3	-6.7	-3.9	-4.0	-8.2	-7.3
PSBR		7.4	10.3	10.6	12.1	7.9	5.4	9.6	8.2
Domestic debt stock		7.0	8.1	11.7	12.8	14.0	14.6	18.8	21.4
Interest payments on domestic debt		2.4	2.7	2.8	4.6	6.0	6.2	9.0	7.7
Inflation (CPI, %)		60.4	71.1	66.1	71.1	106.3	88.0	80.4	85.7
Real exchange rate ^b		82.6	84.7	88.5	88.5	114.9	102.9	104.2	104.0
Real interest rate ^c		-0.6	1.2	6.1	2.3	-4.4	2.7	7.2	5.2
Real return on Gov. bonds ^d		-4.0	5.3	13.9	9.9	28.6	18.1	31.1	22.1
Employment index in priv. mnfcs.		95.2	79.5	78.1	80.3	75.5	82.9	89.1	94.4
Real wage index in priv. mnfcs. ^e		152.0	205.2	210.0	208.0	147.2	156.3	172.5	160.5

Source: SPO *Main Economic Indicators*, SPO *Economic and Social Indicators (1950-1997)*.

(a) Excluding luggage trade. (b) Index, 1987=100. Derived from the basket with weights, 0.75\$+0.25DM; deflated by the wholesale price index. An increase means depreciation of the Lira. (c) Rate of return on 1-year time deposits, deflated by the CPI. (d) Annual average of Compounded Interest Rate on Government Debt Instruments deflated by the CPI. (e) Index (1988=100) based on index of production workers' hourly wages in Private Manufacturing industry, deflated by the CPI (seasonally adjusted).

III. THE MODEL, DATA AND EXPERIMENTAL DESIGN

Since its inception in the early 1950s, the research in the area of CU has passed through several phases. The first phase concentrated on the welfare effects from forming a CU on member countries. The second phase attempted to determine the reasons why customs unions are formed. Lastly, the third phase focused on specific topics (scale economies, imperfect competition, CU and developing economies..) with some interest in general equilibrium models Gunter (1989). One of the findings many researches in this field agree is the empirical character of the question. In other words, there is no *a priori* theoretical assertion whether CU will be beneficial or not; the benefits or losses will depend on the details of the CU agreement in question, macro economic balances of the integrating regions and other environmental conditions. That leaves room for empirical study in this area.

Within this framework, a considerable portion of the literature on CU issue focuses on the impacts of the formation of a CU or expansion of an existing one, on the welfare of the member countries. The major drawback of the early studies is that they tended to use partial equilibrium analysis, or general equilibrium analysis with only two goods. An analysis of the issue within a general-equilibrium framework is apparently more preferable for it takes the linkages between various sectors of the economy into account, hence provides a more comprehensive explanation. In the last two decades, attempts have been made for developing n-good general equilibrium models. Among these are Berglas (1979), Wooton (1986), Harrison, Rutherford and Wooton (1988), and Harrison, Rutherford and Tarr (1997).

One of the shortcomings of the majority of the studies is that they investigate the formation of a CU by considering the effects of marginal changes in trade barriers. Given the fact that the formation of a CU or expansion of an existing one is often subject to large, discrete changes in tariffs and other trade barriers, marginal analysis does not seem to be the best way of analyzing the effects of CU. Implementing marginal techniques was basically due to its analytical tractability. This was not without cost, however, as stated by Harrison, Rutherford and Wooton (1988). They showed that marginal and discrete tariff changes do not always have the same implications: they may differ not only quantitatively, but also qualitatively.

Following this line of argument, this study is an attempt to quantify the impact of the CU between Turkey and the EU in a general equilibrium framework. The major contribution of the study is the inclusion of agricultural and food processing sectors.

1. The Model

The Global Trade Analysis Project (GTAP) modeling framework is used to conduct the analysis. The main assumptions of the model are perfect competition, utility maximizing regional household with a Cobb-Douglas utility function in which private household preferences are explained by CDE (Constant Difference of Elasticities) functional form. Production is governed by CRTS technology with a nested CES production structure.

