Quantifying the Impact of EU Accession

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With accession to the EU, Turkey will complete the harmonisation of technical regulations, achieve progress in privatization of its public enterprises, liberalize entry/exit into various sectors of the economy, impose hard budget constraints on all public and private enterprises, adopt the CAP, liberalize its trade with the EU in services, and will be part of the European single market. Furthermore joining the EU will require Turkey to adopt and implement the whole body of EU legislation and standards—the *Acquis Communautaire.* According to the EU membership criteria, new members must be able to demonstrate the 'ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union.' Thus Turkey will be expected to adopt the euro when it will be ready to do so, but not immediately upon accession.

I.   Welfare Effects of Integration

When considering the effects of integration on the Turkish economy, it is important to keep in mind that the customs union in industrial goods was established in 1996 and that a period of perhaps ten years or more will precede full membership and Turkish participation in the internal market. The impact of the customs union in industrial goods on Turkish welfare has been estimated by Harrison *et al*. (1997). The authors estimate that the gains to Turkey will amount to 1.1% of its GDP per year. If liberalizing trade in industrial goods can affect the GDP, then there should be comparable gains from liberalizing agriculture and also services.

A.   *Agriculture*

Since the impact on agricultural markets and incomes of EU enlargement to Turkey has been studied thoroughly by Togan *et al*. (2003), we briefly summarize the main points derived by the authors. According to the authors adoption of the CAP will lead to substantial changes in the agricultural incomes of producers, welfare levels of the consumers, and budget revenues of the government. Since the prices for many major agricultural prices in Turkey will have to be reduced at some point between now and accession, consumers will derive great benefits. The authors estimate that, in the medium- to long-term, EU-like policies will lead to a 1.87% increase in real household incomes in Turkey amounting to 2.916 billion Euros. Furthermore, lower income households (rural households) will experience a more significant increase in real income. On the other hand the adoption of CAP will require substantial adjustments on the part of Turkish farmers, and the effect on farmers' incomes will be mainly driven by the amount of CAP-like compensation payments granted to the farmers. Farmers' income will decrease considerably under Agenda 2000 policies without direct payments, and will increase under Agenda 2000 policies with direct payments. Table 1 shows that agricultural value added will increase by 2.145 billion Euros under Agenda 2000 policies with direct payments equal to those applied in the EU, and to 0.341 billion Euros under Agenda 2000 policies with direct payments at a level of 35% of payments granted in the EU member countries. The budgetary costs to Turkey of adopting EU-like agricultural policies will depend on whether Turkey will or will not receive compensation from the EU budget for introducing these policies. When Turkey will not receive any compensation from the EU budget, the cost will amount to 2.998 billion Euros under Agenda 2000 policies with direct payments equal to those applied in the EU and to 1.2 billion Euros under Agenda 2000 policies with direct payments at a level of 35% of payments granted in the EU member countries.

Table 1

Impact of Agenda 2000 with Direct Payments

(million Euro)	
Effect on Real Income	2.916
Effect on Agricultural Value Added	2.145
Effect on Government Budget	-2.998

Source: Togan *et al*. (2003).

B. Services and Network Industries

Since joining the EU will require Turkey to liberalize its services and network industries, in the following paragraphs, we consider the banking, telecommunications, and electricity to be representative sectors of the services and network industries in Turkey.

1. Banking Sector

Prior to 1999, Turkey lacked crucial components of financial markets, namely competent supervisory authorities, a regulatory framework and legal and institutional infrastructure. Regulations in Turkey were also lax and poorly enforced. In February 2001, Turkey faced a currency crisis. The cost of this crisis in terms of its effect on the banking sector is estimated to be, as emphasized by Pazarbaşıoğlu (2003), \$46 billion, i.e. about 27-30% of the Turkish GDP. Following the crisis, Turkey changed its legislative, regulatory and institutional framework. As of 2003, Turkish prudential requirements, regarding the capital adequacy standards, loan classification and provisioning requirements, limits on large exposures, limits on connected lending and requirements for liquidity and market risk management, have generally become in conformity with the EU's.

To study the welfare effects of policies followed by Turkey in the banking sector during the 1990's we compare the situation of the Turkish economy in the base case with the case when Turkey adopts and implements in the banking sector all of the rules and regulations of the EU. As the 'base case' we consider the Turkish economy with rules and regulations in the banking sector as they have prevailed during the latter half of 1990s. We consider the 1996 Input-Output Table of the Turkish economy which has 97 sectors, where banking is sector 84. Noting that initially the prices of all commodities in the input-output table equal unity we express the value of total consumption expenditure evaluated at base prices as $C = u$ CONS where u denotes the 1 x 97 unit vector and CONS the 1 x 97 consumption vector. Next we determine the price of banking services that will prevail in Turkey after it adopts and implements EU rules and regulations. Using this price we determine the equilibrium prices of the other 96 commodities from the price equations derived from the input-output system. The value of total consumption expenditure evaluated at the prices that will prevail in Turkey after the country adopts and implements the EU rules and regulations in the banking sector is given by $C^* = \pi$ CONS, where π denotes the price vector of 97 commodities obtained when Turkey adopts and implements in the banking sector all of the rules and regulations of the EU. The effect on consumer welfare measured by the equivalent variation in consumer income is then calculated as $(C - C^*) \times 100/C^*$.

