

A CGE Assessment of Regulatory Integration between EU and Turkey

Yiannis Zahariadis¹

UK Department for International Development (DFID)
Address: 1 Palace St., London SW1E 5HE,
Tel: ++(44) 0 2070230167,
e-mail: y-zahariadis@dfid.gov.uk.

Abstract: This paper explores the role and economic implications of deep integration in the EU-Turkey customs union. It focuses on the specific case of technical barriers to trade and examines the potential economic impact from their abolition, within a computable general equilibrium model. Our analysis suggests that deep integration can have a significant positive impact on Turkey's welfare, but a smaller positive effect on the EU. The benefits of deep integration will be realized in full only when all relevant restrictions –including both standardization and certification- are accounted for.

JEL Classification Codes: F15, F17, C68

Keywords: Economic Integration, Trade Forecasting and Simulation, Computable General Equilibrium Models

1. Introduction

The EU-Turkey customs union represents a clear example of new regionalism. Not restricted on conventional border controls –tariffs and quotas-, the arrangement moves significantly beyond the border into addressing regulatory areas traditionally viewed to lay behind the border –competition policy, technical barriers to trade and other administrative procedures-. Such deep or beyond the border elements have become increasingly prevalent among recent regional initiatives and have strong implications for the study and analysis of economic integration.

¹ The views expressed in this article do not reflect the views of DFID.

This paper discusses the role of one set of deep integration measures in the EU-Turkey customs union. It focuses on technical barriers to trade and explores possible gains from their abolition within the framework of the customs union. A brief qualitative analysis of the principal concepts involved, as well as a short review of the context and progress of deep integration in the arrangement, provide the background for a more formal quantitative assessment, based on a modified version of standard GTAP.

2. Conceptual framework

2.1 Approaches to regional integration: The traditional and the new

The traditional approach to economic integration –as developed by Viner, Meade, Balassa and others- places primary emphasis on border barrier controls. As such, the focus lays primarily on tariff barriers –and to a lesser extent quantitative restrictions-, largely neglecting other regulatory and institutional aspects of economic integration. This *traditional* perception of integration fits well to the early efforts towards regionalism, but does not to fully capture the essence of more recent initiatives. With successive rounds of tariff liberalization under the GATT and recently the WTO, both international trade theory and policy changed significantly. Traditional tariff barriers started to loose importance, as non-tariff barriers became more prominent. Globalization intensified international competition as foreign direct investment expanded dramatically both in manufacturing and in services. As a result, regional trade arrangements also changed significantly. New regional arrangements aim at integrating the participating economies with the rest of the world and are primarily export and foreign investment led. Most

profoundly new initiatives do not merely focus on border barriers, but increasingly cover new regulatory areas and move beyond border².

These new -beyond the border- elements that have been brought to the forefront by recent initiatives like the EU Single Market, NAFTA, the EU-Turkey customs union and Euro-Med Agreements are captured by the growing literature on deep integration. The term *deep integration* denotes the explicit actions used by governments to reduce the market segmenting effect of domestic policies through policies of co-ordination and co-operation, and include measures dealing with health and safety regulations, competition laws, licensing and certification regimes and administrative procedures³. Contrary to the traditional sceptical view, whereby integration has an ambiguous effect on welfare, deep integration theory argues that the reconciliation of divergent national regulations may bring strong welfare gains by facilitating the integration process and enhancing the effects of liberalisation. Deeper, however, does not necessarily mean better or more efficient. In fact it is the choice of policies and the level of centralisation and the degree of mutual trust between partners that will determine the impact of deep integration rules⁴.

² Lawrence, R.,(1997) “Preferential Trade Agreements: the Traditional and the Old”, in Galal, A. and Hoekman, B., eds., *Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements*, London: Center for Economic Policy Research

³ Hoekman, B., and Konan, E., (1998), *Deep Integration, Non-discrimination and European Free Trade*, Paper presented at the conference Regionalism in Europe: Geometries and Strategies after 2000, Bonn, November 6-8

⁴ Lawrence, (1996), *Regionalism, Multilateralism and Deeper Integration*, Brookings Institution, Washington

2.2 Deep Integration and Technical Barriers to Trade

One of the central areas of regulatory activity identified by deep integration is that of technical barriers to trade (TBTs). These denote trade barriers that emerge from differences in national rules and regulations dealing with the protection of health and safety, both in the production and consumption of goods and services. TBTs can emerge due to two types of processes, namely *standardisation* and *conformity assessment*. Standardisation refers to the process by which product standards are developed and adopted, both in national and international markets. Conformity assessment, on the other hand, represents the complex array of testing and certification procedures, whereby manufacturers, regulatory authorities and other parties determine whether a product conforms with a given standard or regulation⁵. It provides relevant parties with the mutual confidence and trust to buy or sell the product in question.

Both standardisation and conformity assessment procedures are intended to promote economic efficiency and enhance welfare. Consumers gain from the transmission of information on a predictable and consistent format and the guarantee of product safety. Producers gain as standards provide a reference tool for the organisation of production processes and allow the exploitation of economies of scale. In international trade, however, heterogeneity between national regulations and relevant processes and procedures could give rise to non-tariff barriers. In standardisation, barriers emerge when perceptions of the tolerable levels of health and safety risk reflected in national regulations differ between countries. As a result, a product, which may be lawfully

⁵ Stephenson, (1999), *Mutual recognition and Its Role in Trade Facilitation*, Journal of World Trade, Vol.33, No2, April

marketed in one country, faces exclusion from other markets. In conformity assessment barriers emerge from the lack of mutual trust in the respective processes by which a product's conformity to a given regulation is proven and attested to ⁶.

3. The EU-Turkey Customs Union and Deep Integration

3.1 Background to the EU-Turkey Customs Union

The customs union between the EU and the Republic of Turkey came into effect on January 1st of 1996. It is the result of Turkey's long and persistent interest in integration with Western Europe that roots back in early years of the Community.

Economic relations between the two parties have been strong since the early 1950s, but were intensified over recent decades. As illustrated in the table below, the EU has held a principal position in Turkey's foreign trade throughout the 1990s. Indeed, the Community accounts for nearly half of Turkey's total imports and exports as compared to other partners in NAFTA, Central/Eastern Europe and Former Soviet union(CEEC/FSU), and Middle East/ North African countries (MENA).