On the demand side, the standard GTAP model allows for differences in both the price and income responsiveness of demand in different regions depending on the consumption patterns of the region. According to the model, the representative *Regional Household* receives all income generated in a given economy: payments to the primary factors of production including quota rents and net taxes. Final demand is explained by an aggregate utility function, which consists of private consumption, government consumption and savings. Aggregate utility and government consumption behavior is modeled by a CES utility function with Cobb-Douglas functional form, whereas private household consumption behavior is explained by CDE (Constant Difference of Elasticities) expenditure function.

On the supply side, differences in relative rates of factor accumulation interact with varying sectoral factor intensities. This interaction affects the sectoral composition of

output. Different sectors are distinguished by the factor intensities. In this context, if labor accumulates in a particular region relative to other factors, then labor intensive sectors are expected to expand at the expense of capital intensive sectors. Supply is modeled by a weakly separable, CRTS, nested CES production function⁶.

The model utilizes the Armington assumption where products are differentiated by the origin of production, and it is exogenous. This assumption permits the researcher to track bilateral trade flows. Separability allows firms to determine sourcing of inputs independently of the price of domestic goods. The GTAP modeling framework also enables one to analyze the possible effects of regional economic integration in a multi-country, multi-sector setting through generating comparative static results for a variety of trade policy reform scenarios. Technology shocks can be used to assess the implications of a variety of possible technical changes. Furthermore, the model is quite handy for a detailed welfare analysis. The concept of *regional household* is instrumental to generate a single welfare indicator for a given region to estimate whether the region as a whole is better or worse off due to trade policy reforms. It is also possible to treat primary factors of production differently in terms of factor mobility across sectors.

2. Data: GTAP 4 Data Base

The GTAP 4 data base is utilized as the source data, which contains very large and detailed bilateral trade data, transport data, and protection data characterizing economic linkages between regions, and individual country input-output tables accounting for inter-sectoral linkages within each region. The database is built on a complete set of economic accounts for each of the 45 regional economies. Some of these regions are individual countries, whereas some others include a group of countries.

The data is based on the year 1995 and incorporates an exhaustive description of inter-industry linkages among 50 sectors within each region. Both intermediate input and import compositions are allowed to change across different uses⁷.

For the purpose of this study the data are aggregated to 6 regions with which Turkey has strategic trade relations: Turkey, EU, Eastern and Central Europe (CEE), European Free Trade Area (EFTA), Middle East and North Africa (MNA), and the Rest of the World (ROW). The 50 sectors are aggregated into 16 sectors: 5 primary agricultural, 4 processed food, 6 manufacturing and 1 services sectors. Regional and sectoral aggregations are shown in tables 2.3 and 2.4 respectively.

One special feature of the aggregation is that it shows the agricultural sector in a highly disaggregated level. Previous work on Turkish-EU integration focused on industrial sectors and ignored the agriculture. However, given the fact that Turkish economy relies more heavily on agriculture than almost all economies of the EU members, excluding agriculture from the analysis obviously constitutes a gap. Furthermore, the 1995 CU

⁶ See Hertel (1997) for more details on GTAP modeling framework.

⁷ See McDougall et.al. (1998) for further details.

agreement reaffirms the possibility of extending CU to include an agricultural integration along the way. Therefore, this aggregation has a detailed picture of the agricultural sectors within the limitations of the currently available data.

Table 2.3: Regional aggregation

	Code	Region
1	TUR	Turkey
2	EU	European Union of 15
3	CEE	Central and Eastern European Countries
4	MNA	Middle East and North Africa
5	ROW	Rest of the World

Table 2.4: Commodity aggregation

	Code	Sector
1	GOS	Grains and oilseeds
2	LVS	Livestock
3	VAF	Fruits and vegetables
4	OCR	Other crops
5	FAF	Forestry and fishing
6	MTP	Meat products
7	DAP	Dairy products
8	BTP	Beverages and tobacco products
9	OPF	Other food products
10	TEX	Textiles and wearing apparels
11	PCP	Petroleum and chemical products
12	ISP	Iron, steel and other metals
13	MVH	Motor vehicles
14	MEE	Machinery and electronic equipment
15	OMP	Other manufacturing products
16	SVC	Services

3. Experimental Design

The critical regions we are going to look at in this study are the EU, Central and Eastern European Countries (CEE), EFTA and Middle East and North Africa (MNA). The EU is directly involved as the main trading bloc to whom Turkey wants to join. The CEE and EFTA are indirectly involved because the 1995 CU agreement between Turkey and the EU proposed that Turkey should complete trade negotiations with those countries who have preferential access to the European markets. Lastly, the MNA is important for Turkey because of its historical-social ties with Turkey, as well as its considerable share in Turkish foreign trade (around 15% of exports and 12% of imports, as of 1995).