To study the effect of the adoption of EU rules and regulations in the banking sector on the price of banking services we turn to the study by McGuire and Schuele (2000), who has developed index values of restrictiveness in financial

services for a number of countries. McGuire and Schuele (2000) extending the work of McGuire (1998) base their analysis on 1997 data and distinguish between prudential and non-prudential requirements. The authors note that prudential requirements aimed at ensuring the stability of the banking system by preserving solvency, limiting risks and protecting bank deposits are in general similar across economies. Therefore they abstract from consideration of prudential requirements and concentrate on non-prudential requirements. The index values of the non-prudential variables considered by McGuire and Schuele (2000) are shown in Table 2 where scores range from 0 (least restrictive) to 1 (most restrictive). In the table the restrictions have been divided into two groupings: those affecting 'commercial presence' and other restrictions called 'restrictions on ongoing operations'. Whereas the first group indicate the restrictions on the movement of capital, the latter group is modelled as restrictions on trade in banking services. The commercial presence restriction grouping covers restrictions on licensing, direct investment, joint venture arrangements, and the permanent movement of people. The other restrictions grouping covers restrictions on raising funds, lending funds, providing other lines of business, expanding banking outlets, the composition of the board of directors, and the temporary movement of people. Given the scores shown in Table 2 for each variable considered, the authors assign weights to the variables and obtain first restrictiveness index values for the two categories and then the overall restrictiveness index values for the economies considered.

Table 2 reveals that the Turkish banking system is more restrictive than the banking system in the EU. Kalirajan *et al*. (2002) use this information to study the effects of restrictions in the banking sector on the performance indicators. The authors note that banks provide a wide range of financial services including deposit-taking, lending, insurance and securities. But they emphasize that although banks are diversified entities, their core business remains the matching of depositors and lenders. Thus, the price of banking services can be measured by the net interest margin (NIM), the difference between the interest rate banks charge on their loans and the rate they pay on their deposits. Restrictions on trade in banking services is expected to increase the interest margin. The effect of these restrictions in the banking sector on the net interest margin is shown in columns 3 and 4 of Table 2 for the EU countries and Turkey.

The table reveals that as a result of restrictions in the banking sector net interest margin in EU increases relative to the free trade net interest margin by 5.3203%, and that the increase amounts to 31.541% in the case of Turkey. One could thus infer that the net interest margin in Turkey will decrease by 26.2207% when Turkey would adopt and implement the EU rules and regulations on banking services. Taking the value of 26.2207% decrease as the percentage change in the price of banking services due to the adoption of the EU rules and regulations in the banking sector we determine that the welfare of the society will increase by 1.36%

after the adoption of the EU rules and regulations in the banking sector. The change in consumer welfare amounts then to 2.12 billion Euros.

Table 2

Restrictiveness Index Scores and Price Effects for Banking Services

	Restrictiveness Index		Price Effect	
			EU	Turkey
	EU	Turkey	%	%
Licensing of banks	0,0100	0,2000	0,7515108	16,847931
Direct investment	0,0100	0,0100	0,7515108	0,8423965
Joint venture arrangements	0,0050	0,0525	0,3757554	4,4225818
Permanent movement of people	0,0085	0,0119	0,6402872	1,0024519
Restrictions on establishment total	*0,0335*	*0,2744*	2,5190641	23,115361
Raising funds by banks	0,0075	0,0075	0,5636331	0,6317974
Lending funds by banks	0,0075	0,0075	0,5636331	0,6317974
Other business of banks - insurance and securities services	0,0050	0,0525	0,3757554	4,4225818
Expanding the number of banking outlets	0,0025	0,0131	0,1878777	1,1056455
Composition of the board of directors	0,0119	0,0120	0,8973039	1,0125606
Temporary movement of people	0,0028	0,0074	0,2130533	0,6212674
Restrictions on ongoing operations total	*0,0373*	*0,1000*	2,8012564	8,4256501
Index Value	0,0708	0,3744	5,3203206	31,541011

Source: Australian Productivity Commission website www.pc.gov.au.

2.   Telecommunications

The telecommunications industry in Turkey has been dominated by Turk Telecom, a national monopoly with exclusive rights to all fixed line voice operations. In

addition, cable services have been provided by Turk Telecom which has also been responsible for the radio and television transmitters. Turk Telecom has a monopoly over the provision of international calls, and prices for local calls through fixed lines were cross subsidized by national long-distance and international calls. Reforms since the early 1990s have led to the introduction of four new mobile telephone companies and a series of private companies providing value added services, such as internet access and cable television. As emphasized by Akdemir *et al.* (2003), the Turkish Parliament has approved a legislation to reform the telecommunications sector in 2000, which was amended in May 2001. The reform program was quite successful in modernizing the Turkish telecommunications system. The objective of the legislative and regulatory reform was to bring the regulatory and supervisory regime for the Turkish telecommunications sector up to the level of international practice in line with EU standards. The objective has been achieved partially by opening the mobile telecom market to competition. With accession to the EU, Turkey will have to introduce full competition in telecommunications and adopt and implement the EU legislative measures centring on liberalization of all telecommunications services and infrastructures, adoption of open network provision measures to the future competitive environment, maintenance and development of minimum supply of services and the definition of common principles for financing the universal service.

To study the welfare effects of policies followed by Turkey in the telecommunications sector during the 1990s we compare the situation of the Turkish economy in the base case with the case when Turkey adopts and implements in the telecommunications sector all of the rules and regulations of the EU. As the 'base case' we consider as in the case of banking services the Turkish economy with rules and regulations as they have prevailed in the telecommunications sector during the latter half of 1990s. We consider again the 1996 Input-Output Table of the Turkish economy where telecommunications is sector 83. We then determine the effect on consumer welfare by calculating the equivalent variation in consumer income.