Table 1: Turkey's Export and Import Shares(%)

	Exports					Imports				
	EU	NAFTA	CEECs & FSU	MENA	ROW	EU	NAFTA	MENA	CEECs & FSU	ROW
1991	54.1	7.2	3.6	18.7	16.4	44.6	11.7	12.6	3.0	28.0
1992	53.9	6.3	8.6	17.7	13.4	42.2	11.3	12.0	7.9	26.5
1993	49.5	6.8	11.2	16.8	15.7	42.9	11.6	9.6	10.4	25.6
1994	47.7	8.9	11.8	15.6	15.9	42.2	10.5	11.6	9.9	25.8
1995	51.2	7.5	14.7	14.0	12.6	43.5	10.6	9.9	11.0	25.0

⁶ Stephenson, S., (1997), *Standards and Conformity Assessment as Nontariff Barriers to Trade*, Policy Research Working Papers, 1826, The World Bank, September

1996	50.0	7.6	15.9	13.3	13.1	48.4	8.4	10.2	8.7	24.4
1997	46.8	8.3	17.4	12.4	15.0	47.6	9.0	8.7	8.9	25.8
1998	50.3	9.0	14.4	13.2	13.0	50.1	8.9	6.8	9.7	24.6
1999	54.1	9.9	9.6	13.1	13.3	49.3	7.6	7.8	10.6	24.8

Source: Turkish Treasury Statistics(2001)

3.2 The Customs Union Agreement and Deep Integration

Growing from a rather long-standing relationship, between the two parties, the customs union agreement embodies elements of both old and new approaches to economic integration. Apart from the liberalisation of tariffs and the adoption by Turkey of the EU's common external tariff for industrial products and the industrial components of processed agricultural products, the agreement also embraces a number of non-traditional, deep integration elements. These include the harmonisation of Turkey's legislation to that of the EU in the area of competition policy; the adoption of the free trade agreements with all the EU's preferential partners-including EFTA, Central and Eastern European and Mediterranean countries; and most importantly for this paper the adoption of the EU Acquis in the area of technical barriers to trade⁷.

TBTs are incorporated in the customs union in rather peculiar fashion. The agreement goes deeper in a number of areas, while neglecting others. Main emphasis is placed in the area of standardisation, where Turkey is required to harmonise her regulations to the detailed directives of the EU⁸. In the crucial area of certification and conformity assessment, however, the agreement is characterised by a more minimalist approach based on co-operation and co-ordination. By not imposing specific rules, the parties don't

⁷ The term EU Acquis denotes the body of EU regulations

recognise respective procedures as equivalent, thus failing to establish mutual confidence in the area.

As a result and largely reflecting the agreement's partial and minimalist approach, the progress in reducing bilateral TBTs has concentrated mainly in the area of standardisation. A bilateral agreement signed in 1997 set out the detailed directives in question. Currently, around 32 percent of the total 319 directives are in full harmony, while the rest 68 percent are either in progress or partially harmonized. Main progress is in Motor Vehicles, Foodstuffs and Telecommunications sectors. Other areas with significant progress include Pressure Vessels, Medical Products and Toys. However, in the crucial areas of Measuring Instruments, Medicinal and other Chemical Products such as Fertilizers and Dangerous Substances, progress appears to be rather slow. With respect to conformity assessment procedures, the two parties' relationship is still largely underdeveloped. As a result, both EU and Turkish exporters continue to bear significant costs from duplicative testing and certification of their products.

4. Modelling Framework and Data Sources

The customs union has attracted considerable analysis by numerous recent quantitative studies. Harrison, Rutherford and Tarr (1996) use a static CGE model based on perfect competition and find that the welfare gains for Turkey range between 1.2 and 1.9 percent of GDP. These stem mainly from the improved access to third country markets achieved through the bilateral FTAs. They further find that harmonisation to EU standards has a

⁸ These consist of around 319 EU Directives classified under 32 separate product categories

very small positive effect on Turkey's welfare. Acar (1999) also employs a static perfectly competitive model based on the standard GTAP and finds that Turkey stands to benefit in terms of welfare from the integration of agriculture in the arrangement, with gains reaching 2.9 percent of GDP. Focusing on distributional effects, De Santis (2000) employs a static CGE model based on Turkey's 1990 Social Accounting Matrix and finds that the customs union's overall impact on income inequality is generally small and relatively ambiguous. Turning to more flexible studies, Bayar (2000) employs a static CGE model, which allows for imperfect competition and finds that welfare gains could reach 5.4 percent of GDP. Finally, Mercenier and Yeldan (1997) depart from the static framework and explore the dynamic effects of the customs union through an intertemporal GE model. They find that the customs union can only be welfare improving, if trade reform is pursued further and non-tariff barriers on European trade are removed.

With the possible exception of Harisson et al (1996), deep integration in general and regulatory barriers in particular have not attracted much attention in the study of the customs union. The focus of this study lies in this particular area of regulatory protection. We employ an existing multi-country, multi-sector computable general equilibrium model based on the standard GTAP. The perceived version of the model is extended to capture the effects of non-conventional regulatory barriers.

4.1 The GTAP Model

GTAP was set up to facilitate research on trade and trade related issues at a global level. The model lays on standard neo-classical hypothesis, with perfect competition and constant returns to scale assumed throughout.

A utility maximizing Regional Household is the centerpiece of the demand structure in the model. It receives all income generated in the given economy, which is in turn exhausted entirely on three broad types of expenditure: private, government and savings expenditures. On the supply side, production is modeled as, a weakly separable constant returns to scale, CES function. Trade between the different regions in the model is incorporated through an Armington specification, which introduces imperfect substitution between domestic and imported sources of supply. Products are differentiated according to their origin of production, which in turn allows us to track down bilateral flows⁹.

4.2 Modifications and Extensions to the Standard GTAP Model

In capturing the implications of deep integration this study modifies the standard GTAP model and introduces a number of new variables representing the regulatory barriers in question. This exercise, in turn requires a more formal classification of the relevant costs and barriers discussed in our previous sections.

⁹ For detailed discussion on the GTAP model see Hertel, T., W., eds, (1997), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, Cambridge

As discussed, TBTs occur in two interrelated areas of regulatory practice, namely standardisation and certification. They involve real resource costs, which can affect both exporters and domestic producers. We classify technical barriers into:

i. External, which include:

- *Standardisation costs* for Turkish exporters to the EU. These are real resource costs emerging from changes in production processes undertaken to ensure compliance with technical standards in the EU.
- *Certification costs* for both Turkish exporters to the EU and EU exporters to Turkey. These again are real resource costs arising from the process of proving and attesting that products comply with a given set of regulations in the partner country.

ii. Internal, which include:

- *Standardisation costs* for Turkish domestic producers. These are real resource costs emerging from changes in production processes undertaken to ensure compliance with a new set of technical standards in the domestic market following the full harmonisation to EU rules.

In the context of the customs union, whereby Turkish producers are required to adopt EU technical standards, while still being subject to EU certification procedures, the status of the above controls can be summarized as follows. *External Standardisation costs* were in place for Turkish exporters until 1997, but abolished thereafter. *Internal Standardisation costs* were absent for Turkish domestic producers before 1997, but imposed thereafter. The benchmark year 1997 is used both for practical purposes, reflecting our baseline

environment (discussed below), but also to reflect the signing of TBTs agreement between the two parties on that year. Finally, *Certification costs* have always been and still are in place between the two parties.

Given the above, the modelling of standardisation and certification costs will need to address both their *external* and *internal* dimensions.

