TURKISH ECONOMIC DEVELOPMENT IN COMPARATIVE PERSPECTIVE

by

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A dissertation submitted to the Graduate Faculty in Economics in partial fulfilment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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ABSTRACT

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by

EBRU HISAMOGLU

Advisor: Professor Merih Uctum

The first part of my essay investigates the institutions-growth relationship while analyzing the role of EU membership process, as a supranational anchor to further improving institutional quality. I conduct a comparative analysis of Turkey, Poland and Spain and examine this issue in two steps: effects of EU membership process on institutional quality and effects of institutions on growth. Effects of EU membership process on institutional quality are evaluated with structural break analyses and time trend analyses. Institutions-growth relationship is examined by employing Autoregressive Distributed Lag (ARDL) approach. As a result of my tests and estimations, while I find no significant evidence that EU membership process improves institutional quality, I find significant evidence that institutions matter for growth. The second part of my essay examines Turkish economic history (1923-1995) while providing a brief review of the Ottoman economic history. The Ottoman economic history is reviewed in order to ensure a better understanding of the Ottoman heritage that was taken over by the Turkish Republic. Institutional environments within which economic events took place and educational polices undertaken are also briefly documented. The paper highlights that while economic policies undertaken evolved in time (from protectionist

and etatist directions to liberal policies) the arbitrary policy making, mostly characterized by an absence of a long run perspective inhibited the way to stable and sustainable economic growth . The third and final part of my essay addresses financial linkages between Turkey/Poland and Europe. I use a vector error-correction vector autoregression (ECM-VAR) analysis to investigate block-exogeneity assumption between Turkey/Poland, Germany (representing Europe) and United States (representing rest of the world). Results show that there is unidirectional causality from European short rates to Turkish rates. The evidence is weaker with long rates. Tests results with Polish rates do not support European asymmetry.

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Contents

List of Tables

List of Figures

Part I

EU Membership, Institutions and Growth

Chapter 1

Introduction

While Turkey has declared its desire to join to the EU as a full member, in the EU side, there is, however, little enthusiasm for further enlargement in general, and even less enthusiasm for the accession of Turkey specifically. The proponents and opponents of Turkish membership often use similar arguments from different perspective i.e. the large population of Turkey frightens many member states because of its possible future role in the decision making process, while the same argument can be flipped as a young population could counter-weight the shrinking and aging population of the EU (Barysch, Grabbe & Everts 2005) . Although in these debates the non-economical arguments are much more emphasized than the economical arguments, here the focus will be based and confined to the related economic reasoning no matter how limited it might be [1].

[1] As discussions on Turkey's full membership are not mainly or directly centered on economical arguments, discussing the effects of the membership (or the membership process) just in terms of economics, of course, highly limits the whole picture.

Why does Turkey (or those representing her) want to join the EU? Is it for the economic prosperity, better living standards, more job openings etc? While it is a well-known fact that the EU and most of Western Europe for that matter, are a 'quintessential convergence club', whether the accession of Turkey will yield similar results to the other previously new member states like Spain, Greece and Portugal etc. is a pending question. This paper evaluating the Turkish case comparatively with that of Poland and Spain, examines this question in two steps: The effects of EU membership process on institutional quality and the effects of institutions on growth.

In fact, the effects of the EU membership on the Turkish economy were dwarfed for many reasons. First, according to the Customs Union (CU) agreement (1995) Turkey and the EU have removed already all barriers to trade in industrial goods. In addition, Turkey unilaterally adopted EU's external tariffs for trade with non-EU countries. In this respect, the future additional benefits of the Turkish accession on the EU-Turkey trade volume are not clear.