To study the effect of the adoption of EU rules and regulations in the telecommunications sector on the price of telecommunications services we note that the telecommunications sector is a heterogeneous service industry, and that its services include fixed voice services (e.g. local, domestic and international long distance telephony, and enhanced voice services), mobile services (mobile access, calls, and messaging services), internet services (e.g. dial-up and web hosting), data services (e.g. leased-lines, asynchronous transfer mode (ATM) services, public data network services), and content services (e.g. pay-TV, online information and entertainment). Thus the price of telecommunication will be an index of all these prices. We next turn to the study by Warren (2000a), who considers four types of impediments to trade in telecommunications services: restrictions on cross border

trade, restrictions on establishment, restrictions on direct investment in fixed and mobile network services, and restrictions on ongoing operations. In each case Warren derives index values, where higher values indicate greater restrictions. While the index of restrictions to cross border trade captures policies that discriminate against all potential entrants (domestic and foreign) seeking to supply cross border telecommunications services, the index of restrictions on establishment captures policies that discriminate against all potential entrants (domestic and foreign) seeking to supply the telecommunications services via investment in the country. The index of restrictions on direct investment is designed to capture policies that discriminate against potential foreign entrants seeking to supply telecommunications services via investment in the country. Finally, the index of restrictions on ongoing operations captures policies that discriminate against potential foreign entrants seeking to supply cross-border telecommunications services. Given the index values derived from an international survey undertaken by the International Telecommunications Union (1999) for 136 countries, Warren (2000b) estimates first the impact of impediments to trade and investment in telecommunications services on the penetration of fixed and mobile telecommunications network and thereafter the price impact. The results are shown in Table 3.

The table reveals that Finland and the United Kingdom follow liberal trade and investment policies in telecommunications and that as a result of restrictions in trade of telecommunications services Turkish telecommunications prices are 33.5328% higher than the prices in Finland and United Kingdom. Taking the value of 33.5328% decrease as the percentage change in the price of telecommunications services due to the adoption of the EU rules and regulations in the telecommunications sector we determine that the welfare of the society will increase by 0.587% after the adoption of the EU rules and regulations in the telecommunications sector. This change amounts to 0.915 billion Euros increase in real income of consumers.

3. Electricity

The Turkish electricity sector is dominated by state owned enterprises. The two largest firms are TEAS, the state owned generation-and-transmission company, and TEDAS, the state owned distribution company. Recently, TEAS was separated into three separate companies covering generation, trading and transmission activities. There are also privately owned firms, which have entered the industry through build-operate-transfer (BOT), build-operate-own (BOO) or auto-generator schemes. Today they account for more than 21% of electricity generation. Under the regulations prevailing in Turkey the private operators signed long-term power purchase agreements with the state owned generation enterprise in which the latter committed itself to buy the output of the plants for a period of, say, 20 years at a

Table 3

Restrictiveness Index Scores for Telecommunications Services

| | Restrictiveness Index | | | | | Price effect | | | | |
| | Restrictions on establishment | | Restrictions on ongoing operations | | | Restrictions on establishment | | Restrictions on ongoing operations | | |
	Restrictions on direct investment in fixed and mobile network services	Restrictions on establishment total	Restrictions on cross-border trade	Restrictions on ongoing operations total	Index Value	Restrictions on direct investment in fixed and mobile network services	Restrictions on establishment total	Restrictions on cross-border trade	Restrictions on ongoing operations total	Price Effect
Austria	0.1333	0.1333	0.0000	0.0000	0.1333	0.8480%	0.8480%	0.0000%	0.0000%	0.8480%
Belgium	0.1334	0.1334	0.0667	0.0667	0.2001	0.8710%	0.8710%	0.4353%	0.4353%	1.3063%
Denmark	0.0333	0.0333	0.0000	0.0000	0.0333	0.1985%	0.1985%	0.0000%	0.0000%	0.1985%
Finland	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
France	0.2100	0.2100	0.0000	0.0000	0.2100	1.4298%	1.4298%	0.0000%	0.0000%	1.4298%
Germany	0.0493	0.0493	0.0000	0.0000	0.0493	0.3195%	0.3195%	0.0000%	0.0000%	0.3195%
Greece	0.1609	0.1609	0.3000	0.3000	0.4609	1.5778%	1.5778%	2.9424%	2.9424%	4.5202%
Ireland	0.3533	0.3533	0.0000	0.0000	0.3533	2.6655%	2.6655%	0.0000%	0.0000%	2.6655%
Italy	0.1369	0.1369	0.0000	0.0000	0.1369	1.0019%	1.0019%	0.0000%	0.0000%	1.0019%
Luxembourg	0.1667	0.1667	0.0000	0.0000	0.1667	1.0458%	1.0458%	0.0000%	0.0000%	1.0458%
Netherlands	0.0300	0.0300	0.0000	0.0000	0.0300	0.2025%	0.2025%	0.0000%	0.0000%	0.2025%
Portugal	0.1100	0.1100	0.4000	0.4000	0.5100	1.3473%	1.3473%	4.8992%	4.8992%	6.2465%
Spain	0.1793	0.1793	0.2333	0.2333	0.4127	1.7099%	1.7099%	2.2247%	2.2247%	3.9346%
Sweden	0.1000	0.1000	0.0000	0.0000	0.1000	0.6530%	0.6530%	0.0000%	0.0000%	0.6530%
U.K.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Turkey	0.3987	0.3987	0.4000	0.4000	0.7987	16.7384%	16.7384%	16.7944%	16.7944%	33.5328%

Source: Warren, T. (2000).

Note: The restrictiveness index scores range from 0 to 1. The higher the score, the greater are the restrictions for an economy.