Starting from the *external* dimension, here we focus on standards-related trade costs and certification-related trade costs. These two areas are very similar indeed. Exporters face a real resource cost in meeting the standard, registering their product and proving compliance. This in turn drives a wedge in the final price of the imported product in the partner country. Given these similarities, the implications of these two barriers could, in fact, be picked up by the same variable. This involves a simple trade distortion, which operates like an import tax, thereby affecting both the price and quantity of an imported good. The new distortion is distinct from other conventional tariffs in the model, however, as the generated economic rent is subtracted from the overall regional tariff revenue. Further, since adopting and meeting EU standards imply the upgrading of Turkey's technical capacity, we allow for further technical gain effects to accrue to Turkey with the abolition of technical constraints.

Turning to the *internal* dimensions of technical barriers. As already argued, the adoption of EU standards will not just affect Turkish exporters to the EU, but equally Turkish domestic producers supplying to indigenous markets. This means that more and possibly

more expensive intermediate inputs and parts will be demanded to meet the new requirements. Equally, more, and more expensive value-added inputs will be required in the form of more skilled labour, or more sophisticated machinery. In capturing this effect we introduce a simple cost in the demand for intermediate and value added inputs.

Until now, discussion has concentrated primarily on the modelling of the costs of standards. Indeed, the only gains considered, so far, are those stemming from increased market access for the partners. There may exist, however, considerable further gains for Turkey from the adoption the EU technical regulations. These consist of efficiency gains to Turkish producers stemming from the realisation of internal and external economies of scale. Harmonisation to common standards will lead to greater compatibility between intermediate products and parts, as well as necessitate the adoption of more efficient production processes. Even though the assumption of constant returns to scale in GTAP, prevents us from capturing the full effects of these changes we could approximate the relevant gains through an increase in total factor productivity for Turkey.

4.3 Baseline Data and Data Sources

In constructing our baseline environment we employ the GTAP v5 dataset for 1997. The complete database consists of 65 regions/countries, 57 sectors and 5 primary factors. For the purposes of our analysis, the data are aggregated into 9 regions-separating Turkey's principal trading partners- and 20 sectors, including 4 agricultural, 1 primary, 10

manufacturing and 5 services sectors. No aggregation is applied to factors of production, which include, land, skilled and unskilled labour, capital and natural resources.

Table 2. Regional and Sectoral Aggregation

<i>Region</i>	<i>Description</i>	<i>Sector</i>	<i>Description</i>
1. NAFTA	North American Free Trade Area	1. Cereals	Cereals & cereal preparations
2. EU	European Union	2. FruitVeg	Fruit and vegetables
3. EFTA	European Free Trade Area	3. Anim_Prod	Livestock & animal products
4. CEEC	Central & Eastern European States	4. OthFood	Other food products
5. ForSU	Former Soviet Union & Baltics	5. Min_Prod	Minerals & mineral products
6. NA	North Africa	6. Met_Prod	Metals and metal products
7. ME	Middle East	7. OthPrimary	Other primary production
8. Tur	Turkey	8. T_B	Tobaco and beverages
9. ROW	Rest of the World	9. Tex	Textiles
		10. App	Apparel
		11. Che	Chemicals
		12. Auto_Parts	Motor vehicles and parts
		13. Oth_Trans	Other transport equipment
		14. Mach_Equip	Machinery and equipment
		15. OthMnfcs	Other manufacturing
		16. Trans	Transport
		17. Post_Tele	Communications
		18. Utilit	Utilities
		19. Bus_Fin	Business and Finance
		20. OthSvces	Services and activities nes

The baseline environment is characterised by: a partially completed customs union between EU and Turkey (with zero bilateral import and export taxes for industrial products and harmonised external industrial import taxes for Turkey to those of the EU); and a free trade area for industrial products between EFTA and Turkey (with zero bilateral tariffs)¹⁰.

For the completion of our calculations on tariff and deep integration related liberalizations, we further require data on pre-customs union industrial tariffs, as well as,

estimates on the level of regulatory costs. The first set of data is obtained from the GTAP v.4 dataset for 1995. The second set of data is obtained from secondary estimates and guestimates in the literature¹¹. The resulting estimates presented below, range from a total average of around 3% on EU exporters to Turkey to around 2.7% for Turkish exporters to EU and 1.2% on Turkish domestic producers.

Table 3. Estimates of Deep Integration Barriers

	<i>Standardization Costs</i>	<i>Certification Costs</i>	
	On TUR exporter (pre1997) & dom. Producer (post 1997)	On EU exporter to Turkey	On TUR exporter to EU
Cereals	1.5	1.5	2
FruitVeg	1.5	1.5	2
OthFood	1.5	1.5	2
OthPrimary	1	0.8	1
Anim_Prod	1	1.5	2
Min_Prod	1	0.8	1
Met_Prod	1	0.8	1
T_B	1	0.8	1
Tex	1	1	1.5
App	1	1	1.5
OthMnfcs	2.1	0.8	1
Che	2	0.8	1
Auto_Parts	2.8	0.8	1
Oth_Trans	1	0.8	1
Mach_Equip	1	0.8	1

Various sources

¹⁰ This was the first of the series FTAs that Turkey was required to adopt under the customs union

¹¹ We combine a number of secondary estimates on different countries, with all available qualitative information on the regulatory context in the EU and Turkey in producing an estimate of the relevant bilateral costs. For standardization costs, we use Harisson et al(1997) estimates for Turkey and Cawley, R. and Davenport, M., (1988) estimates on the European Internal Market. For testing and certification costs we employ the only available estimates by Hoekman and Eby Connan(1998) on EU-Egypt FTA.

5. Experimental Design

5.1 Presentation of Simulation Exercises

We perform six policy experiments.

E1: Simple Customs Union/ Backcast from 1995 Tariffs. This concentrates on the establishment of a simple customs union by 1997. It is restricted on traditional-tariff-related integration and explores the effects of moving from 1995 to 1997. Since our baseline is the latter year we use a backcast approach. The experiment therefore involves (i) an increase of bilateral tariffs for industrial products between EU and Turkey back to 1995 levels; (ii) an increase Turkey's industrial tariffs towards third country back to 1995 levels. (iii) all results are reversed to reflect movement from 1995 to 1997.

E2: Customs Union 2001. This concentrates again on traditional integration and conventional trade barriers. It explores the implications of Turkey completing her tariff-related obligations under the customs union by 2001. In effect, it focuses on tariff related commitments with a longer period of implementation¹². It involves (i) the abolition of the industrial component in EU-Turkey bilateral tariffs on agricultural goods; (ii) the abolition of the industrial component in Turkey's tariff on agricultural goods towards third countries; (iii) the completion of Free Trade Areas for industrial products between Turkey and EU preferential partners including all CEECs, North Africa and Middle East.

