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Quantifying the Impact of EU Accession for Turkey

Sübidey Togan
Bilkent University, Ankara



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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.

1. 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 percent 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.

1.1 Agriculture

Since the impact on agricultural markets and incomes of EU enlargement to Turkey has been studied thoroughly by Togan et al. (2003), we shall 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 percent increase in real household incomes in Turkey. 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. 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 3 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 percent of payments granted in the EU member countries. On the other hand, after the EU accession, Turkey will be a net recipient of funds from the EU. After accession Turkey can expect to receive from the EU 9.6 billion euros net annual transfers under Agenda 2000 policies with direct payments equal to those applied in the EU and transfers under structural and cohesion funds. On the other hand the annual payments from the EU will

amount to 7.8 billion Euros under Agenda 2000 policies with direct payments at a level of 35 percent of payments granted in the EU member countries and again transfers under structural and cohesion funds. These figures will be net of payments Turkey will make to Brussels.

1.2 Services and Network Industries

Since joining the EU will require that Turkey liberalizes its services and network industries, we consider in the following the banking, telecommunications, transportation, electricity and natural gas sectors as representative sectors of the services and network industries in Turkey.

1.2.1 Banking Sector

Prior to 1999, Turkey had lacked crucial components of financial markets, namely competent supervisory authorities, a regulatory framework and legal and institutional infrastructure. In addition, regulations in Turkey were 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 Pazarba_10_lu (2003), to \$46 billion, i.e. about 27-30 percent 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 become generally in conformity with those in the EU.

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 1990's. Table 1 summarizes the bank regulations and supervisory practices in the EU and Turkey as of 1999. The data has been derived from Barth et al. (2001a, 2001b). The table shows that Turkish banks faced greater restrictions compared to those in the EU on their ability to engage in the business of securities underwriting, brokering, dealing, and all aspects of the mutual fund industry, to engage in insurance underwriting and selling, and to engage in real estate investment, development, and management. Furthermore, there were more restrictions in Turkey on the ability of banks to own and control nonfinancial firms, and on the ability of nonfinancial firms to own and control banks. Thus during 1999 Turkey had greater restrictions on bank activity than the EU. Table 1 further reveals there were greater restrictions on regulatory requirements for banks in the EU compared to those in Turkey regarding the amount of capital that banks must have relative to specific guidelines, and the extent to which the source of funds that count as regulatory capital can include assets other than cash or government securities, and borrowed funds. The sources of capital were verified more extensively by the regulatory or supervisory authorities in the EU than in Turkey. Thus during 1999 the EU had stricter capital adequacy requirements than Turkey. On the other hand the private monitoring variables in the table measure the degree to which private sector monitoring of banks influences bank performance and fragility by using four different indicators: (i) outside licenced audit requirement, (ii) percent of 10 biggest banks rated by international rating agencies,

(iii) availability of explicit deposit insurance system, and (iv) bank accounting. The table reveals that the EU has more private oversight over the banking sector than Turkey.

{Insert Table 1}

To measure the degree of official supervisory oversight of banks Barth et al. (2001a) and Barth et al. (2001b) use a variety of variables including official supervisory power, supervisory forbearance discretion, loan classification stringency, provisioning stringency and diversification index. In the table official supervisory power measures the extent to which official supervisory authorities have the authority to take specific actions to prevent and correct problems. It is decomposed into prompt corrective power, restructuring power, and declaring insolvency power. The prompt corrective power measures the extent to which the law establishes predetermined levels of bank solvency deterioration that forces automatic enforcement actions such as intervention, and the extent to which supervisors have the requisite, suitable powers to do so. The restructuring power measures the extent to which supervisory authorities have the power to restructure and reorganize troubled banks, and the declaring insolvency power measures the extent to which supervisory authorities have the power to declare a deeply troubled bank insolvent.

Whereas the supervisory forbearance discretion measures the degree to which supervisory authorities may engage in forbearance when confronted with violations of laws or regulations or with other imprudent behavior on the part of banks, the loan classification stringency measures the degree to which loans that are in arrears must be classified as sub-standard, doubtful, or loss. The provisioning stringency measures the degree to which a bank must provision as a loan is classified first as sub-standard, then as doubtful, and lastly as loss, and diversification index measures whether regulations support geographical asset diversification. On the other hand the official supervisory resource variables measure the supervisor tenure, outside examination frequency and independence of supervisory authority. The table reveals that the official supervisory authorities in the EU had more power, more discretion and greater independence than the corresponding authorities in Turkey during 1999.

Barth et al. (2001a, 2001b)) use as competition regulatory variables the ability of existing or new banks to enter the banking business, and as market structure variables bank concentration, foreign bank ownership, and fraction of entry applications denied. The competition regulatory variables measure on the one hand the degree of limitations placed on the ownership of domestic banks by foreign banks and on the ability of foreign banks to enter the domestic banking industry, and on the other hand the fulfillment of specific legal requirements for obtaining a license to operate as a bank. The table reveals that there have been greater restrictiveness to entry into the banking sector in Turkey than in the EU.

Finally, the deposit insurance scheme variables in Table 1 measure the characteristics of the deposit insurance scheme in the respective countries. The deposit insurer power measures the degree the deposit insurance authority has the authority to make the decision to intervene in a bank, to take legal action against bank directors or officials, or has ever taken any legal action against bank directors or officers. The deposit insurance funds-to-total bank assets ratio measures the possibility the insurance agency itself may become insolvent. Finally, the moral hazard index measures the extend of moral hazard faced by the system. The table reveals that the deposit insurer had more power in the EU

than Turkey, that the insurance agency was more solvent than in Turkey, and that Turkey faced more moral hazard problems than the EU.¹

Given the information on bank regulations and supervisory practices in Turkey and the EU, Barth et al. (2001a) come up with index values for among others Turkey and the EU countries, which indicate relative restrictiveness of the banking systems in the respective countries. But unfortunately these values have not been reported by the authors. We therefore turn to the study by McGuire and Schuele (2000), who also develop 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.

{Insert Table 2}

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 or the price of banking services. The effect of these restrictions in the banking sector on the net interest margin is shown in column 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 percent, and that the increase amounts to 31.541 percent in the case of Turkey. One could thus infer that the net interest margin in Turkey will decrease by 26.2207 percent when Turkey would adopt and implement the EU rules and regulations on banking services.

¹ This conclusion is based on the experience of Turkey with respect to moral hazard problems.

1.2.2 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 1990's 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 Ba_çı 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 transforming the Turkish telecommunications system into a modern one. 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 will have to adopt and implement the EU legislative measures centering 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 1990's 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 during the latter half of 1990's.

Table 3 provides an overview of the market and regulatory environment in selected European countries and Turkey as they have prevailed in 1998. The table reveals that entry conditions in trunk (domestic long distance), international and mobile services in the EU had been substantially relaxed, while Turkey maintained legal monopoly conditions in trunk and international services. While full entry liberalization in Britain occurred during the mid 1980's it was attained in Netherlands and Finland during the 1990's, and it will be attained in Turkey only by 2004. While the EU countries did not impose any restrictions on the FDI flows, restrictions were widespread in Turkey. Moreover, experience shows that in the transition from monopoly to competition the incumbent public telecommunications operator (PTO) often maintained a competitive advantage which could be exploited to preserve a dominant position. While by 1998 the shares of the largest operators were relatively low in the case of Britain, a first mover country, the respective shares were higher in the case of late movers such as Netherlands. A similar pattern is observed in the case of public ownership. While the sector was transferred completely to the private sector by 1998 in Britain, government ownership in the sector amounted to 78.8 percent in the case of Finland, 43.8 percent in the case of Netherlands and 100 percent in the case of Turkey. Furthermore, the table shows that price regulation is still widespread in the EU countries. While Finland does

not regulate the retail prices, Netherlands and Britain use objective benchmarking in the case of voice telephony. On the other hand, Finland regulates interconnection charges by cost-based mechanisms. While Netherlands regulates interconnection charges in the case of trunk services, it does not regulate the international calls, and Britain uses objective benchmarking in the case of basic voice services and cost-based mechanisms in the case of mobile services. Finally, we note that in the EU countries the regulators are independent from the legislative and executive bodies, acquiring a semi-judiciary role. Another interesting feature is that basic competencies are shared among a ministry department, the sectoral regulator and the competition authority. While the first two are in general jointly responsible for entry, prices, dispute resolution and consumer policy, the competition authority has exclusive competencies for merger activity. On the other hand, Turkey by 1998 did not have an independent telecommunications regulator and all authority was vested in the ministry department.

{Insert Table 3}

Boylaud and Nicoletti (2000), using data similar to those reported in Table 3 for the 23 OECD economies, assess the effect of individual regulations and selected non-regulatory variables on measures of performance, for which they consider price, labor productivity and service quality. The authors note that the telecommunications sector is a heterogenous 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). They aggregate these services into five sectors: local, trunk (domestic long distance), international, mobile (cellular) telephony, and all other services including leased-line, pay-TV, internet and data services. In their study they focus only on trunk, international, mobile and leased-line services and abstract from consideration in particular of local fixed voice telephony services, as the latter they emphasize is largely monopolistic in a vast majority of OECD countries. Using econometric techniques they then estimate the effect of different regulations and selected non-regulatory variables on telecommunications prices.² They obtain an average 'price' for each sector by dividing the total revenue collected in that sector by some measure of output by the sector (e.g. international call minutes). But for the trunk and leasing sectors revenue estimates were not publicly available. Instead they used tariff baskets published by the OECD to measure prices in those sectors, where the tariff baskets represent a weighted average of listed prices faced by consumers in each economy for different products and services in each sector used at different times of the day and week.