There are several different scenarios one can think of as far as the scope of the integration possibilities is concerned. We are going to look at three of these alternative scenarios in

this study: 1) free trade areas, 2) customs union without agriculture, and 3) customs union with agriculture.

The base case scenario will be *maintaining pre-1996 policies*, i.e. no CU case. In this case there is no need for preliminary adjustment of the data, since GTAP 4 data base uses 1995 as the base period and gives all the values in terms of 1995 US dollars. We will depart from the base case and evaluate the implications of different scenarios by the following 5 experiments.

Experiment 1: *FTA*, which involves free trade area between Turkey and the EU, where all the import tariffs between the integrating regions are eliminated, all food sectors are excluded.

Experiment 2: *CU*, which involves customs union between Turkey and the EU, where all the import tariffs and export subsidies between the integrating regions are eliminated, CET of the EU is adopted by Turkey, and tariffs for processed food commodities are adjusted such that the protection on agricultural component is preserved. Primary agricultural sectors are excluded.

Experiment 3: *CU+*, which involves experiment 2 plus elimination of tariffs on nonfood commodities between Turkey-CEE and Turkey-EFTA, as proposed by the CU agreement.

Experiment 4: *CUCAP*⁸, which extends CU to include agriculture. This is an extension of experiment 2 such that liberalization includes all traded commodities, primary agricultural products, processed food and nonfood products alike.

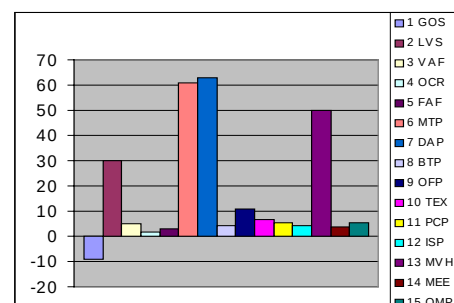
Experiment 5: *CUCAP+*, which involves experiment 4, plus liberalization of Turkey's trade with CEE and EFTA on nonfood commodities. This experiment describes the ideal case where Turkey can reach along the lines of CU agreement.

IV. RESULTS

This section discusses the simulation results, which are generally expressed in percentage changes, i.e. the value of a price, quantity or value variable determined by the model endogenously on account of the scenario in question, expressed as a percentage change compared to its pre-simulation value.

⁸ CAP stands for Common Agricultural Policy of the EU.

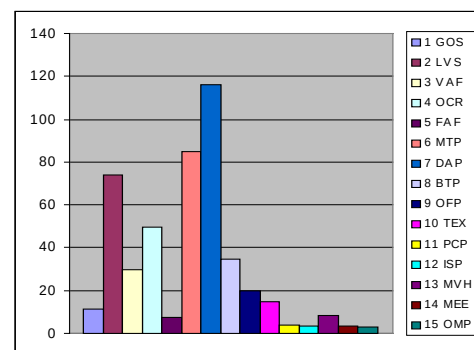
Graph 4.1: Turkey's import tariffs against the EU (% rates)



Graphs 4.1 and 4.2 show the initial distortions on trade between Turkey and the EU. As revealed by the first graph, Turkey subsidizes GOS imports and taxes all other imports from the EU. LVS sector is protected by nearly 30% tariffs, whereas MTP and DAP are protected by even higher rates (around 60%). Among the manufacturing sectors, MVH is the single most heavily protected (50%), whereas all other sectors

have import tariffs below 10%.

Graph 4.2: EU's import tariffs against Turkey (% rates)



Looking at the EU protection levels against Turkish exports, agricultural sectors are apparently more heavily protected, due to the well-known CAP of the EU. Import tariffs imposed on manufacturing sectors are lower than Turkish counterparts.