¹² This was either because of sensitivity considerations (industrial components of tariffs for processed agricultural goods) or because their application was more time consuming (adoption of free trade areas with third partners)

E3: Standardisation. This turns to core deep integration. It explores the “weak” implications of Turkey adopting the EU technical regulations by 2001, focusing only on trade related gains and excluding any further efficiency benefits. It involves (i) the abolition of standardisation-related trade costs on agricultural and industrial exports from Turkey to EU; (ii) the introduction of a standardisation-production cost on Turkish domestic producers

E4: Full Standardisation. This looks at the possible full effects of Turkey harmonizing the EU standards. It therefore replicates E3, but allows also for further efficiency gains through a total factor productivity rise in Turkey by 0.15%

E5: Certification. This explores the hypothetical future scenario, whereby Turkey and the EU abolish their bilateral testing and certification costs. Such a scenario would only be possible if EU and Turkey adopt a mutual recognition agreement, which allow products tested and certified in home countries to be exported. It consists of (i) the abolition of certification-related trade costs on agricultural and industrial exports from Turkey to EU; (ii) the abolition of certification-related trade costs on agricultural and industrial exports from EU to Turkey.

E6: Full Potential of Deep Integration. This is the final deep integration experiment. It explores the final full potential of deep integration between EU and Turkey, by combining E4 and E5.

5.2 Model Closure

Under the standard GTAP general equilibrium closure all sectors adjust to the new economic conditions, all markets clear and the trade balance and by extension capital flows are allowed to vary. Our model diverts from the standard closure in two main respects. First, the inflow of foreign capital in the model is fixed¹³. This is imposed to account for Turkey's weak FDI performance in the years following the formation of the customs union. Indeed, evidence suggests that FDI in Turkey was weak and patchy after 1996, rising slightly in 1997, but falling again in subsequent years. Second, we drop the standard GTAP assumption of fully flexible labour markets and fix real wages for unskilled workers in Turkey¹⁴. This is to account for the existence of unskilled labour unemployment in Turkey for 1997. Evidence suggests that unskilled labour unemployment in Turkey remained high in the late 1990s.

6. Discussion of Simulation Results

6.1 Overview of summary findings

Table 3 illustrates the overall welfare effects of policy simulations. In GTAP, welfare is measured as a change in equivalent variation and is presented below both in its money metric absolute levels (million US\$) and as a percent of net factor income.

¹³ This is attained by forcing the model to retain the same –benchmark- trade balance in the new post-simulation equilibrium.

¹⁴ We assume that base data reflect employment *not* endowment, so that there exists an unobserved pool of unemployed labour in our benchmark. In effect, an expansion in output is fuelled by the pool unemployed, while a contraction leads to further losses in employment.

Table 3 Summary of Welfare Effects in million US\$ and as a % of factor income

	E1		E2		E3		E4		E5		E6	
	Backcast from 1995 Tariffs		Customs Union 2001		Stand/ation		Full Stand/ation		Certification		Full Potential of Deep Integration	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
NAFTA	42.8	0.00	-23.8	0.000	-18.2	0.000	-12.7	0.000	-17.9	0.000	-28.5	0.000
EU	-333.4	-0.005	-119.3	-0.002	-140.1	-0.002	-130.2	-0.002	176.2	0.002	63.1	0.001
EFTA	39.1	0.01	-2.9	-0.001	-2.9	-0.001	-2.2	-0.001	-7.6	-0.002	-9.9	-0.003
CEEC	-43.7	-0.02	71.5	0.028	-7.2	-0.003	-6.8	-0.003	-13.5	-0.005	-20.2	-0.008
ForSU	-33	-0.01	-19.1	-0.004	-33.1	-0.006	-29.8	-0.006	-15.6	-0.003	-43.9	-0.008
NA	5.7	0.00	20.3	0.011	-7.9	-0.004	-6.9	-0.004	-9.4	-0.005	-15.9	-0.009
ME	92.7	0.02	-11	-0.002	-12.9	-0.003	-10.3	-0.002	-12	-0.003	-21	-0.005
Tur	1348.9	0.78	480	0.279	-201.2	-0.117	568.1	0.330	530.2	0.308	1028	0.597
ROW	-303.5	0.00	-76.3	-0.001	1.8	0.000	5.2	0.000	-89	-0.001	-80.5	-0.001
Total	815.6	0.00	319.5	0.001	-421.7	-0.002	374.5	0.001	541.4	0.002	871.3	0.003

A first key finding is that the overall welfare effects of traditional integration appear to be slightly stronger than the overall effects of ‘beyond the border’ deep integration. Despite this difference, we find that deep integration can have a significant positive impact on Turkey’s welfare. Turkey’s welfare gains under the simple customs union(E1) and the completion of her tariff-related obligations by 2001(E2), are around 0.78 and 0.28 percent of net factor income respectively. This, suggests that the overall welfare effects of traditional integration are around 1.06 percent of net factor income. Slightly, below that are the gains from deep integration in Turkey. The full potential of standards-related deep integration(E6) yields gains of around 0.59 percent, suggesting that the overall effects from core deep integration are around 0.60percent of net factor income.

The fact that deep integration does not outweigh the effects of traditional integration is not surprising. Contrary to traditional integration experiments (E1&E2), deep integration

scenarios involved primarily of bilateral liberalisation between Turkey and the EU. In the absence of any significant unilateral reduction in barriers, the resulting changes in prices and trade flows will have an important, yet not as strong, effect on consumer welfare. Equally, the size of barriers is important to emphasize here. Under traditional integration, Turkey's total average tariff against EU industrial products fell from 8% to zero, while her tariffs towards third countries also fell from 11,2% to around 4,5%. However, under deep integration, the total average reduction in bilateral barriers was 3% and 2,7% for Turkey and for the EU respectively. Even though, deep integration also involved significant efficiency gains, the smaller size of barriers has played a part in the difference between welfare effects. Finally it is important to stress, that deep integration did not only involve liberalisation. The parallel imposition of standardisation costs inevitably had an adverse effect on Turkish producers, thus lowering the overall welfare gains.

The forgoing are further emphasised by table 4, which illustrates changes in aggregate consumption, investment, trade and factor income in Turkey under alternative scenarios. Results are presented as a percentage change from base value. As can be seen, the overall trade effects of deep integration are smaller than those under traditional integration. Further, aggregate effects on total factor income also appear to be to be slightly stronger under traditional integration. In deep integration, standardisation alone appears to have a negative effect on factor income, suggesting that harmonisation costs dominate over efficiency gains. Only when deep integration as a whole is implemented (E6) can we see a clear positive effect on factor income. This finding strengthens our forgoing analysis on technical barriers to trade confirming that only when all barriers are accounted for -

including certification- will the full benefits of deep integration be realized. Turning finally to consumption and investment effects our results here are relatively mixed. Traditional integration appears to increase both households aggregate consumption and private investment, with the simple customs union having the strongest impact. Deep integration, by contrast, appears to affect positively only aggregate consumption, while private investment –owing mainly to standardisation costs- declines.