In their econometric models, Boylaud and Nicoletti (2000) include five variables characterising the 'regulatory' environments that existed in the telecommunications industry in OECD economies: the market share of new entrants, an index of government control of the PTO, the degree of internationalisation of domestic markets, the time to

² Boylaud and Nicoletti (2000) note that telecommunications prices are often two-part, consisting of a fixed charge that does not vary with use and a variable component that does. The variable component will often vary with, among other things, the type of service used, the length of use, the distance, and the time of day and week. Given these considerations, the authors note that some form of average price across the range of services provided in each sector is needed in order to undertake empirical work.

liberalisation, and the time to privatisation. They include the 'market share of new entrants' variable as an indicator of market structure and the extent of actual competition, and as a crude proxy for the ease of entry, which is an outcome of liberalisation in telecommunication services. The 'index of government control' variable indicates the extent of public ownership of the PTO. The authors use the 'degree of internationalisation of domestic markets' variable — the number of foreign telecommunications operators participating in joint ventures or other cooperation agreements with domestic operators in the domestic market — to approximate the entry restrictions faced by foreign firms and the extent of foreign investment. Noting that the announcement of new entry, or a change in the ownership structure of the PTO, may influence the level and mix of inputs, outputs and prices well in advance of the actual changes coming into effect, the authors included a 'time to liberalization' variable and a 'time to privatization' variable, which respectively measured the number of years to liberalisation and privatisation. In addition to regulatory variables the authors include three non-regulatory environmental variables in their models — a measure of capital intensity, a measure of input costs and a price rebalancing indicator. The 'technology' variable used by the authors — total fixed telecommunications investment per mainline — is a proxy for capital intensity in the industry. Similarly, the 'economic structure' variable — total operating expenditure per mainline — was included as a measure of input costs on the grounds that prices will generally reflect the cost of inputs, such as labour, maintenance and other (non-capital) operating costs in the industry. Finally, the 'price rebalancing indicator', measured by the distance of price structure from that in the UK in 1998, was included to account for deviations between underlying costs and prices for individual telecommunications services.

Boylaud and Nicoletti (2000) using data for 23 OECD economies over the period 1991-97 empirically investigate the linkages between regulatory regimes, market environments and performance in domestic long distance, international long distance, mobile telecommunications and leased-line services. They conclude that liberalization of entry and the development of effective competition in telecommunications services lead to lower prices, higher productivity and better quality.

An alternative, but in principle a similar approach was adopted 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.³ 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

³ The index of restrictions on establishment is derived from scores to the questions: (i) Does competition operate in the market?, (ii) Does policy allow for competition in the market?, (iii) Is the incumbent privatised?

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 4.

{Insert Table 4}

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 percent higher than the prices in Finland and United Kingdom.

1.2.3 Transportation

In the transportation sector one can broadly distinguish between three different modes of transport—land transport (including rail and road transport), maritime transport, and air transport. In Turkey road transport holds the significant portion of transport services. It is estimated that road carries 90 percent of domestic freight volumes and 40 percent of international freight values. The sector is competitive domestically. There are many competing firms and access to the roads is relatively simple. But conditions in the international segment of the market are very different from the domestic freight segment. Operations between the countries are regulated by a web of bilateral and multilateral agreements between countries that restrict quantity and capacity by limiting the number of permits available for a truck to make a journey between the jurisdictions. Bilateral agreements generally prohibit cabotage,⁴ Thus, the domestic Turkish market is reserved for Turkish firms. On the other hand, road freight market within the EU for EU national firms is highly liberalized, including cabotage freight. Effectively, it is a single market with the only entrance requirement being a national license from an EU country which permits unrestricted international and domestic carriage within the EU irrespective of the country of origin of the carrier within the EU. Ultimate access to the EU would largely solve the access problems of the Turkish industry, but will also lead to increased competition from abroad.

In the case of rail transport we note that Turkish Railways (TCDD) is a national monopoly with exclusive rights in the transport of passengers and freight by rail in Turkey. On the other hand the EU Acquis in the rail transport sector has been designed to improve the competitiveness of rail transport sector and to liberalise rail transport markets. The harmonisation of the current rules in the rail transport sector with the EU Acquis requires that access rights be extended, and that different organizational entities be set up for rail operations and infrastructure management in the rail transport sector. Functions such as rail capacity allocation, infrastructure charging and licensing will have to be separated from rail operators. In addition, the financial relations between different parties and activities must be clearly defined by separation of accounts to enable the cost of operations to be accurately established and to avoid cross-subsidization.

Maritime transport is also one of the areas where compliance with the EU acquis requires that major changes be introduced in the sector. The EU acquis covers freedom to supply

⁴ Cabotage refers to the carriage of freight with a country or between two countries by a carrier that is from neither country

services, requirements on competition, pricing practices, and conditions on vessels carrying dangerous or polluting goods. As in the case of road transportation, access to the Turkish maritime transportation market is restricted. With accession access problems will be solved and the sector will be faced with increased competition from abroad. Finally, in the case of air transport sector we note that Turkey has taken major steps in the direction of liberalization of air transport services. Major reforms were introduced during the 1980's. In the sector Turkey will need to harmonize its regulations to that of the EU on civil aviation licences, civil aviation rules and procedures, air carrier liability in the event of accidents, allocation of slots, ground handling at airports, aviation safety and traffic management. But overall, it is stated that the existing structure will satisfy the requirements of the acquis on air transport services with relatively little alignment.

Concentrating on the study of the effects of liberalization in road and maritime transportation sectors within the context of EU integration we note from Francois (2003) that the import tariff equivalent for cross border transport service imports into Turkey is roughly 8.9 percent.

1.2.4 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 percent 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 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 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 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 during the latter half of 1990's.

Table 5 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 liberalised access to transmission and distribution networks, and that access liberalisation 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.

{Insert Table 5}

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 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 decentralised electricity supply industry and a tradition of regulation and control at a more localised level. Under the rate-of-return regulation the government sets electricity 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 realise negative returns in the short run if they were operating inefficiently. Table 5 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 5 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 liberalisation, countries also vary in the degree of private ownership that has developed over time, as well as the decision regarding privatisation at the time of liberalisation. The table shows the current status of ownership in the generation segment of the electricity sector, and provides details about privatisation in

electricity generation at the firm level for countries in the panel. We note that the decision to privatise is not necessarily correlated with the degree of liberalisation. While Germany has mixed ownership in the industry, Britain has made privatisation 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 6, which shows that as a result of restrictions Turkish electricity prices are 20.7 percent higher than the prices in Finland and United Kingdom, which follow liberal policies in the electricity sector.

{Insert Table 6}

1.2.5 Natural Gas

The natural gas sector in Turkey is dominated by the government owned entities. The Turkish Pipeline Corporation (BOTAS) owns pipeline infrastructure for oil and gas transmission, LNG terminals, and gas distribution. BOTAS has monopoly rights for gas import/export and wholesale trading. In 2000, domestic consumption was 14.6 billion m³, with imports accounting for 96 percent of consumption. Demand growth has been around 17 percent per annum between 1990 and 1999. Distribution of natural gas is carried out by local companies that were owned either by the municipalities or by BOTAS. Pricing is determined by BOTAS, with indirect influence by the Government. Recently the government in Turkey has passed, as emphasized by Mazanti and Biancardi (2003), a new Gas Law (May 2, 2001). With this law the government plans to establish competitive market as in the EU and encourage private sector participation through a phased policy. As in the case of electricity we have the Energy Market Regulatory Authority as the regulator in the gas industry. This authority determines the transmission and distribution access rules and tariffs and the methodology for the regulation of retail prices.

Although competition in the electricity sector can be achieved as long as competition upstream is sufficiently developed and network access is open, the situation is quite different in the natural gas industry. Here firms are burdened with long term investments in the upstream phase (gas contracts and infrastructures). They buy the gas from producers under long term contracts with "take-or-pay clauses" (t.o.p.). According to these obligations, the gas purchaser is committed to pay 70-90 percent of the contracted capacity no matter if it receives the natural gas or not. Thus, they have to sink huge investments in extraction fields and international pipelines. They face huge fixed costs and almost zero marginal costs. In those cases the extractor needs to be covered from the market risk. It is often claimed that vertical integration is needed to cover their t.o.p obligations. Table 7 describes the main features of the natural gas industry in EU countries with respect to three main areas of interest: the access to the network, the unbundling of monopolized activities from the competitive ones, and the opening of the demand side.

{Insert Table 7}

Regarding the implementation of the TPA principle, there are according to Polo and Scarpa (2003) three main issues to be set: the determination of the technical and commercial conditions for access (access price setting), the solution of the disputes of access and the kind of regulatory regime. According to the authors a key aspect of TPA refers to the institution that deals with the disputes and acts as an arbitrator. The table shows that in most of the EU countries the antitrust authority intervenes in the disputes. While in Ireland, Luxembourg and Spain the Ministry of Industry is in charge for dispute resolution, the authority is unspecified in the cases of France and Portugal.⁵ Finally, the national liberalization plans differ also in the kind of regulation that is adopted on TPA: the majority of the countries have chosen an ex-ante regulation, where the regulator sets the price and technical conditions in advance, rather than an ex-post regime, in which the regulator intervenes ex-post on the tariffs communicated by the firms.⁶ The table shows that the treatment of demand opening, the third element to create a level playing field, has been rather different across countries. Germany and the UK had already completed their process by 2000, while in most other countries the complete opening will be reached by 2007 at the latest. However, in some important countries, including Denmark, France, Greece and Portugal a final date for the process has not been set. Finally, we note that in Turkey the process of liberalization has started only in 2001 with the new Gas Law.

To summarize an overall judgement on the effectiveness of the liberalization plans by the EU countries Polo and Scarpa (2003) use a scoring procedure, with higher scores corresponding to a more advanced solution. The authors find that the more advanced solutions have been adopted in the UK, Finland and Sweden, that obtain the top scores in all the three key issues of liberalization.

⁵ Polo and Scarpa (2003) consider it more appropriate, in the delicate role of arbitrator, an independent regulatory authority devoted to the liberalization of the industry rather than a Ministry, which is typically responsible of a broader range of political objectives.

⁶ Although in both cases the regulator has the final word on the access conditions, Polo and Scarpa (2003) argue that the ex-ante regime, requiring the regulator to act as a first mover, forces him to reach a better and independent knowledge of the cost data. Hence, they consider the ex-ante regime more effective.

1.3 Welfare Effects

To study the welfare effects of Turkish accession to the EU we consider the 1996 Input-Output Table of the Turkish economy which has 97 sectors. 'Banking' is sector 84, 'telecommunications' sector 83, 'transport via railways' sector 78, 'land transport' sector 79, 'water transport' sector 80, 'air transport' sector 81, 'electricity production, transmission and distribution' sector 69, and 'natural gas' sector 70.