Among food sectors, protection levels for GOS and FAF are moderate, whereas they are quite high for LVS, MTP and DAP (around 70, 85 and 116% respectively). Import tariffs

against Turkish textiles are relatively higher than those imposed on other manufacturing products.

1. Summary results with respect to some variables of interest:

The following table summarizes changes in some variables of interest in response to various experiments conducted.

Table 4.1: Summary results

Variable	FTA	CU	CU+	CUCAP	CUCAP+
EV (\$m.)	1894	1959	2155	2429	2610
utility (%)	1.26	1.3	1.43	1.61	1.73
TOT(%)	3.65	3.58	3.96	4.34	4.73
income (%)	4.67	4.25	4.75	4.7	5.2
DTBAL(\$m.)	-1150	-1172	-1265	-1069	-1180
real growth(%)	0.25	0.3	0.32	0.39	0.4
Investments(%)	4.09	4.29	4.59	4.33	4.68

The figures in the table indicate that integration with the EU will be beneficial for Turkey in terms of welfare gain, per capita utility and income, terms of trade, real growth and investments. Equivalent variation (as money metric measure of welfare change), utility per capita, real GDP and investment growth get higher as we move from FTA to higher levels of integration. Assuming the highest level of integration (CUCAP+), which involves customs union with agriculture and free trade area with CEE and EFTA, Turkey's welfare gain is estimated to be \$2,6 billion. Utility per capita will go up by 1.73%, per capita income by 4.73%, TOT by 4.73%, real GDP by 0.4%, and real investments by 4.68%.

Trade balance will show negative change with the lowest in FTA (since only nonfood sectors are liberalized) and the highest in CU+ scenario. Trade deficit is estimated to be the highest in CU+ scenario because the positive contribution of agricultural sectors is not utilized yet, while the liberalization is extended to CEE and EFTA. Agricultural integration will help narrow the trade deficit. In what follows, we are going to look at some details on output, factor markets, exports, and welfare changes.

2. Impact on sectoral output:

Table 4.2 reports the impact on sectoral output in Turkey of the 5 scenarios described earlier.

Table 4.2. Impact on output, by sector (% change)

Sectors	FTA	CU	CU+	CUCAP	CUCAP+
GOS	-1.11	-1.01	-1.13	-2.65	-2.91
LVS	-0.15	-0.08	-0.15	-5.46	-5.43
VAF	-0.72	-0.69	-0.75	1.48	1.42
OCR	-0.25	-0.41	-0.31	3.54	3.47
FAF	-0.86	-1.42	-1.52	-1.75	-1.85
MTP	-7.19	7.6	7.71	14.15	14.46
DAP	-0.06	0.03	0.05	0.8	0.89
BTP	-0.91	-0.84	-0.88	-9.81	-9.92
OFP	-2.01	-1.88	-2.03	1.09	1.03
TEX	41.67	43.65	44.64	41.5	42.41
PCP	-1.56	-1.04	-0.92	-0.97	-0.87
ISP	-7.76	-7	-7.24	-7.39	-7.64
MVH	-34.5	-33.25	-29.48	-34.12	-30.56
MEE	-7.52	-8.23	-8.17	-8.67	-8.65
OMP	-2.46	-4.56	-4.94	-4.7	-5.08
SVC	-0.37	-0.25	-0.28	-0.25	-0.27

Apparently the most striking result that comes out of Turkey-EU integration with respect to output is the tremendous expansion faced by the textiles sector, with output increases between 41-44%. This result is hardly surprising since textiles exports accounts for 28.7% of Turkish exports to the EU. As the EU removes barriers, demand for Turkish textiles will go up, which will lead to higher exports to Europe. This will call for higher output because exports have a huge share in disposition of textiles production (52%).

Another general result is that all other manufacturing sectors are contracting in all of the integration scenarios. This is also not surprising since integration in nonfood commodities is the common denominator across all experiments and protection levels of the EU are lower than Turkey in these sectors, except for textiles and wearing apparels.

As far as the agricultural and food processing sectors are concerned, output response will depend on the nature of the integration. All of nine food sectors are contracting when they are excluded from the integration. Two factors lead to this result. First, as trade barriers are removed from nonfood sectors, food sectors become relatively more protected, negatively affecting the trade flows. Second, due to the sharp expansion in textiles, resources are pulled away from agricultural sectors, which will also negatively affect the output in these sectors.