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fixed price in foreign currency. In those contracts the price has ranged on average between eight and nine US cents per KWh for the first five to ten years of operation. This contract, guaranteed by the Treasury, assured the investor that the project would be profitable irrespective of the demand for power. Recently, the government in Turkey has passed, as emphasized by Atiyas and Dutz (2003), a new Electricity Law. The law provides for the establishment of a new independent Energy Market Regulatory Authority. With the new law the government is introducing a market model as in the EU that will transfer most of the task of supplying and distributing electricity and the associated market risks to the private sector, eliminate the need for additional state-guaranteed power purchase agreements, and minimize costs through competitive pressures on producers and distributors along the EU model.

To study the welfare effects of policies followed by Turkey in the electricity sector we compare the situation of the Turkish economy in the base case with the case when Turkey adopts and implements in the electricity sector all of the rules and regulations of the EU. As the 'base case' we consider as in the cases of banking and telecommunications services the Turkish economy with rules and regulations as they have prevailed in the electricity sector during the latter half of 1990s. Next, we consider the 1996 Input-Output Table of the Turkish economy where electricity production, transportation and distribution is sector 69. We then determine the effect of the adoption of EU rules and regulations in the electricity sector on consumer welfare by calculating the equivalent variation in consumer income.

To study the effects of regulation on the price of electricity we make use of Table 4 which summarizes the status of the regulatory environment and market structure in the electricity sector in selected EU countries and Turkey as of 1998. In the electricity markets competition can be secured as long as the principle of 'Third Party Access' (TPA) is observed. This principle is based on the idea that the owner of the network is obliged to give access to all the delivery requests through the network by the production and sales operators. The table shows that by 1998 Finland, Germany and Britain had liberalized access to transmission and distribution networks, and that access liberalization in Finland and Britain had taken the form of regulated TPA, which is a legal obligation to provide network access under non-discriminatory conditions. Germany has chosen the negotiated TPA arrangement, where consumers and producers contact directly with each other and then negotiate with the transmission and distribution companies for access to the network. Turkey on the other hand did not observe the principle of TPA by 1998, and introduced this principle only in 2001 under the regulated TPA regime.

But TPA is not a sufficient condition to secure competition in the electricity sector. The owner of the network could charge high access prices which can put the competitors in the final market at a disadvantage. The achievement of competition requires that access charge be non discriminatory and cost-reflective, giving

Table 4

Country Data on European and Turkish Electricity Sectors, 1998

	Finland	Germany	United Kingdom	Turkey
Regulatory Reform				
Third Party Access	regulated TPA	negotiated TPA	regulated TPA	none
Electricity Market	Finnish Electricity Exchange (1995)	none	English and Wales market (1990)	none
Transmission Price Regulation	cost-based	cost-based	price cap	-
Consumer Choice Thresholds	1995 500 KW, 1997 0 KW	1998 0 KW	1990 1 MW, 1994 100 KW, 1998 0 KW	no choice
Vertical Integration in the Industry				
Degree of Vertical Integration	unbundled	unbundled	unbundled	Integrated
Generation separate from Transmission	separate companies	accounting separation	separate companies	Integrated
Ownership in the Industry	Mostly public	Mixed	Private	Mostly public
Privatisation in Electricity generation	1/2/1997, Komijoki Oy, 25 %	5/7/1994 Rhein-Main Donau, 75.5 % 31/12/1995 Neckar, 99 %	6/3/1991 National Power, 60 % 6/3/1991 Power Gen, 60 % 1/3/1995 National Power, 40 % 1/3/1995 Power Gen, 40 % 10/7/1996 British Energy, 87.73 %	private participation, not privatisation

Source: Steiner (2000).

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appropriate incentives to the network owner to maintain and develop the infrastructure so that the system avoids bottleneck problems. In this case we note that the two dominant models are cost-based (rate of return) pricing and loosely regulated prices, where the latter is more prevalent in countries with a decentralized electricity supply industry and a tradition of regulation and control at a more localized level. Under the rate-of-return regulation the government sets the transmission prices to effectively guarantee the firm a 'fair' rate of return. In contrast, under price cap regulation, prices are indexed to a moving indicator such as the Producer Price Index, less a portion which provides incentive for innovation and improved efficiency. Under the latter type of regulation, firms could realize negative returns in the short run if they were operating inefficiently. Table 4 reveals that while Finland and Germany have introduced cost based pricing and Britain price cap regulation, Turkey did not have an explicit transmission pricing regulation during 1998.

The separation of generation and transmission, in concert with expanded TPA, is crucial to encourage competition. Without it the network owner has very high incentives to preclude, or at least limit, the access of competitors in the downstream market, vanishing the perspectives of liberalization. If the network owner does not participate in the downstream markets, it is neutral towards the applicants. Thus, 'Unbundling' is important. The allocation of transmission rights must be separated from transactions between upstream and downstream firms. Where generation and transmission have been unbundled, there may be either an accounting separation, legal separation or propriety separation into different companies. It is emphasized that accounting separation is the weakest form of separation, that legal separation is achieved through the creation of different companies under a common holding, and that propriety separation is the preferred alternative. Table 4 shows the degree of overall integration, from generation, through transmission and distribution, to supply, as well as the presence and type of separation of generation from transmission in each of the countries under consideration. While Finland and Britain have separated generation and transmission into legally distinct firms, Germany has introduced accounting separation. The table shows in addition that distinct from liberalization, countries also vary in the degree of private ownership that has developed over time, as well as the decision regarding privatization at the time of liberalization. The table shows the current status of ownership in the generation segment of the electricity sector, and it provides details about privatization in electricity generation at the firm level for countries in the panel. We note that the decision to privatize is not necessarily correlated with the degree of liberalization. While Germany has mixed ownership in the industry, Britain has made privatization a central feature of reform.