Consider the case of Turkey adopting and implementing the EU rules and regulations in the banking sector. Let A be the 97x97 matrix of input coefficients. Given A, form the 96x96 input matrix B by deleting the 84th column and 84th row referring to the banking sector. Denote the 84th row where the 84th column element has been deleted by e. Let p be the 1x96 price vector of the 96 commodities excluding banking sector and va the corresponding 1x96 unit gross value added vector. The price equation can be written as

$$p = p B + p_b e + va.$$

where p_b denotes the price of the banking services. Hence we have

$$p = p_b e (I-B)^{-1} + va (I-B)^{-1}$$

Thus, given the price of banking services that will prevail in Turkey after it adopts and implements the EU rules and regulations, p_b , we determine the equilibrium prices of the other 96 commodities from the above equation assuming that there is no change in the unit gross value added vector va. Given the equilibrium price vector p form the 1x97 price vector as $\pi = (p \ p_b)$. Let CON be the 96x1 consumption expenditure vector obtained from the 1996 input-output table by deleting the value of consumption of banking sector and con_b the value of consumption of banking services. Form the 97x1 consumption vector as

$$CONS = \begin{bmatrix} CON \\ con_b \end{bmatrix}.$$

Noting that initially all base year prices equal unity we can express the value of total consumption expenditure evaluated at base prices as

$$C = u CONS$$

where u denotes the 1x97 unit vector. The value of total consumption expenditure evaluated at the prices that will prevail after Turkey adopts and implements the EU rules and regulations in the banking sector is then given by

$$C^* = \pi CONS$$

The effect on consumer welfare can now be calculated as

$$(C - C^*) \times 100 / C^*.$$

⁷ Note that this approach determines the equivalent variation in consumer' income.

Note that by construction prices in 1996, the year the input-output table has been constructed for, are all unity. We assume that with the adoption of the EU rules and regulations in the banking sector, prices in the sector will decrease by 26.2207 percent. Hence, with the new price of banking services we observe that the welfare of the society will increase by 1.36 percent.

Noting that with the adoption of EU rules and regulations in the telecommunications, transportation and electricity sectors prices will decline by 33.5328 percent in the telecommunications, 8.9 percent in transport sectors and 20.7 percent in the electricity sectors, considerations similar to those in the banking sector reveal that with the liberalization in telecommunications, transportation and electricity sectors welfare of the society will increase by 0.587 percent, 1.007 percent and 0.527 percent respectively.

Table 8 shows the natural gas prices in EU countries and Turkey. The table reveals that natural gas prices in Turkey are considerably higher than those in the EU countries, which have adopted according to our previous considerations more advanced regulatory solutions in the sector. Taking a weighted average of natural gas prices for industry in Finland and UK, we note that Turkish natural gas prices are 64.71 percent higher than the average price for Finland and UK. Calculation then reveals that with the liberalization in natural gas sector the welfare of the society will increase by 0.082 percent.

{Insert Table 8}

The above considerations reveal that the country will benefit from liberalization in banking, telecommunications, transportation, electricity and natural gas sectors and that the liberalization within the context of EU integration in those sectors will lead to 3.563 percent increase in real household incomes.

Since the estimates of the price wedges due to service barriers are the key parameters determining the welfare effects of services liberalization and liberalization in the above calculations we compare our estimates of tariff equivalents with estimates from other sources. Figures 1 and 2 show respectively the telecommunications prices for business and residential customers in selected countries. Table 9 on the other hand shows the OECD basket of international telephone charges during November 2001. The figures and the table reveal that the price wedge implicit in these figures are much larger than the figure of 33.5 percent we have used in our calculations.⁸ Thus our estimates of price wedge in the telecommunications sector is rather conservative and our estimate of the effects of liberalization in telecommunications services gives the lower bound of the welfare gains derived in the sector.

{Insert Table 9}

On the other hand, consideration of the nominal prices for electricity over the period 1990-2000 in Turkey reveals that the electricity prices for industrial customers have fluctuated between US cents 7.5-9.5 per kWh, prices for residential customers between US cents 4.5-10 per kWh, and that prices for industrial consumers are almost exactly as high as for residential consumers. Since the cost of supplying residential consumers is much higher than that of supplying industry, there seems to be cross subsidization in

⁸ The implicit price wedge is derived from the relation $p = p^* (1 + t)$ where p refers to the Turkish price, p^* the best practice price in the EU, and t is the price wedge parameter.

favor of residential consumers. According to TEAS, the state owned generation-and-transmission company, the sales prices per kWh at the end of 1999 for industrial customers was US cents 6.87 for high voltage customers, US cents 7.15 for intermediate and low voltage customers, and in the range of US cents 4 per kWh for distributors. However, the cost of producing electricity, as emphasized by OECD (2002), is much larger than suggested by these data. The cost of purchasing additional electricity from built-operate-transfer (BOT), built-operate-own (BOO) and transfer of operating rights contracts (TOOR) generators reaches US cents 11-12 per kWh. As indicated by Atiyas and Dutz in Chapter XX of this volume the average cost of producing electricity will further increase over time as new BOT, BOO and TOOR plants will start producing electricity. Table 8 showing the electricity prices in EU countries and Turkey reveals that the electricity prices in Turkey are considerably higher than those in the cheapest EU countries. Hence, the price wedge implicit in these figures is much larger than the figure of 20.7 percent we have used in our calculations, and our estimate of the price wedge in the electricity sector is thus rather conservative.

Table 10 shows the tariff equivalents of trade barriers in traded services and network industries estimated by different authors for Turkey. Here we should note that research into the measurement of services trade barriers is fairly recent and that there are very few studies covering Turkey. One such study has been conducted by Hoekman (1995) who uses information contained in the country schedules of the General Agreement on Trade in Services (GATS). Hoekman's estimates for Turkey are given in the second column of Table 10.⁹ According to the figures tariff equivalent in the banking sector is 9.2 percent, in the basic telecommunications sector 92.9 percent and in the value added telecommunications sector 42.9 percent. But these estimates have, as emphasized by Stern (2002), certain drawbacks. First, the method assumes that the absence of positive country commitments in the GATS schedules can be interpreted as indicating the presence of restrictions. Second, the different types of restrictions are given equal weight and are not distinguished according to their economic impact. Finally, the method assumes that market access restrictions are the only type of barriers to trade in services.

{Insert Table 10}

⁹ Hoekman (1995) constructs frequency ratios on the basis of commitments scheduled in the GATS. He considers the four modes of supply of the GATS: (i) cross-border supply where a service is supplied from a supplier's country of residence to a consumer's country of residence, (ii) consumption abroad where a service is supplied through the movement of a consumer to a supplier's country of residence, (iii) commercial presence where a service is supplied through the movement of a commercial organization to a consumer's country of residence, and (iv) presence of natural person where a service is supplied through the movement of a natural person to a consumer's country of residence. He classifies the GATS commitments into three categories, and assigns a numerical score to each category: (i) if no restrictions are applied for a given mode of supply in a given sector, a value of 1 is assigned, (ii) if no policies are bound for a given mode of supply in a given sector, a value of 0 is assigned, and (iii) if restrictions are listed for a given mode of supply in a given sector, a value of 0.5 is assigned. Since there are 155 non-overlapping service sectors in the GATS classification list, and for each sector there are four possible modes of supply, a total of 620 such openness/binding factors exist for each member country. Using these factors, Hoekman calculates frequency ratios to approximate the relative degree of restrictiveness of market access barriers to services trade across countries. He then establishes a judgemental set of benchmark tariff equivalents for individual sectors to reflect the degree to which market access to these sectors are restricted. He assigns a value to each country and sector using the benchmarks multiplied by the calculated frequency ratio. Thus, if the most restrictive country worldwide had restrictions equivalent to a 50 percent tariff, then a country with a 0.9 frequency ratio, would have a tariff equivalent of 45 percent (i.e. 0.9 times 50).

On the other hand, Francois (1999) fits a gravity model to bilateral trade in services between the United States and its major trading partners, taking Hong-Kong and Singapore as free trade benchmarks. The independent variables are per-capita income, gross domestic product, and a Western hemisphere dummy variable. He interprets the differences between actual and predicted imports as indicative of the size of barriers to trade. These are then normalized relative to the free trade benchmarks. These quantity measures have also been converted into tariff equivalents by assuming a specific value of demand elasticity. Francois (1999) estimate for Turkey reported in Hoekman (2000) is given in the third column of Table 10, which equals 46.3 percent in the financial services. Finally, comparison of the tariff equivalents for Tunisian financial services and telecommunications sectors used by Konan and Maskus (2002) with our estimates of tariff equivalents reveal that the estimates used in the present study are rather reasonable.

2. Economic Challenges

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

2.1 Membership in the European Economic and Monetary Union

Participation in the European Economic and Monetary Union (EMU) is a must for Turkey. In signing up to the accession treaty all of the Central and Eastern European (CEE) countries have accepted the goal of monetary union as part of the *acquis communautaire*. In order to become members of EMU, the CEE countries and Turkey have to fulfil the convergence criteria, which involve conditions on price stability, interest-rate convergence, budget deficit, government debt, and exchange-rate stability.¹⁰

The prospect of eventual membership in the EMU raises some important policy questions: when exactly should Turkey join EMU, and what economic policies should it adopt in the intervening period?¹¹ Table 11 shows the EMU convergence criteria for

¹⁰ Price stability requires that over a period of one year before the examination a country's inflation rate may 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 must 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 must not exceed 3 percent. The government debt criteria requires that the ratio of general government debt to GDP must not exceed 60 percent. Finally, the exchange-rate stability criteria requires that the country must observe the normal fluctuation margins of the ERM II (15 percent on either side of the central rate against the euro) for at least two years without devaluing). Here we should note that Exchange Rate Mechanism (ERM) II, which has been in place since 1999, is the successor to the exchange rate mechanism of the European Monetary System (EMS). Its objective is to help non-euro-area EU members in their efforts to adopt the euro, through a system of fixed, but still adjustable, exchange rates. The prerequisite for EMU accession is participation in ERM II for two years without devaluing. In ERM II, the euro is the anchor currency. The standard fluctuation band for the exchange rates of the partner countries is ± 15 percent around the central rate. Narrower bands are possible. The central rates and bandwidths are agreed by the respective finance ministers and central banks where the EU side is represented by the Economic and Financial Affairs (ECOFIN) Council and the European Central Bank (ECB). If an exchange rate reaches the upper or lower intervention point, there is in principle automatic unlimited intervention. If economic imbalances materialise, the central rate is to be changed without delay; the ECB has the right of initiative.