When protection levels for processed food are adjusted for the CU, MTP and DAP sectors show positive output response. When primary agricultural sectors are also included (CUCAP), then output in VAF and OCR sectors (which have relatively higher export shares in output disposition: 7.6% and 11.6% respectively) respond positively. Output expansion considerably increases in MTP and DAP when food-processing sectors

are adjusted fully by agricultural integration. Also output contraction is reversed in OFP, another food sector with relatively high export share (9.4%), when agricultural integration is taken into account.

3. Impact on Factor Markets

The following table shows the % change in real factor prices in response to the 5 experiments conducted.

Table 4.3: Factor market response

Factors	FTA	CU	CU+	CUCAP	CUCAP+
Land	-2.53	-2.48	-2.79	4.1	3.75
UnSkLab	1.09	1.08	1.23	1.26	1.4
SkLab	1.14	1.13	1.29	0.95	1.11
Capital	1.72	1.69	1.87	1.43	1.61

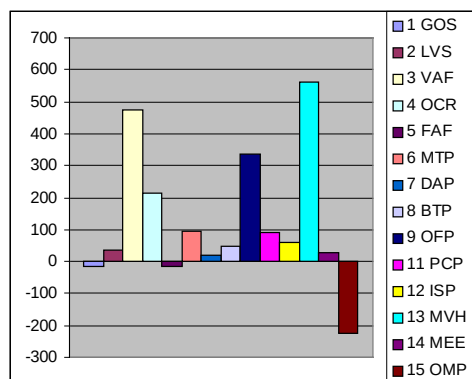
The contribution of agriculture and processed food sectors is clearly reflected in real factor returns. For instance, real return on land, which is a sector-specific factor for primary agricultural sectors, is negative in all three experiments in which agriculture is excluded from the integration. Once agriculture comes into the picture, return on land becomes positive. For the first three experiments that exclude agriculture real return on unskilled labor is less than that of skilled labor.

When agriculture is included, those agricultural sectors with relatively high output share expand, which stimulates demand for primary factors of production. Since primary agricultural sectors are unskilled labor intensive, return on unskilled labor increase faster than skilled labor.

4. Impact on Bilateral Exports of Turkey to the EU

The table below shows the response of exports of Turkey to the EU in response to CUCAP+ scenario.

Graph 4.3: Impact on Turkish exports to the EU (\$ million)



The figures indicate that primary agriculture and processed food exports will increase with the exception of GOS and FAF sectors. Export increases are more visible in VAF, OCR, MTP and OFP. The highest export performance is expected to be in textiles exports (not shown here) by around \$5.9 billion.

When agriculture is included and trade negotiations are completed with CEE and EFTA, Turkish agricultural exports

change their destination more towards the EU, CEE and EFTA at the expense of MNA and ROW. Volume of aggregate exports of Turkey to the EU, CEE and EFTA is estimated to go up by \$6181, 366 and 26 million respectively, whereas exports to MNA and ROW go down by \$ 440 and 1461 million.

5. Impact on Regional Trade Balance

Looking at trade balance by commodity and by region is also informative to indicate the importance of agricultural integration for Turkey. As the table below shows, 4 out of 5 sectors for which trade balance improves are food sectors. The only nonfood sector that shows a positive trade balance will be, not surprisingly, textiles and wearing apparels.

Table 4.4: trade balance by commodity and by region (\$ m.)

	TUR	EU	CEE	EFTA	MNA	ROW
GOS	-12.01	-50.61	21.95	-8.2	-0.67	46.76
LVS	-440.54	78.01	-73.1	-187.94	79.1	539.64
VAF	550.82	-452.72	-5.71	-13.14	-14.09	-63.93
OCR	28.41	-24.85	-1.03	-76.1	-12.68	78.11
FAF	-13.52	19.07	-1.74	-4.82	-1.4	1.08
MTP	25.6	175.85	-253.7	-108.15	3.26	151.5
DAP	2.2	29.23	83.13	-312.77	-3.1	147
BTP	-279.89	-75.35	-8.88	-5.52	-4.28	359.61
OFP	54.55	-8.98	105.43	-462.03	-2.82	405.64
TEX	4637.5	-2861.14	-315.11	224.48	-296.53	-1578.48
PCP	-404.89	234.53	94.87	325.36	-80.36	-249.12
ISP	-234.59	-17.75	35.15	452.01	-29.43	-228.13
MVH	-992.08	1304.36	-90.04	464.32	-32.32	-702.44
MEE	-987.28	156.33	-11.93	2141.76	-175.56	-1191.12
OMP	-951.82	111.7	14.41	956.39	183.53	-345.24
SVC	-2002.55	1244.9	25.48	1090.65	-104.74	343.54