Furthermore, the commonly made association of the full membership with the 'prosperity' has several pitfalls. For one thing, despite the fact that most of EU spending still goes to poorer regions, the Turkish case can be a 'little different' than other previously candidate countries. According to the Turkey's negotiating mandate based on December 2004 summit; EU retains the option of applying permanent derogations on EU budget. In other words, Turkey may never be full beneficiary of the EU budget. In fact, EU has explicitly declared that it does not want Turkey's accession before 2014, implying that Turkey would not be in the negotiation process for 2014-2021 budget framework. Even after accession, Turkey may have to forsake full access to the EU budget

(Barysch et al. 2005) . Consequently, there is no definitely a shortcut way to 'prosperity' (if such a way ever existed) for Turkey through EU funds.

Finally, the high unemployment rate of Turkey (around 10 % according to official figures) and the income disparities between Turkey and the EU may provide incentives for Turkish labor to migrate to EU member states. However, according to the same mandate, EU retains the option of applying permanent safeguards on the free movement of labor. As a result, access to more and better paid jobs through immigration may never be possible for the Turkish workers due to the EU's limitation of one of the 'four fundamental freedoms' of the single market.

Then, what else in EU's membership can prepare the way for more developed and prospered Turkey? Is it possible to argue that reforms of the existing institutions -where EU membership process will be an anchor- will promote economic growth? Such an argument contains two premises: EU membership process helps improving the institutional quality and institutions promote economic growth. This paper addresses each of these two issues and reassesses the relationship between institutions and growth. I define institutions; following North (1990) as 'the rules of the game of the society or more formally are the humanly devised constraints that shape human interaction' and in that respect 'they structure incentives in human exchange whether political, social or economic'. This study classifies institutions in two main groups: Those determining institutional quality and those determining conflict governance ability. The classification is necessary since effects of the EU membership process are expected to crystallize on institutional quality indicators, while they may have only an indirect effect on conflict governance indicators.

The purpose of this paper is twofold. First, it aims to test the effects of the EU membership process on institutional quality of countries studied. Second, it intends to explore the dynamics behind the institutions, which promote economic growth through the channels of institutional quality and conflict governance ability. Previous studies use a rough measure of institutions index and consider its effect on growth. This index is a very crude average of institutional components. By contrast, this paper not only examines individual components of institutions but also analyzes the direction of causality between the growth and institutions. Moreover, previous studies use cross section analysis and ignore the fact that institutions are local and that a given institutional component can affect growth in a given country while it may not have the same effect on another country. Different from cross-section studies that contend with an overall answer to that question, this study, using time series and adopting an ARDL (Autoregressive Distributed Lag) methodology to overcome difficulties associated with time series (i.e endogeneity, serial correlation, etc) focuses on three countries of similar economic size (Turkey, Poland and Spain) and tries to investigate what (which component of institutional quality) matters in which country.

My trend and structural break analyses about *EU membership process-institutional quality* relationship reveal that the membership process coincides with improvements in only investment/investor related indices in Turkey and in Poland. On the other hand, my ARDL estimation results regarding to the *institutions-growth* relationship show that 'institutions matter' both in Turkey and in Poland. Specifically, the the composite index of *the law and order and bureaucratic quality*, the index of *internal conflict* and the composite index of *internal conflict and ethnic tensions* are effective in promoting growth in Turkey. In Poland, while none of the institutional quality indicators affect economic growth, *conflict governance* indicators are effective in promoting growth. Specifically,

the composite index of *internal conflict, democratic accountability and socioeconomic conditions* is significant to foster economic growth. However, neither institutional quality indices nor conflict governance indicators are found significant in enhancing growth in Spain. In Poland, while time trend analysis indicates a simultaneity between the membership process and improvements in the composite indices which consist of corruption, bureaucratic quality and investment/ investor related indices, structural break analysis do not suggest a break in these composite indices during the membership process.

The rest of the paper is organized as follows. Section 2 is devoted to the literature review. Section 3 discusses the econometric methodology, including ARDL approach of Pesaran & Shin (1998) which I use to estimate the effects of institutions on economic growth. Section 4 summarizes the data set. Section 5, the main part of the study, contains analyzes and empirical tests. It addresses these two issues in two subsections: the effects of EU membership process on institutional quality and the effects of institutions on growth. Section 6 summarizes and concludes.