A further requirement for the liberalization of the electricity markets is the 'Opening of the Demand Side'. This principle promotes the idea that eligible

customers have the right to seek the most convenient supplier. The table reveals that while Finland and Britain introduced consumer choice initially for large consumers, phasing in full consumer choice gradually, Germany introduced full consumer choice immediately in 1998, and that Turkey had not opened the demand side by 1998.

Finally, competition requires as a fourth requirement the existence of exchange markets, which should yield prices in line with marginal costs covering the fixed costs. Regarding the establishment of these markets we note Finland and Britain had introduced markets for electricity by 1998, allowing for prices and quantities traded to be determined by the equivalence of supply and demand, while Germany and Turkey did not have such a market by 1998.

Steiner (2000) using basically the data summarized above for 19 OECD economies over the period 1986-96 develops indexes of regulatory indicators and using these indexes investigates empirically the linkages between regulatory regimes, market environments and performance in electricity supply. The author uses as indicators of performance measures of productive efficiency of generation plants and retail electricity prices, and concludes that unbundling of generation and transmission, expansion of TPA, and introduction of electricity markets reduce the industrial end-user prices. The results obtained by Steiner (2000) were later extended by Doove *et al.* (2001), by increasing the number of countries under consideration from 19 to 50 economies. The results are shown in Table 5, which shows that as a result of restrictions Turkish electricity prices are 20.7% higher than the prices in Finland and United Kingdom, which follow liberal policies in the electricity sector.

Taking the value of 20.7% decrease as the percentage change in the price of electricity due to the adoption of the EU rules and regulations in the electricity sector we determine using the input-output table of 1996 the equivalent variation in consumer income. Noting that electricity production, transmission and distribution is sector 69 in the input-output table we estimate following an approach similar to those used in banking and telecommunications sectors that the welfare of the society will increase by 0.527% with the adoption of the EU rules and regulations in the electricity sector. This is equivalent to the change consumer welfare amounting to 0.822 billion Euros.

Table 5

Price Impact of Regulation

in Electricity Supply (%)	
Austria	13,2
Belgium	15,4
Denmark	8,5
Finland	0,0
France	16,0
Germany	8,3
Greece	16,6
Ireland	13,9
Italy	17,1
Luxembourg	13,8
Netherlands	15,5
Portugal	17,9
Spain	9,5
Sweden	0,0
United Kingdom	0,0
Turkey	20,7

Source: Doove *et al*. (2001).

II.   Economic Challenges

Under economic challenges we consider issues related with membership in the European Economic and Monetary Union, labour markets, and complying with EU environmental directives.

A.   *Membership in the European Economic and Monetary Union*

Participation in the European Economic and Monetary Union (EMU) is a must for Turkey since the a*cquis* is expected to be taken in full, including EMU participation, and in due time all the requisite 'Maastricht Criteria' for Euro Area integration. Turkey will not be expected to adopt the euro immediately upon accession. Upon accession Turkey, according to Article 122 of the Treaty establishing the European Community (the 'Treaty'), will be treated as a 'country with a derogation' until it fulfils the convergence criteria.[1] Consideration of the

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1   A new Member State can initially only have the statute of 'Member State with a derogation'. There are, according to Italianer (2002), two formal reasons for this. First, the procedures foreseen in Article 121(1) for the assessment of the conditions for the adoption of the euro cannot be applied prior to accession. Secondly, one of these conditions cannot possibly be met upon accession because it requires participation in the Exchange Rate Mechanism (ERM II) and this is not open to non-members. More importantly, the economic rationale for

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Central and Eastern European (CEE) countries reveals that these countries, when signing up to the accession treaty, have accepted the goal of monetary union as part of the *acquis communautaire*. In order to become members of EMU, the CEE countries have to fulfil the convergence criteria, which involve conditions on price stability, interest-rate convergence, budget deficit, government debt, and exchange-rate stability.

Price stability requires that, over a period of one year before the examination, a country's inflation rate not exceed the average rate of the three best performing EU member states in terms of price stability by more than 1.5 percentage points. Interest-rate convergence requires that the average long-term interest rate not exceed that of the three EU countries with the best inflation performance by more than two percentage points. Budget deficit criteria requires that the ratio of general government deficit to GDP not exceed 3%. The government debt criteria requires that the ratio of general government debt to GDP must not exceed 60%. Finally, the exchange-rate stability criteria requires that the country observe the normal fluctuation margins of the Exchange Rate Mechanism (ERM) II for at least two years without devaluing. In ERM II, the euro is the anchor currency. Although the standard fluctuation band for the exchange rates of the partner countries is +/-15% around the central rate, narrower bands are possible.

Based on the Treaty, three distinct phases for the adoption of the EMU *acquis* by accession countries can be identified, namely: (i) the pre–accession period, (ii) the period from accession to the adoption of the euro, and (iii) euro area phase, after adopting the euro.

During the pre-accession phase, accession countries carry out the economic reforms and policies needed to fulfil the Copenhagen economic criteria—the existence of a market economy and the capacity to cope with competitive pressure and market forces within the Union. In addition the accession countries will adopt the required EMU legislation to be able to have the status of 'Member State with a derogation' as regards the adoption of the euro (Article 122). These are as stated by Italianer (2002):

- Completion of the orderly liberalisation of capital movements (Article 56)
- Prohibition of any direct public sector financing by the Central Bank (Article 101)
- Prohibition of privileged access of the public sector to financial institutions (Article 102)

———————————————— (*contd.*)

the construction of EMU presupposes participation in the internal market before the adoption of the euro. The free movement of goods, freedom to provide services, free movement of persons and full liberalisation of capital movements are expected to be accomplished before adoption of the euro, except for negotiated transition periods in a limited number of areas.