4.5. Impact on Regional Welfare

The following table shows the welfare gain or loss for the regions from different integration scenarios, as measured by the change in regional equivalent variation. All scenarios generate positive welfare gain for Turkey, more remarkably so when agriculture is included. It seems Turkey-EU integration with agriculture and free trade with CEE and EFTA will be beneficial for CEE and MNA, but not so for the EU and EFTA.

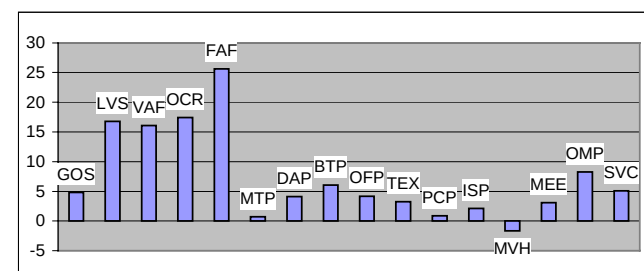
Table 4.5: Impact on regional welfare (\$ million)

EV	FTA	CU	CU+	CUCAP	CUCAP+
TUR	1894	1959	2155	2429	2610
EU	-471	-867	-979	-1145	-1677
CEE	-122	-80	-119	-86	18
EFTA	-47	21	10	-6	-6520
MNA	-240	90	83	94	165
ROW	-713	-688	-721	-519	-132

Welfare decomposition indicates that Turkey's gain will largely be generated by TOT improvements, which accounts for about ¾ of the overall welfare gains. Decomposition of allocative efficiency gains shows that import taxes are the dominating factor in generating efficiency gains.

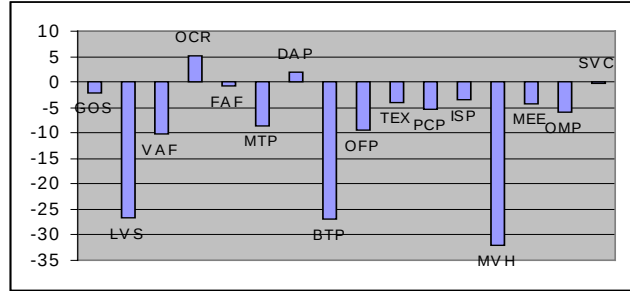
The details of TOT decomposition, on the other hand, reveals that the results are driven by export price contributions. The following graphs show the estimated change in export prices, import prices and the contribution of different components (world prices, export and import prices) to total TOT gain. This finding makes sense given the elimination of tariffs by the EU and high shares of Turkey's exports to the EU. As import demand by the EU goes up prices of Turkish exports will increase. Combined with falling import prices in Turkey due to import liberalization, TOT will improve.

Graph 4.4: % change in export prices (Turkey)



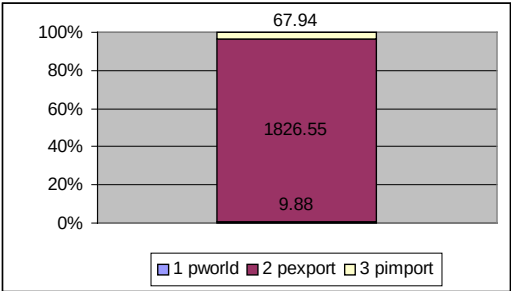
Notice that prices of Turkish primary agricultural exports increase faster relative to processed food and manufacturing sectors due to increased foreign demand.

Graph 4.5: % Change in import prices (Turkey)



As far the changes in import prices are concerned, LVS, VAF, MTP, BTP and MVH have more visible price falls, due to relatively higher protection levels prior to the integration. The following graph shows the contribution of individual components to total TOT gains of Turkey.