¹¹ We should note that EMU members surrender their sovereignty in monetary and exchange rate policy to a supranational authority, the ECB. They retain national control over major elements of economic and fiscal policy, e.g. the level and structure of taxes and state spending. But each member has to observe the 3

Turkey and the Central and Eastern European (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.¹²

{Insert Table 11}

Turkey realizes that soon after accession it will be expected to join the Exchange Rate Mechanism (ERM-II) for at least two years and to achieve the Maastricht conditions for monetary and fiscal convergence before its EMU membership is examined.¹³ Once admitted Turkey would then replace its domestic currency with the euro at an irrevocably fixed exchange rate, confer the bulk of its reserves to European Central Bank, and be bound by the so called "growth and stability pact". For Turkey the problem is not how to stay out of EMU but on the contrary how to reap the net benefits expected of monetary integration by fulfilling the Maastricht criteria as soon as possible.

percent-of-GDP ceiling for its budget deficit. Even though the surveillance and sanctions procedure is to be altered, the EU is sticking to the stability and growth pact. This means that members which exceed the 3 percent limit court the risk of political embarrassment, economic policy stipulations and ultimately of being fined. Demands to water down the convergence criteria, for instance, or shorten the examination period will most probably be rejected. The CEE countries that are going to accede to the EU on May 1, 2004 will have to coordinate their economic and fiscal policies with the community in the ECOFIN Council. They have to submit annual convergence programs. Restrictions on capital movements will no longer be permitted. The EU expects the acceding countries to join the ERM II, i.e. to agree an exchange-rate arrangement between the euro and their currency. This phase will last at least two years. Test period for the exchange-rate criterion will probably be from May 1, 2004 to April 30, 2006. Here it is crucial to avoid a devaluation within the two-year test period, as that would fail the country on the exchange-rate criterion. During the second half of 2006 convergence test will probably be conducted by the ECB and the European Commission and decision on acceptance into EMU by ECOFIN on the basis of a proposal of the European Commission and after consultation with the European Parliament and after a discussion in the European Council in the composition of the heads of states and governments. The examination of the budget and of government debt would probably be based on the data for 2005, or otherwise the latest available figures. In January 1, 2007 euro will probably be adopted as national currency. The central bank governor of each new EMU country becomes a member of the Governing Council, the main decision-making body, of the ECB.

¹² A closer look at the present performance in respect of the convergence indicators in Table 11 shows that the criteria still present considerable difficulty for a number of the CEE countries. This goes particularly for inflation and their budget deficits. Poland, Hungary and the Czech Republic are troubled with high budget deficits, which rose considerably further in 2002. The Czech deficit would have been much higher still in 2002 without the abundant proceeds from privatisations. The budget balance gave no grounds for concern in the smaller states, with the exception of Lithuania, in 2002. On inflation, no less than four of the eight prospective members from Central and Eastern Europe exceeded the reference value of 3.0 percent, the highest rates being registered in Slovenia (7.5 percent) and Hungary (5.3 percent). General government debt was well below the reference level of 60 percent in all the acceding countries. Hungary is closest to this threshold, but with a ratio of 50 percent. It is still difficult to assess the countries' performance in the convergence of long-term interest rates, especially since the capital markets of the CEE-countries are not very highly developed. It remains to be seen whether long-term (ten-year) government bonds will even exist in all countries at the time of the convergence test. If not, a comparable market rate must be used. At this stage the countries cannot really be assessed on the remaining criterion, the stability of the exchange rate, as they cannot yet be members of the ERM II. In the Table 11 we have taken each currency's average rate against the euro in the last three years as the "central rate" and measured the fluctuations against this. The fluctuations are naturally still large – except in the countries with a currency board anchored on the euro. All in all, it seems rather improbable that the CEE-countries will eventually join EMU all at the same time in another "big bang", similar to the EU enlargement.

¹³ For Turkey the only alternative to participation in the EMU would be to remain outside the exchange rate mechanism for some period of time as Sweden has done. But Sweden, unlike the United Kingdom and Denmark, did not negotiate an "opt out clause" in the Maastricht Treaty allowing it to stay out of EMU. It will have to join the exchange rate mechanism eventually whenever it fulfils the criteria. The same conditions will certainly apply for Turkey. In such a case Turkey will be treated as a "country with a derogation" until it fulfils the convergence criteria and joins EMU.

It is generally agreed that, in the long run, price stability and fiscal discipline create the best conditions for sustained, robust economic growth. But the situation is problematic, especially if a country is registering a high budget deficit and/or severe inflation as Turkey. The country is in the midst of a determined campaign to turn around decades of weak performance reflected by pervasive structural rigidities, and weak public finances. The past few years have witnessed three major attempts at addressing underlying weaknesses. The first was during 2000 under the three-year Standby Agreement initiated in December 1999. Despite some notable achievements, a worsening current account and a fragile banking system led in late 2000 to a liquidity crisis which turned into full-blown crisis in February 2001. The government decided to abandon the crawling peg regime and floated the currency. In May 2001 IMF increased its assistance under a new stand-by arrangement. Just as the revised program was beginning to show results, the events of September 11 triggered the re-emergence of serious financing problems. In February 2002 IMF approved a new three year stand-by credit for Turkey to support the government's economic program. With the implementation of the stabilization program Turkey envisages a gradual but steady improvement in its economic conditions.

The currency crisis of 2001 has been very severe. The loss of income and wealth and the associated social and political stresses created in the country are unprecedented. GNP during 2001 has contracted by 9.4 percent and the loss in employment is put at more than 1.4 million. The economy recovered strongly in 2002. While GNP has increased by 7.8 percent, the CPI-inflation on an end-year basis declined to 29.7 percent. The economic program for 2003 aims to sustain the recovery with a projected growth of 5 percent and decline of inflation to 20 percent by the end of the year.

As Turkey emerges from yet another period of recession, it is important to learn from the policy mistakes made in the past. Those mistakes refer in particular to problems related with fiscal sustainability and current account sustainability. Consider the government budget constraint

$$G_t - T_t + i_t B_{t-1} + i^* E_t B_{t-1}^* + FSB_t = (B_t - B_{t-1}) + E_t (B_t^* - B_{t-1}^*) + M_t - M_{t-1} + PRIV_t$$

where G refers to government expenditures excluding the interest payments, T government revenues, B TL-denominated debt stock of the public sector, B* FX-denominated debt stock of the public sector, i the nominal interest rate on TL-denominated government debt, i* interest rate on FX-denominated government debt, E the exchange rate, FSB public expenditure for financial sector bailout, PRIV privatization revenues, and M monetary base. Let $Y_t = p_t y_t$ be the nominal GNP, p the GNP deflator, and y real GNP. Denoting the primary surplus to GNP ratio by $ps_t = (T_t - G_{tt})/Y_t$, TL-debt to GNP ratio by $b_t = (B_t/Y_t)$, FX-denominated debt to GNP ratio by $b_t^* = (E_t B_t^*)/Y_t$, privatization revenues to GNP ratio by $priv_t = (PRIV_t/Y_t)$, financial sector bailout to GNP ratio by $fsb_t = (FSB_t/Y_t)$ and making use of the relations

$$\begin{aligned} p_t &= p_{t-1} (1 + \pi) \\ y_t &= y_{t-1} (1 + g) \\ E_t &= E_{t-1} (1 + \epsilon) \\ (1+r) &= \frac{(1+i)}{(1+\pi)} \end{aligned}$$

$$\begin{aligned} (1+r^*) &= \frac{(1+i^*)}{(1+\pi^*)} \\ q_t &= \frac{E_t p_t^*}{p_t} \\ q_t &= q_{t-1} (1 + \eta) \\ M V &= p y \end{aligned}$$

where π denotes the domestic rate of inflation, π^* the foreign rate of inflation, g the growth rate of real GNP, r the real rate of interest, r^* the foreign real interest rate, q the real exchange rate, η rate of depreciation of the real exchange rate and V the velocity of money we obtain for the the equation determining the time path of total debt to GNP ratio $d_t = b_t + b_t^*$

$$d_t = -ps_t + \frac{(1+r)}{(1+g)} b_{t-1} + \frac{(1+r^*)(1+\eta)}{(1+g)} b_{t-1}^* - \frac{1}{V} \left[\frac{g + \pi + \pi g}{(1+\pi)(1+g)} \right] - priv_t + fsb_t$$

The equation shows that debt to GNP ratio decreases with increases in ps, g, priv and seigniorage revenues to GNP ratio defined as $\frac{1}{V} \left[\frac{g + \pi + \pi g}{(1+\pi)(1+g)} \right]$, and that it increases

with increases in r, r^* , η and fsb. Consideration of the data in Table 12 reveal that between the end of 1995 and end of 2001 Turkey's debt stock more than doubled in terms of the debt to GDP ratio and has reached 95 percent at the end of 2001. In 2002 the debt stock shrank somewhat, but it remained at almost twice its level in 1995. By 2002 external and foreign exchange (FX) indexed debt reached 47.4 percent of total debt.

{Insert Table 12}

The evolution of public debt is best explained by decomposing the annual change in debt into various components implied by the above model.¹⁴ Concentrating on developments

¹⁴ The model developed above implies that the change in debt to GNP ratio ($d_t - d_{t-1}$) equals

- primary surplus to GNP ratio defined as $-ps_t$
- + interest payments defined as $\left[\frac{i b_{t-1} + i^* b_{t-1}^*}{(1+\pi)(1+g)} \right]$
- growth effect defined as $-\left[\frac{(g + \pi g) b_{t-1} + (g + \pi g) b_{t-1}^*}{(1+\pi)(1+g)} \right]$
- inflation effect defined as $\left[\frac{b_{t-1} \pi + b_{t-1}^* \pi}{(1+\pi)(1+g)} \right]$
- + devaluation effect defined as $\left[\frac{(1+i^*)(1+\pi^*) b_{t-1}^* \epsilon}{(1+\pi^*)(1+\pi)(1+g)} \right]$
- seigniorage defined as $-\frac{1}{V} \left[\frac{g + \pi + \pi g}{(1+\pi)(1+g)} \right]$
- privatization defined as $-priv_t$

during the last two years we note that the debt to GNP ratio in 2001 rose by 37.6 percent. Although the country ran a primary surplus of 5.5 with the introduction of IMF stabilization program, mainly three factors contributed to the increase in debt to GNP ratio. These are the high interest rates prevailing in the country, depreciation of the real exchange rate leading to increases in the ratio of FX-denominated debt to GNP, and recapitalization of failing banks. Regarding the latter effect we note that the financial crisis lead the government to issue new bonds in order to recapitalize the failing banks, and that this effect contributed about 20 percent increase to the change in debt. In 2002 debt picture improved but this time it was due mainly to real appreciation of the real exchange rate.