Chapter 2

The Literature Review

The relevant literature for my analysis has two strands: *the effects of EU membership on institutions* and *the effects of institutions on growth*. Though the literature on the relationship between institutions and economic growth is abundant, the literature on the relationship between EU membership and institutional quality is highly scarce.

The first strand is related to the *effects of EU membership on institutions*. While the enlargement of the EU is considered as 'the major institutional and historical event', and observing and monitoring the institutional quality of the new members and candidate countries seems a promising research field, studies evaluating *EU membership-institutional quality relationship* are mostly conducted with a descriptive analysis. Berglof & Roland (1997), in their descriptive analysis, note that EU is an outside anchor for transition economies, and that benefits associated to entry in the EU make reforms more acceptable. Similarly, Hammermann & Schweickert (2005), in their descriptive analysis, study the institutional development in Balkan countries, claim that institutional

development should be a precondition for entry into the EU. Based on their analysis, they argue that while non-member Balkan countries perform worse than new members; within Balkan countries, Bulgaria and Croatia perform better then Turkey and Romania but consider that, 'Turkish case is not a problem since negotiations are open-ended, but Romanian case should be alarming'. Roland (2005) in his descriptive analysis, examine institutional improvements in new member states and claim that new member states have achieved their transition in a 'stable and satisfactory way' and that EU played a positive role in this transition process.

However, previous studies assessing the impact of EU membership on institutional quality restrict themselves to eyeballing the data. This paper, in contrast to previous work, assesses the effect of the membership process on institutions via structural break analyzes and time trend analyzes. I examine trends in institutional quality indices to reveal whether trend in the institutional quality index improves with the start of the membership process. Also, I conduct structural break analyzes to detect whether the timing of the breaks in institutional quality indices coincides with the membership process.

The second strand is related to *effects of institutions on growth*. The *institution-growth relationship* attracted interest of many scholars and resulted in abundance of empirical studies. As institutions can be both the cause and the consequence of the economic development, empirical studies investigating the relation between growth and institutions intend to examine the direction of the causality. The institution view, which argues that the fundamental cause of vast income differences around the world lies in differences in the quality of long lasting institutions, owes a great deal to the seminal contribution of North (1990). According North 'institutions are the rules

of the game of the society or more formally are the humanly devised constraints that shape human interaction', in that respect 'they structure incentives in human exchange whether political, social or economic.' The approach attracted the interest of many scholars, and resulted in abundance of empirical studies.

Why are some countries so much poorer than others? Is it because of factor accumulations or geographic factors or something else? Hall & Jones (1999) in their comprehensive cross-country analysis suggest that what they call 'social infrastructure' (institutions and government policies providing incentives for individuals and firms) is the main reason underlying cross country variations in output per worker. In order to overcome the endogeneity problem, Hall and Jones use distance from equator and the usage of a Western European language as instrumental variables[1] . Acemoglu, Johnson & Robinson (2001) henceforth AJR, in their well-known paper, study the historical framework that shapes the long lasting institutions, which in turn cause differences in the prosperity level. The countries that went through the colonization period turn out to be natural experiment areas for this purpose. The basis of AJR's argument is that European colonialists adopted a different type of colonization strategy based on the feasibility of the settlement areas and that the institutional pattern developed by colonialists persist even after (the independence). They use settler mortality as an instrumental variable for the institutional quality. Easterly & Levine (2003) focusing on a large sample of former colonies, study the impact of endowments (i.e. tropical location, soil fertile for cash crops, etc.) on economic development and find that endowments

[1]Instrumental variable (IV) method of estimation is a general method of wide applicability in cases where the explanatory variables are correlated with the errors. Instrumental variables are defined as variables that are uncorrelated with the error term but highly correlated with the relevant endogenous variable (Maddala 2001). Since the institutions can be both the cause and the consequence of economic development, cross-country studies, analyzing the role of institutions on growth, use the IV method to overcome the endogeneity problem.

affect economic development only through institutions. Easterly and Levine use latitude, settler mortality, being land locked, and crops as instrumental variables.