- Alignment of the national central bank statutes with the Treaty, including the independence of the monetary authorities (Articles 108 and 109).

Upon accession, the new Member State will have the statute of 'Member State with a derogation' granted in the accession treaty. It will have to show adherence to the aim of economic and monetary union and compliance with the relevant parts of title VII of the EC Treaty and the other EMU *acquis*. These are:

- Treatment of exchange rate policy as a matter of common interest and, eventually, participation in the exchange rate mechanism (Article 124)
- Treatment of economic policies as a matter of common concern and co-ordination of economic policies between the Member States through participation in Community procedures (Articles 98 and 99)
- Avoidance of excessive government deficits and adherence to the relevant provisions of the Stability and Growth Pact (SGP) (Article 104)
- Further adaptation of the national central bank's statutes with a view to integration in the European System of Central Banks (ESCB) (Article 109)
- Progress towards the achievement of a high degree of sustainable convergence (Article 121)

The adoption of the euro will add two key elements to the macroeconomic framework of 'Member States with a derogation'. One is the single stability oriented monetary policy, and the ensuing single exchange rate policy. Secondly, the implementation of the sanction parts of the SGP, by which Member States surpassing the 3% ceiling in their deficit will be subjected to substantial fines.

As emphasized by the Commission (2003) Turkey during the pre-accession period has to adopt the required EMU legislation to be able to have the status of 'Member State with a derogation' as regards the adoption of the euro. In particular Turkey needs to take relevant measures to liberalize the capital movements completely, prohibit privileged access of the public sector to financial institutions, and attain the political and economic independence of the monetary authorities. Upon accession the common macroeconomic policy framework will get more constraining, with a strong reinforcement of fiscal discipline and the integration of other economic policies. Budgetary policy and outcomes will become subject to the excessive deficit procedure and the non-punitive parts of the SGP. The Maastricht Treaty specifies that the country will have to progress towards the fulfilment of the Maastricht criteria, and under conditions of the Stability and Growth Pact it will have to endeavour to avoid excessive deficits. Furthermore, the exchange rate policy will become a matter of common interest. Finally, the adoption of the euro will require that Turkey becomes part of the single stability oriented monetary policy and of the ensuing single exchange rate policy. Furthermore, Turkey will become subject to the sanction parts of the SGP. Once Turkey adopts the euro it will replace its domestic currency with the euro at an irrevocably fixed exchange rate, confer the bulk of its reserves to ECB, and will be bound by the SGP.

Table 6

EMU Convergence Criteria

	Inflation Rate %			Budget Deficit % of GDP			Government Debt % of GDP			Interest Rates 10Y bonds	Exchange Rate Rate against Parity	Currency Regime
	2000	2001	2002	2000	2001	2002	2000	2001	2002	Last	Max (2Y)	
Czech Republic	3.9	4.7	1.8	-4.0	-3.2	-4.6	29.2	29.0	22.4	3.8	-5.0	Managed Float (EUR reference)
Estonia	4.0	5.8	3.6	-0.7	1.1	1.2	6.6	6.2	5.4	2.9	-1.5	Currency Board (EUR)
Hungary	9.8	9.2	5.3	-3.5	-5.0	-9.6	56.1	51.5	50.4	6.5	-6.0	Target Zone (EUR)
Latvia	2.7	2.5	1.8	-2.8	-1.9	-2.7	10.0	12.2	13.9	7.8	-14.4	Peg (SDR)
Lithuania	1.0	1.3	0.3	-2.8	-1.4	-2.8	28.3	29.0	25.0	6.4	-5.8	Currency Board (EUR)
Poland	10.1	5.5	1.9	-2.7	-6.3	-5.4	43.8	38.0	48.0	5.4	-15.5	Float
Slovakia	12.0	7.3	3.3	-6.8	-7.2	-1.9	32.9	42.7	32.0	5.0	-5.0	Managed Float (EUR reference)
Slovenia	8.9	8.5	7.5	-1.4	-1.3	-1.1	25.1	25.4	32.2	7.2	-5.6	Managed Float (EUR reference)
Bulgaria	10.1	7.9	5.8	-1.1	-1.0	0.2	83.8	72.5	60.9	6.4	-0.4	Currency Board (EUR)
Romania	45.7	34.5	22.5	-4.1	-3.7	-1.7	29.2	31.2	25.7	29.7	-32.7	Managed Float (USD reference)
Turkey	54.9	54.4	45.0	-5.8	-26.9	-10.0	63.1	125.8	105.3	51.0	59.0	Float
Reference Value	2.8	3.3	3.0	-3.0	-3.0	-3.0	60.0	60.0	60.0	5.5	+/- 15%	

Source: Deutsche Bank, EU Enlargement Monitor, April 2002, Turkish State Planning Organisation (2003), Central Bank of Turkey website www.temb.gov.tr.

Note: Parity refers to last 3-year average exchange rate against EUR. In the case of Turkey, the interest rate is the annual compound interest rate on government bonds of one year duration obtained in the latest auction of treasury bills.