Although there is no one standard definition of sustainability, all definitions are built, as indicated by the World Bank (2003), upon the notion that the public sector must satisfy its lifetime budget constraint. A special case of this requirement refers to a situation where debt to GNP ratio stays constant over time. Concentrating on total debt to GNP ratio and abstracting from consideration of privatization and financial sector bailouts, Table 13 shows the required primary surplus as percent of GNP for alternative values of real GNP growth and real interest rates. Noting that the average effective real cost of public debt service was about 11.5 percent over the period 1995-2002, the table reveals the view that very conservative fiscal position is required to maintain fiscal sustainability in Turkey. With a 5 percent real growth rate and a 13 percent real interest rate, a primary surplus of 5.7 percent of GNP would be required to keep the stock of debt to GNP ratio stable at its 2002 level. Thus, if Turkey wants to decrease the debt/GNP ratio from 79.8 percent to 60 percent over time, then with 13 percent real interest rate and 5 percent real GNP growth the country has to run higher primary surplus to GNP ratios than the 5.7 percent obtained from the table.

{Insert Table 13}

The above considerations reveal that the appreciation of the real exchange rate during 2002 and also during 2003 did help to reduce the debt to GNP ratio considerably over the period. But this policy of real exchange rate appreciation is not sustainable as revealed by the experience of Turkey during the period following the latter half of 1980's. We note that during the first half of 1980's real exchange rate had depreciated considerably. This was the period when Turkey relied on export growth. During this period real GNP increased at the annual rate of 4.8 percent. But after 1989 real exchange rate started to appreciate. Turkey started to borrow from abroad. Less emphasis was placed on export growth. Turkey relied more and more on foreign capital inflows. The appreciation of the real exchange rate lasted until the balance of payments crisis of 1994 when real exchange rate depreciated considerably and real GNP decreased by 6.1 percent. After 1994 real exchange rate started to appreciate again. The appreciation lasted until the February crisis of 2001 when real exchange rate depreciated again and real GNP decreased by 8.5 percent. But after the latter half of 2001 real exchange rate started to appreciate and the real exchange rate appreciation is still in tact as of September 2003.

To discuss the problems related with real exchange rate depreciation consider the balance of payments relation which can be written as

$$TB_t^S - i^*D_{t-1} + FDI_t + D_t - D_{t-1} - \Delta R_t = 0$$

where TB^S denotes non-interest current account, D stock of foreign debt, i^* the foreign rate of interest, FDI net foreign direct investment, R foreign exchange reserves of the country, $(TB_t^S - i^*D_{t-1}) = Current\ Account_t$ and $(FDI_t + D_t - D_{t-1}) = Capital\ Account_t$.

All variables are measured in terms of foreign currency. Letting $d_t = \frac{E_t D_t}{P_t Y_t}$ foreign debt

to GNP ratio, $f_t = \frac{E_t FDI_t}{P_t Y_t}$ foreign direct investment to GNP ratio, $tb_t = \frac{E_t TB_t^S}{P_t Y_t}$ non-

interest current account to GNP ratio, $fdi_t = \frac{FDI_t E_t}{P_t Y_t}$ foreign direct investment to GNP

ratio, and $\Delta r_t = \frac{\Delta R_t}{P_t Y_t}$ the change in reserves to GNP ratio, the the equation determining

the time path of d_t can be written as

$$d_t = -tb_t + \frac{(1+r^*)(1+\eta)}{(1+g)} d_{t-1} - fdi_t + \Delta r_t$$

The equation shows that external debt to GNP ratio decreases with increases in tb , fdi , and g , and it increases with increases in r^* , η and Δr . The condition for external sustainability as in the case of fiscal sustainability can now be defined by the requirement that the ratio of net stock of foreign liabilities to GNP stays constant over time, i.e. $d_t = d_{t-1} = d$. Assuming $\Delta r = 0$ we then derive from the above equation the relation

$$tb = - \left[\frac{(g - r^* - \eta - r^* \eta)}{(1+g)} \right] d - fdi$$

In steady state η will be equal to zero. To obtain the values of the parameters r^* and fdi we consider the average values for the period 1996-2002. The values are $r^* = 5.81$ percent and $fdi = 0.71$.¹⁵ Noting that the foreign debt to GNP ratio at the end of 2002 equalled 78.73 percent we show in Table 14 different values of sustainable values of non-interest current account as a percent of GNP for different values of the foreign real interest rate and growth rate of real GNP. The table reveals that the sustainable level of non-interest current account increases sharply with increases in foreign real interest rates, and decreases with increases in real GNP growth rate. In particular Table 14 shows that the level of non-interest current account as a percent of GNP consistent with constant levels of net foreign assets to GNP ratio has to be 4.7 percent when the foreign real interest rate equals 9 percent and the real GNP growth rate equals 2 percent, and that it equals 3.1 percent when the real GNP growth rate equals 4 percent. On the other hand consideration of average value of non-interest current account/GNP ratio over the period 1996-2002 excluding the the crisis year 2001 reveals that the ratio equals 1.4 percent. We note that Turkey, in order to attain external sustainability, has to increase its non-interest

¹⁵ Note that the interest rate on long term US Dollar eurobonds issued by Turkey has fluctuated lately between 10 and 15 percent. The relatively low value of $r^* = 5.81$ percent is due mainly to credits extended by international organizations at concessional rates of interest.

current account to GNP ratio above its average value as long as the foreign real rate of interest exceeds 6 percent when growth rate equals 3 percent. The critical value of the foreign real interest rate becomes 7 percent when the growth rate equals 4 percent. But the increase in non-interest current account to GNP ratio can only be achieved through depreciation of the real exchange rate.

{Insert Table 14}

The above considerations reveal that Turkey has to consider issues related not only with sustainability of fiscal policy but also issues related with sustainability of external deficits. Here the choice of the exchange rate policy during the period prior to the EU accession will turn out to be of prime importance for Turkey. The policy of real exchange rate appreciation is sustainable only under relatively low values of foreign real interest rates, and not sustainable under more realistic values of foreign real interest rates.

2.2 Labor Markets

Taymaz and Özler in Chapter XX of this volume show that the Turkish labor market is flexible. The reason behind the flexibility lies primarily in the fact that the labor 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 labor regulation and does not pay most of the taxes and related charges. Activities in this sector rely mostly on provision of labor services without formal employment contracts. Job insecurity is pervasive and workers get very few benefits from their employers. Labor 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 percent.¹⁶ 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 labor law and the stringency of the various clauses of the labor 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 existence of a large, flexible informal sector where wages are free to equilibrate demand and supply and through labor 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 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 lose half of their market shares due to the change, employment in manufacturing sector will decline by 8.9 percent. Thus about 300,000 jobs will be lost. But the effect of the policy change on

¹⁶ Taymaz and Özler report that the share of informal sector is 40 percent in manufacturing. The share is much higher in agriculture and services sectors.

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. Thus, the country in order to avoid an increase in unemployment has to introduce a comprehensive labor 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 labor law less stringent in Turkey.

2.3 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 percent of population living in municipalities was not connected to sewer treatment. For an additional 23 percent 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 percent of population living in municipalities. Furthermore 2 percent of the municipalities have waste water treatment facilities, and 14 percent 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 in Chapter XX of this volume 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 percent of GDP in the low cost case and 1.5 to 2.5 percent 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 percent of GDP. Thus with accession this would have to double, or more likely increase by a factor of three or 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.

2.4 State Aid

During the 1980s Turkey has used intensively three different tools of industrial policy: investment incentives, export incentives and policy regarding state owned enterprises. In each case the government tried to obtain a preferred allocation of resources through the use of subsidies. The investment incentives, regulated by laws and decrees, have been directed to reducing the cost of investment, reducing the need for external financing, and increasing profitability. On the export side the governments using various types of export incentives during the 1980's have been able to increase the profitability in export activities. Finally, regarding the policy on state owned enterprises in Turkey, we note that the Turkish public enterprise sector has been and still is very large. The state-owned enterprises have shown in general poor economic performance due to the soft-budget constraints they faced. These enterprises are not submitted to commercial code and as such they escape bankruptcy laws, and they receive subsidies from the government in the form of direct transfers, equity injections and debt consolidation.

Recently Turkey has eliminated most of the investment and export incentives. Within this context, GATT legal subsidies such as research and development subsidies and subsidies to facilitate the adaptation of plants to new environmental regulations have been introduced. Export subsidies in Turkey are restricted to subsidies provided to R&D activities, to environmental projects, and to financial assistance to export promotion activities. Although considerable progress has been achieved in the fields of investment and export incentives, similar progress could not be achieved in the case of public

enterprises. Although privatization has become a prominent part of the Turkish structural adjustment program since 1983 privatization could not gain momentum until very recently. Turkey recognizes that it will have to stop subsidizing the public enterprises at the prevailing rates, align its state aid policies to those of EU, apply the same competition policies to all firms whether private or public, and privatize the public enterprises.¹⁷

4. Growth Effects

The discussion of the welfare effects of accession reveals that integration will remove the distortions in the price system, which in turn will boost the allocative efficiency in the economy. As a side effect, this heightened efficiency will make the country a better place in which to invest. Investment will increase and hence foreign direct investment. Thus the allocative efficiency gains from integration will be boosted by induced capital formation. While investment increases above its normal level the Turkish economy will experience a growth effect. All this means improved material wellbeing for Turkish people in the long term.

To study the growth effects of accession we first forecast the volume of trade between Turkey and the EU-15 under the assumption that it will reach the same level of intensity as trade between the EU member states at present. We then use the forecast to study the growth effects of accession.