Another feature feeding the poverty in the less developed countries is that their growth rates are unstable and halted frequently with crises. Rodrik (1999), analyzing a large sample of less-developed countries, examine the role of conflict management institutions in determining economic performance. According to Rodrik's findings, when conflict management institutions are weak and social divisions are pronounced, economic cost of the shock is magnified by the distributional conflict. The distributional conflict in turn decreases the productivity by delaying needed adjustments in fiscal policies and key relative prices, generating uncertainty in the economic environment and diverting the activities from productive ones to distributive ones. A phenomenon that is not unfamiliar for many less-developed countries, including Turkey. Similarly, Easterly, Ritzen & Woolcock (2006) in a recent paper, study the role of 'social cohesion' (proxied by income inequality and ethnolinguistic fractionalization) in affecting economic growth through its influence on institutional quality and find evidence that 'more social cohesion leads to better institutions and that better institution lead to higher growth'.

By now, there is a general consensus among the economists on the significant role of institutions in generating economic growth Rodrik (2007). However, while the current literature provides remarkable contributions on whether 'institution matters' for growth, empirical works suffer from cross-country generalizations, inadequacy of instrumental variables and absence of time dimension. First of all, most empirical studies consist of cross-section analysis, which ignore the individual countries' temporal experience, and try to come up with a one size fits all answer. In

addition, the use of an aggregate institutional index in growth regression is a highly rough measure that hides 'what matters the most?' Secondly, instruments for institutional quality are scarce. The main instruments used in the literature (i.e. latitude, usage of Western European language, ethno-linguistic composition, precolonial population density or settler mortality) are not appropriate for studying an individual country or a group of countries that do not have the related variations (that these instrumental variables would refer). Finally, the existing empirical studies examine the relationship between economic growth and the institutional quality using a panel data analysis with no or little time dimension, which does not allow assessing the dynamic interaction between institutional quality parameters and economic performance.

Therefore, when most of we know about growth and institution relationship is that 'institutions matter for growth' without knowing exactly what (which aspect of the institutions; rule of law, bureaucratic quality, or something else?) when (does the institutional quality mostly affect growth within a given time frame, say it matters most in less developed economies and less and less afterwards?) and where (in which country) really matters; the time is just right for an individual country analysis . However, individual country analyses using time series data confront with several complexities. First, while employing traditional time series methods, all data used in the study need to be of the same degree of integration. However the variables of interest may be of different degree of integration i.e. while GDP growth is stationary, the order of integration of institutional quality variables vary with the period considered for the study and/or from country to country. Also, the endogeneity problem inherent in (almost) all regressions examining the growth and institutions relationship, as mentioned earlier, needs to be dealt with.

In this study, I examine the effects of institutions on economic growth using time series data. I overcome the existing problems of growth regressions and the related time-series analyses following Autoregressive Distributed Lag (ARDL) approach. Furthermore, in this analysis, I include conflict governance indices in addition to institutional quality indices. Since conflict governance institutions are part of the big family of institutions, and negliging those may prevent the reader from seeing the whole picture (Rodrik 1999). Hence while conducting a country specific analysis for Turkey, Poland and Spain I try to explore which (if any) institutional indices exactly matter for economic growth.

Chapter 3

Econometric Methodology

The effects of EU membership process on institutional quality indices are studied with trend analysis and Andrews-Quandt structural break tests. The effects of institutions on growth are examined using autoregresive distributed lag (ARDL) approach.