Table 4 Summary Effects consumption, investment, trade and factor income in Turkey

		E1	E2	E3	E4	E5	E6
		Backcast from 1995 Tariffs	Customs Union 2001	Stand/ ation	Full Stand/ation	Certification	Full Potential of Deep integration
	Base (\$mil)	Percentage Change from the Base					
Absorption	174453.4	0.97	0.70	-1.20	-0.84	0.42	-0.49
Consumption	125340.1	1.20	0.79	0.56	0.98	0.63	1.52
Investment	49113.3	0.40	0.49	-5.96	-5.82	-0.12	-6.01
Exports	44584.9	11.05	1.40	0.00	0.17	1.38	1.50
Imports	54842.4	8.80	1.14	0.00	0.13	1.13	1.22
Factor Income							
Land	2418.3	0.21	0.48	7.08	7.39	1.44	8.29
UnSkLab	48074.4	2.52	0.79	-0.61	-0.20	0.64	0.35
SkLab	18499.3	2.29	0.73	-1.21	-0.83	0.59	-0.37
Capital	102467.2	2.58	0.80	-0.74	-0.36	0.62	0.17
NatRes	879.4	3.00	1.16	1.49	1.91	0.77	2.75
Total FY	172338.5	2.50	0.79	-0.63	-0.23	0.64	0.30

6.2 Effects of Traditional Integration

Traditional integration (E1 and E2) has a strong positive effect on Turkey's welfare, but a small negative effect on EU's total welfare. Turkey's gains in terms of measured equivalent variation are around 1 billion and 480 million dollars from our two

conventional integration experiments. EU's losses are, in turn, relatively small (-0.005% and -0.002%) and appear to be driven mainly by declining terms of trade and some losses in allocative efficiency. The bilateral elimination of tariffs enhances EU exports to Turkey, but since the latter has a only small share in EU's total trade, export prices tend to fall faster than import prices leading to the deterioration in EU's terms of trade¹⁵. The EU losses in allocative efficiency can be explained by the continuation of high protection in EU agriculture: the removal of industrial tariffs appears to shift resources not to more competitive manufacturing sectors but primarily to highly protected agricultural sectors¹⁶. Turning to Turkey, gains here appear to stem mainly from terms of trade and employment effects. Starting with ToT, it is important to recall that Turkey trades primarily with the EU, while CEECs and former Soviet Union states are also important partners. The bilateral liberalisation under the customs union(E1) and under individual FTAs(E3) will lead to a fall in import prices in Turkey. This effect coupled with rising export prices, due enhanced foreign demand, will in turn result to an improvement in Turkey's terms of trade.

Table 5 Breakdown of Welfare Effects under Traditional Integration

<i>E1: Backcast from 1995 Tariffs</i>												
	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	13.2	0.000	0	0.000	0	0.00	24.8	0.000	4.8	0.000	42.8	0.000
2 EU	-199.2	-0.003	0	0.000	0	0.00	-140.8	-0.002	6.6	0.000	-333.4	-0.005
3 EFTA	7.6	0.002	0	0.000	0	0.00	35.9	0.010	-4.4	-0.001	39.1	0.011
4 CEEC	-8	-0.003	0	0.000	0	0.00	-28.9	-0.011	-6.9	-0.003	-43.7	-0.017
5 ForSU	-6.8	-0.001	0	0.000	0	0.00	-28.1	-0.005	1.9	0.000	-33	-0.006
6 NA	-7	-0.004	0	0.000	0	0.00	12.8	0.007	-0.2	0.000	5.7	0.003
7 ME	12.6	0.003	0	0.000	0	0.00	80.3	0.018	-0.3	0.000	92.7	0.020

¹⁵ Like all Armington-based CGE models, GTAP tends to exaggerate the terms of trade effects of liberalisation.

8 Tur	73.4	0.043	1028.8	0.597	0	0.00	259.7	0.151	-12.9	-0.007	1348.9	0.783
9 ROW	-99.1	-0.001	0	0.000	0	0.00	-215.7	-0.002	11.4	0.000	-303.5	-0.003
Total	-213.2	-0.001	1028.8	0.004	0	0.00	0	0.000	0	0.000	815.6	0.003

E3: Customs Union 2001

	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	-2.1	0.000	0	0.000	0	0.000	-8.3	0.000	-13.3	0.000	-23.8	0.000
2 EU	14.4	0.000	0	0.000	0	0.000	-127.1	-0.002	-6.6	0.000	-119.3	-0.002
3 EFTA	0	0.000	0	0.000	0	0.000	-2.6	-0.001	-0.2	0.000	-2.9	-0.001
4 CEEC	64.3	0.025	0	0.000	0	0.000	4.8	0.002	2.5	0.001	71.5	0.028
5 ForSU	-5.9	-0.001	0	0.000	0	0.000	-12.2	-0.002	-1	0.000	-19.1	-0.004
6 NA	45.5	0.024	0	0.000	0	0.000	-23.1	-0.012	-2.2	-0.001	20.3	0.011
7 ME	12.9	0.003	0	0.000	0	0.000	-23.7	-0.005	-0.1	0.000	-11	-0.002
8 Tur	56.8	0.033	143.8	0.083	0	0.000	233.1	0.135	46.2	0.027	480	0.279
9 ROW	-10.1	0.000	0	0.000	0	0.000	-40.9	0.000	-25.3	0.000	-76.3	-0.001
Total	175.7	0.001	143.8	0.001	0	0.000	0	0.000	0	0.000	319.5	0.001

In completing the picture, table 6 illustrates changes in Turkish output and trade by industry. The bulk of output and export expansion appears to take place under the simple customs union(E1). Industrial exports tend to grow, while un-liberalised agricultural exports contract. Notable expansion is experienced in the exports Apparel and Textiles as well as Automotive sectors, which is largely driven by the relatively strong –pre 1997- protection in these sectors and their high share in Turkey’s total trade to EU. A similar expansion is also experienced under the custom union 2001 experiment(E3), while here the gains are also shared by tobacco and beverages and processed food sectors. Again the principal driving force behind the observed changes are the large reductions in bilateral tariff barriers not only with the EU, but also with third country partners.

Table 6 Changes in trade and output under E1 and E3

	Base Value			E1			E3		
	(\$million)			% change from base value					
	Output	Exports	Imports	Output	Exports	Imports	Output	Exports	Imports
Cereals	6643.8	761.7	1122.52	-0.5	-2.9	-0.9	-0.3	-2.1	1.4
FruitVeg	18756.2	1620.9	145.98	-0.3	-2.9	1.3	0.0	-1.6	1.5
Anim_Prod	6818.9	116.0	1102.94	1.6	-4.2	4.2	0.1	-2.6	1.3
OthFood	24269.1	1547.4	1633.99	-0.3	-5.0	2.5	0.2	3.5	2.9