The forecast of the volume of trade between Turkey and the EU is based on estimation of a gravity function for trade within the EU-15. The gravity function has been used to explain the volume of bilateral international trade since the 1960's and has proven to be remarkably successful. It postulates that the volume of trade between a pair of countries is a function of the size of the trade partners, measured by GDP, population or geographic area, of their income level or capital abundance, measured by GDP per capita, and of trade costs, measured by a variety of factors, such as tariffs and other administratively imposed trade barriers, geographic distance, common borders, common language or common legal systems. In the following we have estimated the following standard version of the gravity equation:

$$\ln [(\text{exports from country } i \text{ to country } j + \text{exports from country } j \text{ to country } i) / 2] = \text{constant} + \beta_1 \ln (\text{GDP of country } i \times \text{GDP of country } j) + \beta_2 \ln (\text{GDP per capita in country } i \times \text{GDP per capita in country } j) + \beta_3 \ln \text{geographical distance} + \text{error term}$$

The dependent variable in the gravity equation is the logarithmic average of bilateral exports. It is explained by the logarithmic product of GDP; the volume of trade is simply assumed to rise in proportion to the combined economic size of the trade partners. GDP per capita can be thought of as a measure of product differentiation and specialization. The higher the per capita income is, the more differentiated is taste and production, and

¹⁷ Turkish Competition Law is silent with regard to public undertakings. It does not contain a clause like Article 86 (ex Article 90) of the EEC Treaty which explicitly brings public undertakings within the scope of competition policy. We further note that recently state aid in Turkey has taken the form of injections to private banks under the management of Savings Deposit Insurance Fund (SDIF). These are mainly the banks hit by capital losses during the November 2000 and February 2001 crisis due to sharp decline in the market value of government securities holdings and capital losses due to sharp increase in foreign exchange rate. According to EU regulations state aid to banking sector is subject to the same conditions as any other state aid and as such it should be avoided.

the larger is the volume of trade based on product differentiation and increasing returns to scale. A high per capita income is also an indication of abundance of physical and human capital relative to manual labor. Thus, the per capita variable should serve to capture both intra-industry trade caused by product differentiation and increasing returns to scale, and inter-industry trade caused by differences in factor endowments. Trade costs are controlled by the inclusion of geographical distance which is an indicator of transportation costs, but also of the costs of cultural differences which tend to increase with geographic distance.

The estimates of the gravity equation are presented in Table 15. The gravity equation explains more than 90 per cent of the variation in the data. All coefficients are estimated with a very high level of statistical significance (less than 1 percent) and have the expected sign, with one exception. The product of real per capita GDP is found to have an unexpected, *negative* effect on the volume of trade. The estimate of the gravity equation is then used to make forecasts of bilateral trade for Turkey with the EU-15. The results are presented in Table 16. As can be seen, the forecasted value of Turkish - EU-15 trade is 25.75 billion dollars in 2000, which is almost 25.2 per cent higher than the actual average value of \$18.547 billion for the period 1999-2001.

{Insert Table 15 and Table 16}

Next, we assume that Turkey eventually will have a share of EU trade to total trade that is equal to that of the four large EU countries, namely 58 percent. Then total trade of Turkey can be shown to increase to \$44.4 billion. When we divide this value by the average value of GDP for 1999-2001 we arrive at a ratio between the average of exports and imports to GDP of 25.2 percent. The actual value of total trade to GDP over the 1999-2001 period on the other hand is 20.67 percent. Noting from Frankel and Rose (2002) that every percent increase in the country's overall trade relative to GDP raises income per capita by at least one third of a percent we can state that with EU accession income per capita in Turkey will increase by about 1.5 percent.

4. 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. 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, liberalization of services and network industries, adoption of EU's labor market rules and regulations, and complying with EU environmental directives.

According to European Commission (2001) 59 per cent of the Turkish population supports EU membership and 68 per cent of the population declares that it would support the country's membership to the EU if a referendum were to be held on this issue. This high percentage of support for EU membership could partially be explained by the economic benefits that Turkey expects to derive from membership. Equally important is

the recognition in Turkey that the system of governance of a rule-based society, as in the EU with its institutions, may provide a better system for meeting the demands of various groups in the society.¹⁸ Furthermore, the support for EU membership stems also from the process of Westernization and geo-strategic considerations.¹⁹

The Turkish accession will also effect the welfare of current members of the EU. With Turkish accession current members will derive welfare gains from standard comparative advantage sources and also from growth effects of integration. In addition to these effects, the EU will have to incur the net annual budgetary cost of Turkish membership to the EU. Estimates given by Togan et al. (2003) indicate that this cost will be in the range of 7-10 billion Euros unless the rules on CAP and structural funds are changed over the next few years. There will also be political gains for the EU. Turkey is a large and fast expanding market. It is in fact the largest market in the Middle East, Balkans and Caucasus. According to the World Bank Turkish GDP is as large as 80 per cent of Russian GDP. Turkey, located at the crossroads between Europe, Eurasia and the Middle East, has the potential to act as a major link between these markets. With harmonization of commercial legislation, EU companies will be able to use Turkey as a joint investment and export base for the Middle East and Eurasia. Istanbul is emerging as transnational corporations' headquarters for operations in the Caucasus and Central Asia. The EU will derive potential gains from increased trade in the region. Finally, Turkish membership could help to secure stability and security in the Balkans and Caucasus. The EU could then increase its energy security and also decrease its defense expenditures.

¹⁸ This may explain the support provided to EU membership by followers of the Islamist political parties as well as by representatives of different minority groups.

¹⁹ During the Tanzimat period (1839-1877) Westernizing reforms were responsible for the adoption of a series of Western law codes, judicial organization with secular law courts, introduction of French-style provincial administration (1864), and for the so-called *millet* system, which made it possible for the Christian minorities to have their own religious autonomous administration with representative councils. These liberal reforms culminated in the declaration of a constitution and the convocation of a parliament in 1876-1877. The process of reforms continued after the national War of Independence of 1919-23. Under Atatürk's leadership, the newly founded Republic of Turkey carried through an extensive and comprehensive program of modernization and secularization. Atatürk considered the total Westernization of the country as an absolute precondition for Turkey's becoming a member of the Western family of nations. He succeeded in forging a modern nation out of a failing empire and a traditional community, based on the model of the Western countries. Turkey's aspiration to membership in the EU stems from the process of modernization and Westernization, the roots of which may be traced to Atatürk's reforms designed to establish a secular order in a country with a predominantly Muslim population. The Turkish elite considers membership in the EU a natural, desirable, and inevitable step of this process. Furthermore, Turkey realizes that it sits strategically at the edge of three regions of conflict - the Balkans, the Middle East and the Caucasus. Given the complexity of its security Turkey seeks to cultivate stability in order to minimize the potential for conflict. For Turkey, EU membership can help to secure this stability and contain conflict, particularly in the Balkans. Furthermore, the EU and Turkey have a mutual interest in preventing and containing any instability that could arise in the CIS region.

REFERENCES

- Atiyas, I. and M. Dutz (2003), "Promoting Competition in Turkey's Electricity Industry", paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).
- Barth, J.R., D.E. Nolle, and T.N. Rice (1997) "Commercial Banking Structure, Regulation, and Performance: An International Comparison", Office of the Comptroller of the Currency, Economics Working Paper, Washubgton D.C.
- Barth, J.R., G. Caprio, Jr. and R. Levine (2001) "The Regulation and Supervision of Banks around the World: A new Database" in R.E. Litan and R. Herring, editors, *Integrating Emerging Market Countries into the Global Financial System*. Brookings-Wharton Papers on Financial Services, Brookings Institutions Press (For the database see www.worldbank.org)
- Barth, J.R., G. Caprio, Jr. and R. Levine (2001a) "Bank Regulation and Supervision: What works best?", World Bank Working Papers No. 2725, Washington D.C.: The World Bank
- Akdemir, E., E. Ba_çı and G. Locksley (2003), "A Comparative Analysis of the Turkish Telecommunications Sector" paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).
- Bosworth, M., C. Findlay, R. Trewin and T. Warren "Price-impact Measures of Impediments to Services Trade" in *Impediments to Trade in Services: Measurement and Policy Implications*, ed. by C. Findlay and T. Warren, London: Routledge.
- Boylaud, O. and G. Nicoletti (2000) "Regulation, Market Structure and Performance in Telecommunications", Economics Department Working Papers No. 237, Paris: OECD
- Deardorff, A. V. and R. M. Stern (1998) *Measurement of Non-Tariff Barriers*, Ann Arbor: University of Michigan Press.
- Doove, S., O. Gabbitas, D. Nguyen-Hong and J. Owen (2001) "Price Effects of Regulation: International Air Passanger Transport, Telecommunications and Electricity Supply", Productivity Commission Staff Research Paper, Canberra: Productivity Commission.
- European Commission (2001) 'Applicant Countries Eurobarometer 2001: Public Opinion in the Countries applying for European Union Membership' (Brussels: European Commission).
- Fink, C., A. Mattoo and R. Rathindran, (2002), "Liberalizing basic telecommunications: Evidence from developing countries," paper presented in the OECD-World Bank Services Experts Meeting, OECD, Paris.
- Frankel, J. and A. Rose 2002. "An Estimate of the Effect of Common Currencies on Trade and Income". unpublished paper
- Francois, J. (1999) "Estimates to Barriers to Trade in Services". Erasmus University, Rotterdam, The Netherlands. Processed.
- Francois, J. (2003), "Accession of Turkey to the EU: Implications for the Transport Sector" paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).
- Harrison, G.W., T. F. Rutherford and D. G. Tarr (1997) "Economic Implications for Turkey of a Customs Union with the European Union", *European Economic Review* 41, 861-870
- Hoekman, B. (1996) "Assessing the General Agreement on Trade in Services". In W. Martin and L. A. Winters, eds., *The Uruguay Round and the Developing Economies*, U.K.: Cambridge University Press.
- Hoekman, B. (2000) "The Next Round of Services Negotiations: Identifying Priorities and Options". *Federal Reserve Bank of St. Louis Review* 82: 31-47.
- Kalirajan, K., G. McGuire, D. Nguyen-Hong and M. Schuele. 2000. "The Price Impact of Restrictions on Banking Services" in *Impediments to Trade in Services: Measurement and Policy Implications*, ed. by C. Findlay and T. Warren, London: Routledge.
- Konan, D. E. and K. E. Maskus (2002) "Quantifying the Impact of Services Liberalization in a Developing Country", paper presented at ERF Ninth Annual Conference, Sharja, U.A.E. 26 - 28 October, 2002
- Markandya, A. (2003), "Turkey Towards EU Accession: the Environmental Acquis" paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).
- Mazzanti, M. R. and A. Biancardi (2003), "Institutional Endowment and Regulatory Reform in Natural Gas" paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).
- McGuire, G. (1998) "Australia's Restrictions on Trade in Financial Services", Productivity Commission Staff Research Paper, Melbourne: Productivity Commission
- McGuire, G. and M. Schuele. 2000. "Restrictiveness of International Trade in Banking Services" in *Impediments to Trade in Services: Measurement and Policy Implications*, ed. by C. Findlay and T. Warren, London: Routledge.
- Organization for Economic Co-operation and Development (2002) *Turkey: Crucial Support for Economic Recovery*, OECD Reviews of Regulatory Reform, Paris: OECD
- Pazarba_ı_lu, C. (2003), "Costs of European Union Accession: The Potential Impact on the Turkish Banking Sector", paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).