3.1. Trend and Break Analyses

First a trend analysis is conducted to detect the simultaneity between institutional quality indices and the timing of the membership process. If the process affected the evolution in institutional quality, we should observe a change in trend around the period when the membership process started. The trend analysis is based on an exogenous break point consisting of the beginning of the process. However, it is not only difficult to know the exact break point in a data generating process but also not all indices have deterministic trends. To address these issues in the following sub-

section we conduct an endogenous break test on institutional quality indices. If EU membership process affects institutions, we expect the data to show a break just before or during the membership process. While it is not possible to detect the pure effect of the membership process on institutional quality indices (since an institutional quality index can vary due to number of political, economic or social reasons), the aim in this paper is limited to see whether the amelioration in the indices coincides with the EU membership process.

i. Trend Analysis

Trends in institutional quality on the other hand, are analyzed using simple linear regression. If the process affected the evolution in institutional quality, we should observe a change in trend around the period when the membership process started. The time trend in two different periods are calculated: the trend in institutional quality indices until the membership process started and the trend in indices after the membership process. The institutional quality indices used in the analysis consists of quarterly averaged time series data. The quarterly series of values then was related to time by an equation of the form:

$$y = \alpha_0 + \alpha_1 t \tag{3.1}$$

where y represents institutional quality indices (i.e. law and order, corruption, etc.), t represents time, in quarters and α_0 and α_1 are the least-squares estimates of the intercept and slope coefficients. The slope α_1 indicates the average rate of change in institutional quality indices during each quarter of the time period. If the slope is significantly different from zero, the trend in

the institutional quality index is equal to the magnitude of the slope and the direction of the trend is defined by the sign of the slope: improving if the sign is positive and deteriorating if the sign is negative. If the slope is not significantly different from zero, then there is no trend in the institutional quality indices. The results of time trend analyses comparing two periods, before the membership process and after the membership process for all three countries studied are displayed in Table 8.

ii. Structural Break Analysis

The structural break in institutional quality series are examined with Andrews-Quandt tests (A-Q henceforth). In order to conduct a break analysis on institutional quality indices, a univariate model for each series needs to be estimated. To identify the true data generating process, the ACF (autocorrelation function) and PACFs (partial autocorrelation function) of the series are plotted and examined. Then, the coefficients of the model are estimated based on the model suggested by ACFs and PACFs, while considering Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (SBC). While identifying the model, parsimony is the guiding principle, the best model is the simplest possible model that adequately describes the data. Next, the model is checked to ensure that residuals are randomly distributed and that estimated parameters are statistically significant. In order to check the residuals, ACF of residuals are plotted and scanned to see if coefficients fall within the confidence interval. Also, related Ljung-Box Q statistics are computed. If there is no serial correlation in residuals, the autocorrelations and partial correlations should be nearly zero, and all Q statistics should be insignificant. In addition, the stability of the model is checked by calculating roots of the system (i.e. when the root(s) is (are) within the unit circle, the

process is concluded to be stable). After modeling the series as such, the A-Q test is performed to detect the time of the structural change. These estimation and checking procedures are performed for each institutional quality series. As a result, AR(1) model is chosen to describe all institutional quality series of Turkey and Spain except the composite index of 'corruption-investment' profile of Turkey and corruption index and the composite index of 'corruption-investment profile' of Spain. All indices of Poland are modeled as AR(2). However, the probabilities of Max F and Exp F (Equation 3.2 and 3.4) calculated using Hansen (1997) method do not significantly change with the model chosen.

While the exogenous break in time series were used to study using Chow tests (1960), the Quandt-Andrews and Andrews-Ploberger family of statistics have replaced the Chow statistic in recent econometric practice (Hansen 2001). The advantage of A-Q is that it does not need to assume any prior knowledge about the break dates while Chow tests require knowledge of a break date a priori. The methodological difference between the two is that while the Chow test aims to fit the equation separately for each sub-sample and hence to detect whether there are significant differences in the estimating equations, the A-Q test performs the Chow breakpoint test at every observation between two dates.