Min_Prod	13696.8	1452.9	6463.77	-1.2	14.2	7.4	0.1	2.2	0.8
Met_Prod	16519.3	3244.5	5090.95	-0.3	6.9	5.5	0.5	2.7	1.4
OthPrimary	3926.4	84.7	807.64	2.6	-7.4	9.3	0.3	-0.6	1.8
T_B	3815.3	121.8	429.31	-10.4	7.8	-551.1	1.5	32.4	2.1
Tex	9639.7	5371.6	2729.84	18.9	17.1	45.6	1.9	2.1	3.2
App	9314.1	5184.4	767.64	52.3	142.9	55.4	2.9	4.8	3.3
Che	13291.4	1502.4	6734.48	-0.1	8.5	4.7	0.3	3.2	0.9
Auto_Parts	5726.3	806.7	4615.03	-2.7	88.9	15.4	1.4	12.4	1.5
Oth_Trans	625.9	165.9	1142.69	-4.7	19.3	5.7	-1.8	-1.6	0.6
Mach_Equip	10356.5	2670.9	14416.8	-0.7	14.8	4.0	0.2	2.2	0.5
OthMnfcs	11805.9	694.8	1785.44	-0.5	7.1	11.2	0.2	2.4	1.2
Trans	35503.3	9195.1	1184.24	-0.6	-3.4	2.4	-0.4	-1.9	1.0
Post_Tele	1850.0	37.4	36.85	0.5	-3.7	2.6	0.1	-2.3	0.8
Utilit	7823.2	23.3	150.92	2.0	0.7	2.1	0.3	-3.1	1.8
Bus_Fin	16356.7	4935.6	1862.32	-0.8	-4.5	3.2	-0.7	-2.4	0.9
OthSvces	110572.8	5047.1	4044.57	0.5	-4.5	4.6	0.1	-2.4	1.3
CGDS	49113.3	0.0	0	0.5	0.0	0.0	0.0	0.0	0.0

6.3 Effects of Deep Integration

Deep integration is captured by experiments on standardisation (E3), full standardisation (E4), certification (E5) and full deep integration (E6).

Starting with core standards-related scenarios, table 7 illustrates the sources of welfare change under standardisation(E4); full standardisation(E5), which also allows for total factor productivity gains; and certification(E6). As can be seen, the simple standardisation has a negative effect on both the EU and Turkey. Their respective welfare declines by 140 and 200 million dollars. In the case of the EU, losses are largely driven by a deterioration of her terms of trade, which is not surprising, as the market access granted to Turkish products is not reciprocal for EU exports to the Turkey. In the case of Turkey, the positive terms of trade effects and the enhanced efficiency from technical change cannot outweigh the negative employment effects. The increased production costs, imposed from the adoption of EU standards, will force Turkish firms to squeeze factor inputs in retaining normal profits. This results in the release of some unskilled

labour and thus a negative endowment effect. It is only under full standardisation(E5), where we allow for further efficiency gains through an enhancement of productivity, that we see Turkey benefiting from the adoption of EU regulations. This switch is realized through two channels. A reallocation of resources, which leads to a smaller unemployment effect and a strong boost in efficiency from the attainment of greater technical change. Turning finally to certification costs(E6), the bilateral abolition of barriers in this scenario results in the improvement of welfare for both partners. The gains for the EU are relatively small (0.002%) stemming mainly from positive technical gains. Turkey by contrast appears to gain in all respects in this experiment. There is an improvement in its terms of trade, an enhancement in employment for unskilled labour and a boost in technical change.

Table 7 Breakdown of welfare effects from standards-related deep integration

E3: Standardisation

	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	-7.7	0.000	0	0.000	0	0.000	-7.3	0.000	-3.2	0.000	-18.2	-0.000
2 EU	-12.6	0.000	0	0.000	0	0.000	-132.3	-0.002	4.8	0.000	-140.1	-0.002
3 EFTA	-0.1	0.000	0	0.000	0	0.000	-4.2	-0.001	1.4	0.000	-2.9	-0.001
4 CEEC	-2.9	-0.001	0	0.000	0	0.000	-3.7	-0.001	-0.6	0.000	-7.2	-0.003
5 ForSU	-15.1	-0.003	0	0.000	0	0.000	-17.3	-0.003	-0.6	0.000	-33.1	-0.006
6 NA	-3	-0.002	0	0.000	0	0.000	-5.1	-0.003	0.2	0.000	-7.9	-0.004
7 ME	-4.1	-0.001	0	0.000	0	0.000	-8.8	-0.002	0	0.000	-12.9	-0.003
8 Tur	-73.9	-0.043	-467.8	-0.271	170.7	0.099	172.8	0.100	-3	-0.002	-201.2	-0.117
9 ROW	-5.3	0.000	0	0.000	0	0.000	6	0.000	1.1	0.000	1.8	0.000
Total	-124.6	0.000	-467.8	-0.002	170.7	0.001	0	0.000	0	0.000	-421.7	-0.002

E4: Full Standardisation

	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	-7	0.000	0	0.000	0	0.000	-5.8	0.000	0.1	0.000	-12.7	0.000
2 EU	-13	0.000	0	0.000	0	0.000	-124.7	-0.002	7.5	0.000	-130.2	-0.002
3 EFTA	0	0.000	0	0.000	0	0.000	-3.8	-0.001	1.6	0.000	-2.2	-0.001
4 CEEC	-2.6	-0.001	0	0.000	0	0.000	-3.6	-0.001	-0.6	0.000	-6.8	-0.003
5 ForSU	-14	-0.003	0	0.000	0	0.000	-15.4	-0.003	-0.4	0.000	-29.8	-0.006
6 NA	-2.7	-0.001	0	0.000	0	0.000	-4.4	-0.002	0.2	0.000	-6.9	-0.004
7 ME	-3.6	-0.001	0	0.000	0	0.000	-6.7	-0.001	0.1	0.000	-10.3	-0.002
8 Tur	-34.3	-0.020	-265.6	-0.154	723.6	0.420	161.1	0.093	-16.7	-0.010	568.1	0.330

9 ROW	-6.3	0.000	0	0.000	0	0.000	3.4	0.000	8.2	0.000	5.2	0.000
Total	-83.5	0.000	-265.6	-0.001	723.6	0.003	0	0.000	0	0.000	374.5	0.001

E5: Certification

	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	-1	0.000	0	0.000	0	0.000	-10.8	0.000	-6.2	0.000	-17.9	0.000
2 EU	-5	0.000	0	0.000	215.1	0.003	-29.9	0.000	-4.1	0.000	176.2	0.002
3 EFTA	-0.8	0.000	0	0.000	0	0.000	-7.6	-0.002	0.7	0.000	-7.6	-0.002
4 CEEC	-2.8	-0.001	0	0.000	0	0.000	-9.1	-0.004	-1.5	-0.001	-13.5	-0.005
5 ForSU	-3.5	-0.001	0	0.000	0	0.000	-12.2	-0.002	0.1	0.000	-15.6	-0.003
6 NA	-3	-0.002	0	0.000	0	0.000	-6.1	-0.003	-0.3	0.000	-9.4	-0.005
7 ME	-2.7	-0.001	0	0.000	0	0.000	-9.2	-0.002	-0.1	0.000	-12	-0.003
8 Tur	10.2	0.006	152.5	0.088	203.6	0.118	144.8	0.084	19.1	0.011	530.2	0.308
9 ROW	-21.3	0.000	0	0.000	0	0.000	-59.9	-0.001	-7.8	0.000	-89	-0.001
Total	-29.8	0.000	152.5	0.001	418.7	0.002	0	0.000	0	0.000	541.4	0.002

Having discussed the welfare effects from individual regulatory liberalisations, we can now see how deep integration fares as a whole in the context of the EU-Turkey arrangement. Table 8 illustrates the welfare effects from experiment 7, which combines the full standardisation and certification scenarios. The experiment is naturally forecasting and can therefore not include the abolition of frictional costs. Evident from table 8 is that deep integration, if implemented in full, will benefit both EU and Turkey. The gains for the EU are again relatively small coming mainly from positive technical change. For Turkey, however, the gains are non-negligible. Some employment losses from the adjustment to the new regulations will be more than outweighed by a strong positive technical change and an improvement in her terms of trade.