Polo, M. and C. Scarpa (2003) "The Liberalization of Energy Markets in Europe and Italy", paper presented at the 4th Mediterranean Social and Political Research Meeting, Florence, March 19-23, 2003.

Steiner, F. (2000) "Regulation, Industry Structure and Performance in the Electricity Supply Industry", Economics Department Working Papers No. 238, Paris: OECD.

Stern, R. M. (2000) "Quantifying Barriers to Trade in Services". In B. Hoekman, A. Mattoo and P. English, eds. Development, Trade and the WTO: A Handbook. Washington D.C." The World Bank.

Taymaz, E. and _ Özler (2003), "Labor Market Policies and EU Accession: Problems and Prospects for Turkey" paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).

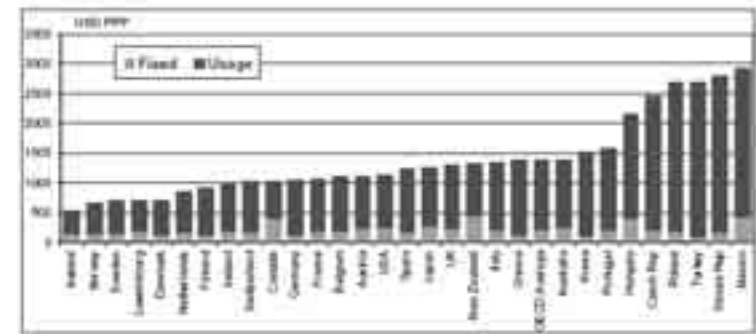
Togan, S., A. Bayener and J. Nash (2003b), 'Analysis of the Impact on Agricultural Markets and Incomes of EU Enlargement to Turkey', paper presented at the Conference on *Turkey: Towards EU Accession*, Ankara, 10-11 May (<http://www.cie.bilkent.edu.tr>).

Warren, T. (2000a) "The Identification of Impediments to Trade and Investment in Telecommunications Services" in *Impediments to Trade in Services: Measurement and Policy Implications*, ed. by C. Findlay and T. Warren, London: Routledge.

Warren, T. (2000b) "The Impact on Output of Impediments to Trade and Investment in Telecommunications Services" in *Impediments to Trade in Services: Measurement and Policy Implications*, ed. by C. Findlay and T. Warren, London: Routledge.

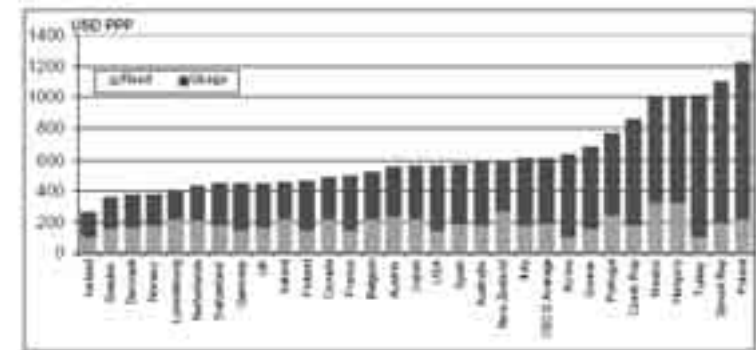
World Bank (2003) *Turkey: Country Economic Memorandum: Towards Macroeconomic Stability and Sustained Growth*, Report No. 26301-TU, Washington D.C.: World Bank

Figure 1: OECD Composite Business Basket, Nov. 2001 (in USD/PPP)



Note: VAT is excluded. Calls to mobile networks and international calls are included.
Source: OECD.

Figure 2: OECD Composite Residential Basket, Nov. 2001 (in USD/PPP)



Note: VAT is included. Calls to mobile networks and international calls are included.
Source: OECD.

Table 1: Information on Bank Structural, Supervisory and Deposit Insurance Variables

	EU	Turkey	Minimum Value	Maximum Value	Higher Value Indicates
I. Restrictions on Bank Activities					
I.1 Bank Activity Regulatory Variables					
(a) Securities Activities	1.13	3.00	1.00	4.00	greater restrictiveness
(b) Insurance Activities	2.20	2.00	1.00	4.00	greater restrictiveness
(c) Real Estate Activities	1.87	4.00	1.00	4.00	greater restrictiveness
I.2 Mixing Banking/Commerce Regulatory Variables					
(a) Bank Ownership of Non Financial Firms	2.07	3.00	1.00	4.00	greater restrictiveness
(b) Non Financial Firm Ownership of Banks	1.53	1.00	1.00	4.00	greater restrictiveness
II. Capital Regulatory Variables					
(a) Overall Capital Stringency	4.33	2.00	1.00	6.00	greater restrictiveness
(b) Initial Capital Stringency	1.93	1.00	0.00	3.00	less stringency
(c) Capital Regulatory Index	6.27	3.00	1.00	9.00	greater stringency
(d) Maximum Capital Percentage by Single Owner	100.00	100.00	2.00	100.00	
III. Private Monitoring Variables					
(a) Certified Audit Required	0.93	1.00	0.00	1.00	independent assessment
(b) Percent of 10 biggest banks Rated by International Rating Agencies	66.15	70.00	0.00	100.00	
(c) Accounting Disclosure and Director Liability	2.40	1.00	1.00	3.00	more disclosure
(d) No Explicit Deposit Insurance scheme	0.00	0.00	0.00	1.00	more private monitoring
(e) Private Monitoring Index	6.67	4.00	2.00	11.00	more private oversight
IV. Supervisory Variables					
IV.1 Official Supervisory Action Variables					
(a) Official Supervisory Power	10.27	11.00	3.00	16.00	more power
(1) Prompt Corrective Action	0.73	0.00	0.00	6.00	more promptness
(2) Restructuring Power/Restructuring	2.33	3.00	0.00	3.00	more power
(3) Declaring Insolvency Power	1.20	2.00	0.00	2.00	more power
(b) Supervisory Forbearance Discretion	2.07	2.00	0.00	4.00	more discretion
(c) Loan Classification Stringency	630.00	-	31.00	2,520.00	less stringency
(d) Provising Stringency	26.67	-	0.00	205.00	more stringency
(e) Liquidity/Diversification Index	2.13	1.00	0.00	3.00	greater diversification
IV.2 Official Supervisory Resource Variables					
(a) Supervisors per Bank	0.61	0.40	0.00	18.00	
(b) Bank Supervisors Years per bank	5.78	-	0.09	270.00	
(c) Supervisor Tenure	9.48	-	1.00	25.00	
(d) Onsite Examination Frequency	2.00	-	0.50	5.00	
(e) Likelihood Supervisor moves into banking	2.07	2.00	0.00	3.00	
(f) Independence of Supervisory Authority	2.27	2.00	1.00	3.00	greater independence
V. Entry into the Banking Sector					
V.1 Competition Regulatory Variables					
(a) Limitations on Foreign Bank Ownership of Domestic Banks	0.00	1.00	0.00	1.00	greater restrictiveness
(b) Limitations on Foreign bank Entry	0.00	1.00	0.00	1.00	greater restrictiveness
(c) Entry into Banking Requirements	7.07	7.00	2.00	8.00	greater restrictiveness
V.2 Market Structure Variables					
(a) Number of New Banks	25.69	-	0.00	999.00	
(1) New Domestic Banks	15.79	-	0.00	996.00	
(2) New Foreign banks	11.15	-	0.00	36.00	
(b) No Entry Applications	0.00	-	0.00	1.00	
(1) No Domestic Applications	0.21	-	0.00	1.00	
(2) No Foreign Applications	0.08	-	0.00	1.00	
(c) Fraction of Entry Applications Denied	3.67	-	0.00	100.00	
(1) Foreign Denials	1.67	-	0.00	100.00	
(2) Domestic Denials	5.42	-	0.00	100.00	
(d) Bank Concentration	59.19	50.00	12.00	100.00	
(e) Foreign bank Ownership	16.29	6.60	0.00	100.00	
VI. Government Owned Banks					
Government Owned banks	9.98	35.00	0.00	80.00	
VII. Deposit Insurance					
(a) Deposit Insurer Power	0.47	0.00	0.00	3.00	more power
(b) Extra deposit Insurance Coverage	0.45	-	0.00	1.00	
(c) Deposit Insurance Payout Delay	4.32	-	0.03	60.00	
(d) Deposit Insurance Funds-to-Total Bank Assets	4.98	0.012	0.00	34.70	solvency of deposit insurer
(e) Moral Hazard Index	1.94	-	-2.49	3.98	more moral hazard

Source: Barth et al. (2001a)

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
<i>Restrictions on establishment total</i>	<i>0.0335</i>	<i>0.2744</i>	<i>2.5190641</i>	<i>23.115361</i>
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
<i>Restrictions on ongoing operations total</i>	<i>0.0373</i>	<i>0.1000</i>	<i>2.8012564</i>	<i>8.4256501</i>
Index value	0.0708	0.3744	5.3203206	31.541011

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

Table 3: Country data on European and Turkish Telecommunications, 1998

	Finland	Netherland	United Kingdom	Turkey
Regulation of entry and foreign investment				
Legal conditions of Entry				
Trunk	Open	Open	Open	Licence, 1 firm
International	Open	Open	Open	Licence, 1 firm
Mobile	Limited by spectrum	Limited by spectrum	Limited by spectrum	Limited by spectrum
Year of liberalisation				
Trunk	1993	1997	1985	2004
International	1993	1997	1986	2004
Mobile	<1992	1995	1984	1997/98
Foreign investment				
Number of competitors	-	-	7	4
FDI restrictions	No	No	No	Yes
Restrictions concerning PTO	Yes	Yes	Yes	State control
Market Structure				
Basic voice telephony: trunk				
Number of license holders	20	3	>20	1
Share of largest operator	55	80	76	100
Share of second largest operator	40		10	0
Basic voice telephony: international				
Number of license holders	16	3	7	1
Share of largest operator	66	80	49	100
Share of second largest operator	24		16	0
Mobile cellular telephony: analogue				
Number of license holders	1	1	2	1
Share of largest operator	100	100	100	100
Share of second largest operator	0	0		0
Mobile cellular telephony: digital				
Number of license holders	2	6	4	2
Share of largest operator	69	64	34	75
Share of second largest operator	31	30		25
Ownership and privatisation				
Government ownership, 1998	78.8	43.8	0	100
Year of privatisation	1998	1994	1984	-
Price Regulation				
Basic Voice				
Retail prices	No regulation	Objective benchmark	Objective benchmark	Discretionary
Interconnection or access charges	Cost of the operator	Trunk: Cost of the operator Int.: no regulation	Objective benchmark	Cost of the operator
Mobile				
Retail prices	No regulation	No regulation		Objective benchmark
Interconnection or access charges	No regulation		Cost of the operator	
Mandatory requirement to publish the charges	Yes	Yes	Yes	No
Independence of Regulatory Institutions				
Regulatory Institutions				
Regulatory Institutions	Independent Telecom. Regulator Competition Authority Ministry	Independent Telecom. Regulator Competition Authority Ministry	Independent Telecom. Regulator Competition Authority Ministry	Competition Authority Ministry Other
Division of Regulatory Responsibilities for Licensing				
Issuing License	Ministry	Independent Telecom. Regulator Ministry in the case of mobile	Ministry	Ministry
Oversight of License Requirements				
Approval of Merger	Ministry	Independent Telecom. Regulator	Independent Telecom. Regulator + Ministry	Ministry
Regulations on Interconnection				
Authorization of Interconnection Charges	Competition Authority	Competition Authority	Independent Telecom. Regulator + Competition Authority	No authorization
Regulations on Pricing				
Dispute Resolution	Independent Telecom. Regulator	Independent Telecom. Regulator	Independent Telecom. Regulator	Ministry
Regulations on Pricing	Competition Authority	Independent Telecom. Regulator	Independent Telecom. Regulator	Ministry
Regulations on Service Quality	Independent Telecom. Regulator	Independent Telecom. Regulator	Independent Telecom. Regulator	No monitoring