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The above considerations reveal that besides legislative changes and thorough implementation of this legislation Turkey will be faced with the problem of attaining over time sustainable development while simultaneously satisfying the Maastricht criteria. The country realizes that in the long run, price stability and fiscal discipline create the best conditions for sustained, robust economic growth. But currently the situation is problematic as evidenced by the data in Table 6, which shows the EMU convergence criteria for Turkey and the CEE countries. The table reveals that the CEE countries are about to satisfy the criteria, but that Turkey is far away from satisfying the conditions. In 2002 the inflation rate was 45% compared to 3%, the reference value for inflation in EU; budget deficit as a percent of GDP was 10% compared to 3%, the reference value of budget deficit in EU; debt to GDP ratio was 105.3% compared to 60%, the reference value of debt/GDP ratio in EU; and interest rates were 51% compared to 5.5%, the reference value of long term interest rates in the EU.[2] Although the annual inflation rate as of October 2003 has been reduced to 20.3%, the rate is still high compared to the reference value in the EU. Similar considerations apply for the government deficit/GDP ratio, debt/GDP ratio and interest rates for the year 2003.

The challenge facing Turkey is how to move from current state of affairs to a state when Maastricht criteria will be satisfied. The issues facing Turkey are:

- Although the country has reduced the inflation rate considerably during 2002 and 2003 through strict implementation of the IMF economic program, the reduction was achieved partially through decreases in the cost of imported goods achieved as a result of real appreciation of the Turkish lira. But reducing the inflation rate through real appreciation of the currency is not sustainable in the long run as the real appreciation of the currency will lead to problems of sustainability of the current account.
- Although the country has reduced the debt/GDP ratio substantially during 2002 and 2003 by achieving surpluses of government revenues over non-interest expenditures amounting to 7.8% of GDP during 2001 and 6.2% of GDP in 2002, the reduction was achieved partially through real appreciation of the currency. But reducing the debt/GDP ratio through real appreciation of the currency is not sustainable in the long run as the real appreciation of the currency will lead to problems of sustainability of the current account.
- Since debt/GDP ratio over time can be decreased by achieving surpluses of government revenues over non-interest expenditures amounting to at least 6.5% of GDP over the coming years, the government will be constrained in its use of fiscal policy to decrease the unemployment rate in the economy,

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2   The figures for government deficit/GDP and debt/GDP ratios have been obtained from State Planning Organization (2003). These figures have been harmonized with the deficit and debt definitions of the EU.

which in 2003 runs at about 10%. The constraint may have political implications.

- Consideration of the issues related with the sustainability of current account reveals that the choice of the exchange rate policy during the pre-accession period will be of prime importance for Turkey. The policy of real exchange rate appreciation pursued during the last two years is not sustainable in the long run under rather realistic values of foreign real interest rates. Sustainability of the current account requires the depreciation of the real exchange rate over time.

- The reduction in inflation rate from its current level to the level required by Maastricht criteria can only be achieved at some cost. The costs of fulfilling the Maastricht inflation criteria when estimated by expected output losses will turn out to be quite substantial.[3]

B.   Labour Markets

Taymaz and Özler (2003) show that the Turkish labour market is flexible. The reason behind the flexibility lies primarily in the fact that the labour market is not homogeneous. It has different wage setting mechanisms in formal and informal sectors. The informal sector is largely free from most type of labour regulation and does not pay most of the taxes and related charges. Activities in this sector rely mostly on provision of labour services without formal employment contracts. Job insecurity is pervasive and workers get very few benefits from their employers. Labour regulations are observed by the formal sector and this sector also pays all taxes and related charges such as social security contributions and payments to various funds. According to different studies the share of informal sector in total employment is about 60%.[4] The reasons for the relatively high share of the informal sector in total employment are (i) the very high tax rates on wage income, high tax related charges and substantial payments to various funds that have to be paid in the formal sector as a requirement of social security law and the laws regulating the taxation of personal incomes, (ii) the relatively high firing costs imposed by labour law and the stringency of the various clauses of the labour law, and (iii) lack of enforcement mechanisms of respective laws in the economy.

Studies reveal that Turkish population increases on average at one million persons per year and that over time Turkey has to create continuously new jobs. In the past Turkey has successfully solved the unemployment problem through the

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3   The expected output losses can be determined with the use of a 'sacrifice ratio' defined as the cumulative loss in output, measured as a per cent of GNP, associated with a one percentage point permanent reduction in inflation. On the sacrifice ratio see for example Ball (1993).

4   Taymaz and Özler (2003) report that the share of informal sector is 40% in manufacturing. The share is much higher in agriculture and services sectors.

existence of a large, flexible informal sector where wages are free to equilibrate demand and supply and through labour migration from Turkey.

With Turkish accession to EU Turkey will have to enforce the rule of law uniformly in the country. It can no longer tolerate the lack of enforcement mechanisms of different laws and regulations in the economy. But this will have to be done without increasing the unemployment rate in the economy. Taymaz and Özler (2003) estimate that when all informal sector firms in manufacturing sector start to pay taxes and social security contributions at the same rates as in the formal sector and when informal sector firms loose half of their market shares due to the change, employment in manufacturing sector will decline by 8.9%. Thus about 300,000 jobs will be lost. But the effect of the policy change on employment, when all informal sector firms in all sectors of the economy start to pay taxes and social security contributions at the same rates as in the formal sector, will be much more drastic as one has to consider also the effects on employment in agricultural and services sectors. The number of jobs lost will far exceed the 300,000 level estimated by Taymaz and Özler (2003). Thus, the country in order to avoid an increase in unemployment has to introduce a comprehensive labour market reform. Such a reform will probably entail substantial decreases in tax rates on wage income, tax related charges and payments to various funds, decreases in the firing costs and making various clauses of the labour law less stringent in Turkey.