Table 8 Breakdown of welfare effects from the full potential of deep integration

E6: Full Potential of Deep Integration

	Allocative Effects		Endowment Effects		Technical Change		Terms of Trade		Investment Effects		Total	
	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY	(\$m)	% FY
1 NAFTA	-7.7	0.000	0	0.000	0	0.000	-15.9	0.000	-5	0.000	-28.5	0.000
2 EU	-25.4	0.000	0	0.000	219.3	0.003	-134.5	-0.002	3.7	0.000	63.1	0.001
3 EFTA	-1	0.000	0	0.000	0	0.000	-11.2	-0.003	2.3	0.001	-9.9	-0.003
4 CEEC	-5.3	-0.002	0	0.000	0	0.000	-12.8	-0.005	-2.1	-0.001	-20.2	-0.008
5 ForSU	-17	-0.003	0	0.000	0	0.000	-26.7	-0.005	-0.2	0.000	-43.9	-0.008

6 NA	-5.6	-0.003	0	0.000	0	0.000	-10.2	-0.005	0	0.000	-15.9	-0.009
7 ME	-5.9	-0.001	0	0.000	0	0.000	-15.1	-0.003	0	0.000	-21	-0.005
8 Tur	-24.7	-0.014	-127.5	-0.074	900.1	0.522	281.6	0.163	-1.5	-0.001	1028	0.597
9 ROW	-28	0.000	0	0.000	0	0.000	-55.1	-0.001	2.7	0.000	-80.5	-0.001
Total	-120.6	0.000	-127.5	0.000	1119.4	0.004	0	0.000	0	0.000	871.3	0.003

As in the case of traditional integration, an area that requires some further attention with respect to welfare is that of endowment effects. As can be seen from table 9 simple standardisation affects positively the employment of unskilled labour in agriculture, but has a negative effect for all industrial sectors. The picture changes slightly under full standardisation, but its only when certification is added that we see unskilled labour employment to expand in most industrial sectors. Indeed, even though full deep integration has a negative effect on aggregate unskilled labour employment, there are now greater employment opportunities in textiles, apparel, chemicals and other manufacturing industries. As already argued, this finding is not particularly surprising. The imposition of EU standards increases production costs for Turkish firms. This, in turn puts pressure on profit margins leading firms to release unskilled workers.

Table 9 Volume changes in employment of unskilled labour under deep integration

	E2 Frictional	E4 Standardisation	E5 Full Standardisation	E6 Certification	E7 Full Potential of Deep Integration
Cereals	-0.4	48.1	48.4	1.9	47.5
FruitVeg	1.1	144.4	151.9	37.5	171.7
Anim_Prod	0	3.3	5.1	1.6	6.9
OthFood	0.3	10.4	16.4	5.5	20.2
Min_Prod	0.1	0.4	3.3	1.5	5.3
Met_Prod	0.2	-29.5	-21.1	-1.1	-21.4
OthPrimary	0	5.5	6.2	2.6	8.8
T_B	0.1	-1.2	0.6	0.5	1.1
Tex	0.2	-2	1.7	18.5	21.3
App	0.4	-5.5	-0.9	22.2	22.9
Che	0.2	-1	5.1	2.6	7.9
Auto_Parts	-0.2	-32	-28.8	-3.9	-34.6
Oth_Trans	0	-6.5	-5.6	-1.2	-3.7

Mach_Equip	0	-24.9	-19.6	0	-18.8
OthMnfcs	0.3	-4.7	-0.2	2.3	1.1
Trans	1.4	-61.1	-31.7	7.2	-22.9
Post_Tele	0.1	-2.9	-1.9	0.8	-1.1
Utilit	0.2	-7.1	-4.4	3.3	-0.8
Bus_Fin	0.3	-17.1	-10.2	-2.6	-11.3
OthSvces	6.1	-484.4	-380.2	53.4	-327.6
CGDS	0	0	0	0	0
Total	10.2	-467.8	-265.6	152.5	-127.5

The trade effects of various deep integration alternatives are also relatively mixed. Table 10, illustrates volume changes in Turkey's exports and imports with the EU under deep integration. Overall Turkey's exports to the EU expand under all scenarios. As in traditional integration, there is a relative stronger expansion in textile and apparel exports, mainly due to their high export shares to the EU. Interesting to note, however, is the expansion experienced by most manufacturing sectors under deep integration. Motor vehicles and other transports, Machinery and Equipment, Mineral and Metal Products, stand out of the general picture. Considerable expansion also takes place in agricultural and food exports. Indeed the decline in standards and certification related trade costs lead to a significant increase in the exports of fruit and vegetables and processed food.

As expected, the expansion of EU exports into Turkey tends to concentrate mainly on manufacturing industries. Recall that under traditional integration automotive industries, machinery and equipment and textiles led the growth. Although a similar trend is repeated in our deep integration scenarios, it is interesting to note that other manufacturing exports also grow considerably, especially from the abolition of certification costs. Metals, chemicals and beverages are sectors characterized by frequent complaints from EU exporters about the increased and unnecessary requirements of the

Turkish system. The possible abolition of certification costs will certainly enhance EU exports into Turkey in these sectors, as confirmed by our findings. Finally, although agricultural imports from the EU do not appear to grow significantly from deep integration, it is worth noting that the increase is certainly not negligible, particularly in animal products and processed food.