Source: Boylaud and Nicoletti (2000)

Table 6: Price Impact of Regulation in Electricity Supply (Percent)

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)

Table 7: Country Data on European Natural Gas Sectors

Countries	Third Party Access			Unbundling	Demand Opening		Score
	Access Price Setting	Disputes Solution	Type of Regulation		Percent Eligible	Complete Opening	
Austria	Negotiated	Regulator	Ex-post	Accounting	49	2001	10
Belgium	Regulator	Regulator	Ex-ante	Legal	59	2005	16
Denmark	Regulator	Regulator	Ex-post	Legal	30	Unspecified	11
Finland	Regulator	Regulator	Ex-post	Proprietary	90	2003	21
France	Unspecified	Unspecified	Ex-ante	Accounting	20	Unspecified	4
Germany	Negotiated	Antitrust	Ex-post	Accounting	100	2000	12
Greece	Unspecified	Unspecified	Ex-ante	Unspecified	Unspecified	Unspecified	2
Ireland	Ministry	Ministry	Ex-ante	Legal	75	2005	14
Italy	Regulator	Regulator	Ex-ante	Legal	65	2003	17
Luxemburg	Ministry	Ministry	Ex-ante	Accounting	51	2007	11
Netherland	Negotiated	Regulator	Ex-ante	Accounting	45	2004	10
Portugal	Unspecified	Unspecified	Ex-ante	Unspecified	Unspecified	Unspecified	2
Spain	Ministry	Ministry	Ex-ante	Legal	72	2003	15
Sweden	Regulator	Regulator	Ex-post	Accounting	47	2006	11
UK	Regulator	Regulator	Ex-ante	Proprietary	100	1998	23

Source: Polo and Scarpa (2003)

Table 8: Retail Prices of Natural Gas and Electricity

	Natural Gas for Industry US\$/7GCV	Natural Gas for Households US\$/7GCV	Electricity for Industry cents/kWh	Electricity for Households cents/kWh
Austria	54.92	365.52	9.21	12.14
Belgium	111.65	419.41	4.77	13.23
Denmark		701.85	5.97	19.53
Finland	124.74	218.92	3.94	7.89
France	178.67	421.93	3.58	10.17
Germany	187.93	373.41	7.90	16.66
Greece	199.82	354.19	4.31	7.75
Ireland	173.95	315.25	4.62	9.57
Italy	141.56	639.03	9.30	13.42
Portugal	256.02	670.30	6.59	11.77
Spain	164.53	491.07	5.58	14.33
UK	138.74	290.00	4.96	10.10
Turkey	216.99	269.41	8.05	8.49

Source: International Energy Agency (2003)

Table 9: OECD Basket of International Telephone Charges

	Business excluding tax		Residential including tax	
	USD	USD PPP	USD	USD PPP
Austria	0.77	0.83	1.06	1.15
Belgium	0.49	0.56	0.57	0.66
Denmark	0.50	0.46	0.80	0.73
Finland	0.78	0.74	1.00	0.95
France	0.34	0.37	0.66	0.73
Germany	0.42	0.45	0.62	0.67
Greece	0.77	1.12	1.17	1.69
Ireland	0.51	0.55	0.70	0.76
Italy	0.90	1.16	1.32	1.69
Luxembourg	0.37	0.41	0.49	0.55
Netherlands	0.30	0.35	0.46	0.53
Portugal	0.71	1.08	0.96	1.46
Spain	0.78	1.01	1.12	1.46
Sweden	0.34	0.34	0.53	0.54
UK	1.18	1.16	1.61	1.58
Turkey	1.51	3.98	1.89	4.98

Source: OECD (2002)

Table 10: Estimated Tariff Equivalents in Trade Services and Network Industries

	Current Study	Hoekman (1995)	Francois (1999) & Hoekman (2000)	Francois (2003)
Financial Services		9.2	46.3	
Banking	26.22			
Telecommunications	33.53			
Basic Telecommunications		92.9		
Value added telecommunications		42.9		
Transportation	8.9			8.9
Electricity	20.7			
Natural Gas	64.71			

Table 13: Alternative Fiscal Adjustment Scenarios
(Required Primary Surplus, % of GNP)

Real GNP Growth	Real Interest Rates					
	7	9	11	13	15	17
3	2.8	4.3	5.6	7.3	9.0	10.5
4	2.0	3.5	5.0	6.6	8.1	9.6
5	1.1	2.7	4.2	5.7	7.2	8.7

Source: World Bank (2003)

Table 14: Alternative Current Account Adjustment Scenarios
(Required Non-interest Current Account, % of GNP)

Real Interest Rate	Real GNP Growth Rate			
	2	3	4	5
3	0.1	-0.7	-1.5	-2.2
4	0.8	0.1	-0.7	-1.5
5	1.6	0.8	0.0	-0.7
6	2.4	1.6	0.8	0.0
7	3.1	2.3	1.6	0.8
8	3.9	3.1	2.3	1.5
9	4.7	3.9	3.1	2.3
10	5.5	4.6	3.8	3.0
11	6.2	5.4	4.6	3.8
12	7.0	6.2	5.3	4.5
13	7.8	6.9	6.1	5.3

Source: Own calculations

Table 15: Gravity Estimates for Intra-EU-15 Trade

Constant	-3.884133 (-3.193833)
Ln real product GDP	0.815026 52.1816
Ln real product GDP per capita	-0.145238 (-2.705978)
Ln distance	-0.901144 (-21.50092)
R-squared	0.622767

Table 16: Forecast of Turkish Trade with EU-15

Average Turkish Export to the EU 1999-2001 (Million US\$)	Average Turkish Imports from the EU 1999-2001 (Million US\$)	Average Trade 1999-2001 (Million US\$)	Forecasted Average Trade 2000 (Million US\$)
14,992	22,102	18,547	25.747

Table 5: Country Data on European and Turkish Electricity Sectors, 1998

Regulatory Reform	Finland	Germany	United Kingdom	Turkey
Third Party Access	regulated TPA	negotiated TPA	regulated TPA	none
Electricity Market	unbundled Electricity Exchange (1998)	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	90 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 Trans	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 % ⁹⁴ Rhein-Main Domau, 7/6/3/1991 National Power, 60 % private participation, 6/3/1991 Power Gen, 60 % privatisation, 31/12/1995 Neckar, 99 % 1/3/1995 National Power, 40 % 1/3/1995 Power Gen, 40 % 10/7/1996 British Energy, 87.73 %				

Source: Steiner (2000)

Table 4: Restrictiveness Index Scores for Telecommunications Services

	Restrictiveness Index	Restrictions on establishment	Restrictions on cross-border trade	Restrictions on ongoing operations	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%
United Kingdom	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.

Table 12: Debt and Fiscal Sustainability

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Stock of Public Debt (percent of GNP)									
Domestic Debt	14.0	12.2	20.5	20.4	24.4	40.9	39.1	57.2	47.7
FX-denominated/indexed							2.7	20.4	15.3
Floating rate								28.6	20.5
External Debt	30.7	29.1	26.0	22.5	19.3	20.1	18.3	37.7	32.1
External + FX-denominated/indexed	30.7	29.1	26.0	22.5	19.3	20.1	21.0	58.1	47.4
TOTAL Debt	44.7	41.3	46.5	42.9	43.7	61.0	57.4	95.0	79.8

Public Debt Dynamics (percent of GNP)

Change in debt	-3.4	5.2	-3.6	0.8	17.3	-3.6	37.6	-15.2
Debt creating items								
interest payments	7.3	10.0	11.0	16.2	22.1	21.9	23.5	16.3
Debt reducing items								
primary balance	2.7	-1.2	-2.1	0.9	-2.0	2.7	5.5	3.9
growth effect	1.7	1.5	2.0	0.9	-1.8	2.4	-3.9	4.8
inflation effect	6.5	5.3	9.2	8.8	8.7	13.8	13.0	11.2
revaluation effect	4.4	1.9	1.6	2.5	-1.2	3.8	-13.2	10.1
seignorage	3.0	2.4	2.9	2.4	3.2	1.8	1.4	1.5
Other	0.0	0.0	0.1	0.5	0.1	1.6	-1.81	-1.8
Privatization	0.0	0.0	0.1	0.5	0.1	1.6	1.9	0.1
Cost of financial sector bailout	0.0	0.0	0.0	0.0	0.0	0.0	-20.0	-1.9

Source: World Bank (2003)

Table 11: EMU Convergence Criteria

	Inflation Rate %			Budget Deficit % of GDP			Government Debt % of GDP			Interest Rates 10Y bonds Last	Exchange Rate Rate against Ptry Max (2Y)	Currency Regime
	2000	2001	2002	2000	2001	2002	2000	2001	2002			
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	-11.9	-16.5	-12.5	57.4	95.0	79.8	58.7	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%	

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 8 months duration obtained in the latest auction of treasury bills.

Source: Deutsche Bank Research, EU Enlargement Monitor, April 2002, Turkish State Planning Organization, Central Bank of Turkey and Turkish Treasury (2002)