C.   Complying with EU Environmental Legislation

Joining the EU will require that Turkey adopts and implements the entire body of EU legislation and standards on environmental protection. This means that Turkey will have to bring its environmental protection system, infrastructure and standards up to Western European levels, which in turn will require substantial investments by both the public and private sectors as well as changes in regulations and supporting institutions.

Consider the EU regulations on wastewater collection and treatment. According to the urban wastewater directive (91/271/EEC) all urban areas with a total wastewater discharge of 2000 population equivalent are required to be connected to the sewer system, and the discharges of sewers that has been collected must receive at least secondary treatment. The directive allows for exceptions for towns with population less than 10,000 in cases when sewers would produce no environmental benefit or would involve excessive cost.

According to the 1997 general census of population total population of Turkey was 62.87 million. Out of this population 13.75 million were living in areas with population of 2,000 and less, 49.12 million were living in areas with populations of more than 2,000, 22.57 million were living in areas with population of 10,000 and less, and 40.3 million were living in areas with populations of more than 10,000. In 1997 there were 2,835 municipalities with a total population of 48.2 million.

7.3 million were living in rural municipalities. According to State Planning Organization 72% of population living in municipalities was not connected to sewer treatment. For an additional 23% of population sewer systems were under construction. Upon the completion of sewer systems under construction the percentage of population connected to sewer systems will go up to 51% of population living in municipalities. Furthermore 2% of the municipalities have waste water treatment facilities, and 14% of the population living in villages have sewer connection with septic tanks.

Assuming that the sewer systems under construction will be completed during the coming years we could conclude that out of the 48.2 million living in municipalities 24.5 million would be connected to sewer systems in the near future, leaving 23.7 million with no connection to sewer system. In the villages 11.8 million have no sewer connection.

The costs for sewer needs will depend on three parameters: (i) proportion of rural population living in towns that would be classified as agglomerations with a population of more than 2,000 population equivalents, (ii) proportion of towns between 2,000 and 10,000 that will be exempted from constructing sewer systems on the grounds of no environmental benefit or excessive costs, and (iii) proportion of rural population that must have sewer. Once the Commission and Turkey agree on these parameters during the negotiations the cost of compliance to EU directive could be determined. Rough estimates of investment costs to comply with the directive could run up to more than US$10 billion. Adding the additional operating, maintenance and replacement costs would increase this cost even further.

The above considerations reveal that environmental protection presents challenges for Turkey. The costs will be substantial when one would consider in addition to the costs of complying with regulations on wastewater collection and treatment, the costs of complying with EU regulations on drinking water, industrial pollution, dangerous chemicals, fuel standards, air quality and waste management. Markandya (2003) estimates that the total amount would come out at between €28 and €49 billion. He notes that outlay will be over a long period (around 17 years), so the annual amount will be more manageable. Furthermore, he shows that annual investments would amount to around €2-3 billion in the 'fast reform' (i.e. low cost case) and €3-5 billion in the slow reform (i.e. high cost) case. In the initial years this would amount to 1-1.5% of GDP in the low cost case and 1.5 to 2.5% in the high cost case. To this one would have to add the extra annual operating costs that will be incurred, which would be in the range of €5-8 billion. He notes that according to the OECD, Turkey's capital spending on the environment is around 0.5% of GDP. Thus with accession this would have to double, or more likely increase by a factor of three of four. In addition, a much higher level of current spending would also be required. These costs, although substantial by any standards, could be considered as a price for joining the EU. One could also argue

that these investments would have been made in any case by Turkey. Only the timing of the investments would be different, as EU directives may not correspond to Turkey's priorities at this stage of its development.

III. Conclusion

Joining the EU will require that Turkey attains macroeconomic stability, adopts the CAP, and liberalizes its services and also its network industries. Integration will be beneficial for Turkey as it will remove the distortions in the price system, boosting the allocative efficiency in the economy, which in turn will make the country a better place to invest. Furthermore, with accession Turkey will be eligible for EU structural funds. The increase in infrastructural investments will contribute to economic growth in Turkey. In addition, Turkey will reap benefits from monetary integration. The above considerations reveal that the welfare gains from integration will amount to approximately €9 billion.[5] However, the welfare gains that will be derived by Turkey from integration will have a price. The price will be the adjustment costs associated with the attainment of macroeconomic stability, adoption of CAP, adoption of EU's labour market rules and regulations, and complying with EU environmental directives. From Togan (2003) we know that the budgetary cost of adopting EU like agricultural policies will amount to €2.998 billion when Turkey will not receive any compensation from the EU budget. The annual costs of complying with EU environmental legislation could amount to about 7 billion Euros, which would be incurred by Turkey only after accession. After accession, while Turkey will contribute to the EU budget it will also receive payments under CAP and structural funds from the Brussels. These payments after deduction of contributions to the EU budget could amount, as emphasized by Togan (2003), to about 8 billion Euros annually. Thus Turkey is expected to benefit substantially from EU accession. Even in the pre-accession period Turkey would benefit considerably from adopting the EU rules and regulations in agriculture, services and network industries. The main costs of adjustment would come from adopting the EU labour market rules and regulations and also from attaining the macroeconomic stability.

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5   Here we assume that Turkey follows Agenda 2000 policies with direct payments equal to those applied in the EU. We should note that annual welfare gains derived from integration will increase to 10.6 billion Euros as we consider in addition the transportation and natural gas sector. For a discussion of issues of adjustment in these two sectors see François (2003) and Mazzanti and Biancardi (2003).

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