Table 10 Volume changes in Turkey's exports and imports with the EU (\$million)

	E2 Frictional		E5 Full Standardisation		E6 Certification		E7 Full Potential of Deep Integration	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Cereals	0.2	0.7	5.4	3.4	16.1	8.1	12.3	11.1
FruitVeg	1	0.1	24.4	0.3	66.1	0.6	52.2	0.8
Anim_Prod	0	1.3	-1.7	7.2	5.6	20.4	4.2	27
OthFood	0.5	1.8	13.2	10.6	37.7	23.7	29.2	33.6
Min_Prod	1	3.0	21.9	6	25.5	30.4	48.4	36.4
Met_Prod	1.9	7.2	16	9.3	37.1	70.8	54.7	79
OthPrimary	0	-0.1	0.4	3.8	1.4	8.8	2	12.6
T_B	0	0.8	0.6	5.8	0.9	12.2	1.7	17.4
Tex	1.4	2.5	55.5	23	186.9	84.8	250	118
App	4.5	1.3	80.2	17.1	391.5	37	491.2	58.9
Che	0.5	4.9	15.1	87.4	18.1	80.9	33.9	166.4
Auto_Parts	0.7	7.9	17.6	118.1	33.2	125.5	24.6	237.4
Oth_Trans	0.1	1.7	2.6	-13.9	4.8	19.7	18.8	5.7
Mach_Equip	1.5	10.4	33.5	-254.5	70.9	183.8	107.5	-74
OthMnfcs	0.2	-0.5	18.6	6.8	9.8	28.8	14.7	34.1
Trans	-0.9	0.1	20.1	-1.9	-40.5	2.4	-15.4	0.2
Post_Tele	0	0.0	0.2	-0.1	-0.2	0.1	0	0
Utilit	0	0.0	0.1	-0.1	-0.2	0.1	0	0.1
Bus_Fin	-0.7	0.1	26	-2.4	-31.8	6.2	-1.9	3.5
OthSvces	-1	0.4	30.5	-9.8	-50.4	21.9	-13.6	10.8
Total	11.1	43.6	380.5	16	782.6	766.3	1114.6	778.9

Finally, the regional composition of changes in Turkey's bilateral trade flows, (table 11 below) suggests that deep integration will enhance the country's exports to the EU at the expense of exports to other partners. The bilateral nature of liberalisation and the Community's dominant share in Turkey's total trade are the prime factors behind this

strong change in the direction of trade flows. A similar, but weaker pattern is observed in the country's import flows. While, standardisation alone appears to enhance imports from most partners, the hypothetical full implementation of deep integration will –apart from the EU- enhance imports from North African and Middle Eastern countries. Within this context, therefore, the adoption of free trade agreement with Israel(1996) and the forthcoming agreements with Egypt, Morocco, Tunisia and Israel (explored in E3) will be important in strengthening these trade dynamics.

Table 11 Turkey's aggregate exports and imports by region (volume changes in \$million)

	E6 Full Standardisation		E7 Certification		E8 Full Deep Integration	
	Exports	Imports	Exports	Imports	Exports	Imports
NAFTA	-71	-11.7	-69.3	-25.3	-128.2	-41.3
EU	380.5	16	782.6	766.3	1114.6	778.9
EFTA	-13.8	-6.9	-9.3	-18	-21.2	-25.6
CEEC	-37.3	5.5	-16.5	-8.2	-50.6	-3.7
ForSU	-153	22.2	-44	-21.1	-187.6	-0.5
NA	-53	13.8	-13.8	-0.2	-63.9	13.5
ME	-83.2	25.6	-34.9	-2.3	-111.7	22.7
ROW	-59.8	-5.1	-101.6	-87.3	-146.9	-100.2
Total	-90.6	59.4	493.2	603.8	404.4	643.8

7. Conclusions

This paper looked at the role and implications of some aspects of deep integration in the completion of the EU-Turkey customs union. By focusing on technical barriers to trade, we explored whether moving beyond the border and reconciling divergent national regulations and policies can lead to enhanced gains in the process of economic integration between the two parties. Drawing upon a brief discussion of the character and complexities of deep integration in the arrangement, we analyzed the issue in question

within a multi-sector, multi-region CGE model based on an extended version of the standard GTAP model.

Our results suggest that deep integration can have a significant positive impact on Turkey's welfare, but a smaller positive effect on the EU. The benefits of deep integration will be realized in full only when all relevant restrictions –including both standardisation and certification- are accounted for. Traditional integration will also be beneficial for Turkey, yielding welfare gains slightly stronger than those under full deep integration. Bilateral trade will expand under both traditional and deep integration and Turkey will specialize in the production and export of products, where she has a comparative advantage.

Overall, therefore our results tend to suggest the beyond the border or regulatory integration can have a positive impact in the process of regional integration. Largely in line with our qualitative conclusions and the received wisdom of deep integration literature our simulation analysis further suggests that the proposed gains depend largely on the reach or indeed scope of regulatory integration and the strategies employed by partners. Therefore, although our analysis does not necessarily strengthen the Lawrence proposition, it does suggest that deep integration can open an important channel of potential gains for partner countries.

8. References

- Acar, M., (1999), The Role of Agriculture in the EU-Turkey Customs Union, *Paper presented at the METU International Conference*, Ankara, September
- Bayar, A., Nuray, H., and Receberoglu, S., (2000), *The Effects of the Customs Union on the Turkish Economy: An Econometric Analysis of the Four Years' Implementation*, Economic Development Foundation (IKV), Istanbul
- Cawley, R. and Davenport, M., (1988), Partial Equilibrium Calculations of the Impact of Internal Market Barriers in the European Community, *Economic Paper, No73*, European Commission
- De Santis, R., (2000), The Impact of a Customs Union with the EU on Turkey's Welfare, Employment and Income Distribution: An AGE Model with Alternative Labor Market Structures, *Journal of Economic integration*, June, 15(2)
- Harrison, G., Rutherford, T. and Tarr, D., (1996) The Economic Implications for Turkey of a Customs Union with the European Union, *Policy Research Working Paper*, The World Bank, 1599
- Harrison, G., Rutherford, T., and Tarr, D., (1994), Product Standards, Imperfect Competition and Completion of the Market in the EU, *Policy Research Working Paper*, 1293, World Bank
- Hartrel, C., and Laird, S., (1999), The EU Model and Turkey-A Case for Thanksgiving?, *WTO Staff Working Paper*, January
- Hertel, T., W., eds, (1997), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, Cambridge

- Hoekman, B, (1998), *Free Trade and Deep Integration: Anti-Dumping and Anti-Trust in Regional Trade Arrangements*, World Bank: mimeo, Washington DC.: The World Bank
- Hoekman, B., and Konan, E., (1998), *Deep Integration, Non-discrimination and European Free Trade*, Paper presented at the conference Regionalism in Europe: Geometries and Strategies after 2000, Bonn, November 6-8
- Lawrence, (1996), *Regionalism, Multilateralism and Deeper Integration*, Brookings Institution, Washington
- Lawrence, R.,(1997) “Preferential Trade Agreements: the Traditional and the Old”, in Galal, A. and Hoekman, B., eds., *Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements*, London: Center for Economic Policy Research
- Mercenier, J., Yeldan , E.,(1997), Is a Customs Union with Europe Enough?, *European Economic Review*, Vol. 41
- Stephenson, (1999), Mutual recognition and Its Role in Trade Facilitation, *Journal of World Trade*, Vol.33, No2, April
- Stephenson, S., (1997), Standards and Conformity Assessment as Non-tariff Barriers to Trade, *Policy Research Working Papers*, 1826, The World Bank, September
- Undersecretariat of Foreign Trade,(2001), General Directorate of Standardisation for Foreign Trade, *Progress Activities of the Harmonisation of the EU Technical Legislation in Turkey*, Ankara, April