Graph 4.6: Decomposition of TOT gains (Turkey)

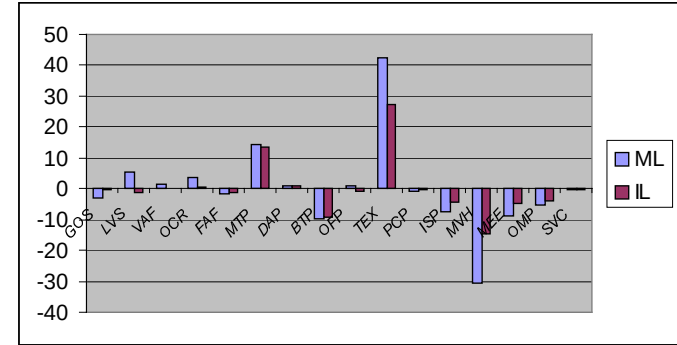


As revealed by the graph, over 90% of the TOT gains are generated by the export price effects.

4.6. Effect of Factor Mobility:

Factor mobility has always been an important issue in theoretical and empirical economic analysis alike. It becomes more critical when a developing economy is engaged in trade policy reforms that would affect sectoral reallocations, where unskilled labor intensive agriculture has a considerable share in GDP and unemployment is a major concern. This study is not an exception. As the following table shows, labor mobility is an important factor to influence the response of aggregate variables.

Graph 4.7: Contribution of mobile labor to output response:



When labor is not allowed to move across sectors freely, supply response becomes limited, generating lower output changes. It is also interesting to note that output response changes its direction in some sectors depending on whether labor is mobile or not. For instance, expansion in LVS and OFP turns into contraction when labor is treated immobile. In all other sectors output response is smaller in immobile labor case than mobile labor. Similarly, other variables of interest such as EV, per capita utility, TOT and per capita income also give lower responses to immobile labor (not shown here due to space constraint).

V. CONCLUSION

In this paper, we analyzed the implications of integrating Turkey's agriculture with the EU in the context of the CU, which has not been analyzed previously. The experiments included various integration scenarios from free trade area to the Customs Union with and without agriculture. We also looked at the affect of factor mobility on various aggregate variables.

The results showed that integrating agriculture will be beneficial for Turkey in terms of equivalent variation, per capita utility, per capita income, investments and real growth. When agriculture is excluded from the integration all primary agricultural sectors and all manufacturing sectors except textiles will shrink. On the other hand, when the CU is extended to include agriculture, 5 out of 6 expanding sectors will be primary agricultural and food processing sectors. Similarly, 5 out of 6 sectors for which trade balance improves will be food sectors. Turkey's trade balance will deteriorate in all manufacturing sectors except for the textile and wearing apparel sector, which will show a remarkable expansion in both output and exports.

Welfare, income and TOT gains will get higher the higher the level of integration. When agricultural integration is accomplished and trade negotiations with CEE and EFTA

countries are completed, Turkey's welfare as measured by the equivalent variation is estimated to be around \$2.6 billion, income per capita to go up by 5.2%, TOT by 4.73%, and investments by 4.68%. Contribution of this integration scenario to real economic growth is expected to be around 0.4%.

When agriculture is taken into account, real factor returns on land, sector-specific factor in agriculture, turn into positive and show the highest increase among all four primary factors. In this case real return on unskilled labor also goes up faster than skilled labor reflecting the unskilled labor-intensive character of the primary agricultural sectors.

The results also indicated that labor mobility will be an important factor in determining the impact of Turkey-EU integration on various aggregate variables. Mobile labor will generate higher output, higher trade volume, higher income, faster GDP growth and higher welfare for Turkey. Turkey's welfare gains will largely follow from the TOT improvements caused by export price increases.

Lastly, we can think of 3 different dimensions as to further extensions to this study. The first would be the value-added tax adjustment that will be necessary to compensate for tariff-revenue loss. The second would be to look at the budgetary implications of Turkey-EU integration on the EU budget, which is no doubt a major concern for the EU. Finally, labor migration incentives would be another area of extension to address the EU's concerns about the possibility of a new wave of labor movement towards Europe.

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