Two statistics are calculated. The first one calculated is the A-Q Max-F statistic, which is the maximum of a sequence of traditional Chow-style χ^2 tests for structural change each based on a different potential breakpoint [1]. The Maximum statistic is simply the maximum of the individual F-statistics:

[1]This test statistic was originally introduced by Quandt (1960) and its asymptotic distribution was derived by Andrews (1993).

$$MaxF = max_{\tau_1 \leq \tau \leq \tau_2}(F(\tau)), \tag{3.2}$$

where the individual F-statistics is computed as:

$$F = \frac{(\tilde{u}'\tilde{u} - (u_1'u_1 + u_2'u_2))/k}{(u_1'u_1 + u_2'u_2)/(T-2k)} \tag{3.3}$$

where $\tilde{u}'\tilde{u}$ is the restricted sum of squared residuals, $u_i'u_i$ is the sum of squared residuals from subsample i, T is the total number of observations, and k is the number of parameters in the equation. The second test is the Exp F statistic, which is based on a weighted average of the full sequence of χ^2 tests; this test and its asymptotic distribution were introduced by Andrews & Ploberger (1994)[2]. The Exp statistic has the following form:

$$ExpF = ln(\frac{1}{k}\sum_{\tau=\tau_1}^{\tau_2} exp(\frac{1}{2}F(\tau))), \tag{3.4}$$

While structural break analyses can be performed for a single break as well as multiple breaks, the analysis in this paper consists in finding in single break since the aim is to explore whether the time of the membership coincides with any break in institutional quality series. The structural break tests results are compared with the start of the membership period of the related country. The results of both statistics (MaxF and ExpF) are calculated and displayed.

[2]The discussion on structural break tests closely follows those of O'Reilly & Whelan (2004).

3.2. ARDL Methodology

This section briefly describes the Autoregressive Distributed Lag (ARDL) approach that I use to explore the relationship between institutions and economic growth [3]. I prefer the ARDL approach in order to deal with problems associated with time series analyses, i.e. the problem to work with data which is not integrated of the same order, the endogeneity problem etc., as mentioned in the previous section.

The ARDL approach has several advantages. First of all, the ARDL test methodology is applicable irrespective of whether the explanatory variables are stationary or integrated of order one. Thus, it overcomes the order of integration problem, associated with the Johansen approach (1995). Secondly, it has good small sample properties as compared to alternative techniques. Given that the study consists of data covering the period 1987-2004 for Turkey, 1995-2004 for Poland, and 1984-2004 for Spain, this feature is especially relevant. Thirdly and most importantly, the ARDL method corrects the problem of serial correlation and that of endogeneity, by an appropriate augmentation of the order of the regressors (please refer to Appendix B for discussions on how ARDL deals with the endogeneity problem). The methodology was popularized and developed by Pesaran, Shin & Smith (1996) and Pesaran and Shin(1998) and Pesaran, Shin & Smith (2001). To illustrate the ARDL approach, consider the simple model:

$$y(t) = \alpha + \beta x(t) + u(t), \tag{3.5}$$

[3]The discussion of the ARDL methodology closely follows Pesaran and Shin (1998), Pesaran & Pesaran (2003) and Coutts & Norman (2007).

where *y* is the growth rate of Gross Domestic Product per capita (GDP), *x* is the institutional quality index, and u is a scalar disturbance term with zero mean and variance of σ^2. The ARDL long-run analysis procedure involves two stages. *At the first stage*, the existence of a long-run relationship is tested. The presence of the long-run relation between variables is tested by computing the F-statistics for testing the significance of the lagged levels of the variables in the error correction form of the underlying ARDL model. This is referred to as the variable addition test. The error correction version of the ARDL model is:

$$Dy(t) = \alpha_0 + \sum_{i=1}^{p} \eta_i Dy_{t-i} + \sum_{i=1}^{p} \gamma_i Dx_{t-i} + \lambda_1 y_{t-1} + \lambda_2 x_{t-1} + \varepsilon_t, \tag{3.6}$$

where η, and γ represent the short-run dynamics of the model while λs represent the long-run relationship and ε is the white noise error term. Due to high levels of cross-sectional and temporal aggregations involved, it is not possible to know a priori whether institution indices are the 'long-run forcing' variables of the growth rate of GDP pre capita, so the current values of *Dx* from Equation (3.6) are excluded following Pesaran and Shin (1998). The null hypothesis of the F test is the non-existence of the cointegration relation:

$$H_0 : \lambda_1 = \lambda_2 = 0$$

against

$$H_1 : \lambda_1 \neq \lambda_2 \neq 0$$

The relevant statistics is the F statistics for the joint significance of λ_1, and λ_2 .The asymptotic distribution of the F statistics is non-standard irrespective of whether the regressors are I(0) or I(1). Peseran et al (1996) calculated the appropriate critical values; accordingly, there are two sets of critical values. One set assuming all the variables are I(0) and one assuming all the variables are I(1). If the calculated F statistics falls outside this band, a conclusive decision can be made. That means, if the calculated F statistics exceeds the higher bound of the critical value, the null hypothesis is rejected; if the statistics exceeds the lower bound of the critical value, the null is not rejected. This is valid regardless of the degree of integration of the variables. However, if the calculated F statistics fall within the critical value band, the result depends on whether the variables are I(0)or I(1). Once test results reject the null hypothesis of 'non-existence of the long-run relationship' then it is possible to proceed to the next stage of the ARDL estimation procedure, that is estimations of long-run coefficients.

In the second step, first the orders of the lags in the ARDL model are selected using the Akaike Information Criterion (AIC) or Schwartz Bayesian Criterion (SBC) and then, the selected model is estimated by the ordinary least squares to get the long-run solutions. The long-run solution to the chosen ARDL specification gives an estimate of the coefficients of the cointegrating relationship. It is important to note however, that this step is viable only if the F tests results do reject the non-existence of a long-run relationship between the variables; thus the variable x can be considered as the 'long-run forcing' variable for explaining y. The conditional long-run model for y can be obtained from the reduced from solution of 3.6, when $\Delta(y) = \Delta(x) = 0$:

$$y_t = \mu_0 + \theta x(t) + v(t), \tag{3.7}$$

where v_t are serially uncorrelated disturbances with zero means and constant variance-covariances. The long-run coefficients estimated by ARDL approach are defined by the ratios:

$$\mu_0 = \frac{-\alpha_0}{\lambda_1} \qquad \textit{and} \qquad \theta = \frac{-\lambda_2}{\lambda_1}, \tag{3.8}$$

In this study, I estimated long-run coefficients using both AIC and SBC and estimation results using both criteria are discussed and displayed. In order to ensure that the models are well specified, for all estimations, the diagnostic tests (test for serial correlation, functional form, normality and heteroscedasticity) are carried out and displayed.

Chapter 4

Data

While assessing the affect of the EU membership process on the institutional quality and exploring the role of country's institutional quality and conflict governance ability in generating economic growth, I use proxies for underlying institutional indicators. In addition, I also include 'other factors', a set of conditioning information and policy indicators suggested by previous empirical works, in order to test robustness of the estimates of regressions performed. I discuss below the sample and my choice of variables.

4.1. Sample

This paper examines the Turkish case comparatively with that of Poland and Spain. The time span of the data differs in each country in line with the data availability. Turkish GNP data on quarterly basis starts in 1987Q1 and that of Poland starts in 1995Q1, therefore these are the dates defining

the starting period for the analysis. The analysis with Spanish data starts in 1984 Q1, which is the earliest period where ICRG data is available. The all data for Turkey, Poland and Spain ends 2004Q4. However, since the first part of the study investigating the effects of the EU membership process on institutions does not require having GDP data, all analyses in the first part starts in 1984Q1.

The ICRG and TCMB data are on monthly basis, they are averaged over quarters for the purpose of the study. The remaining data have quarterly frequency. In addition, considering the fact that Turkish economy underwent serious crises during the period under the analysis, the crisis dummies are included into the regressions. Specifically, in line with the National Bureau of Economic Research (NBER) definition of recession of 'two or more quarters of declining real GDP' with 'a significant decline in economic activity', the consecutive quarters with an average contraction of 3 percent or more are designed for dummies in order to capture the effects of significant downturns in the Turkish economy. Accordingly, the first and second quarters of 1994, the last quarter of 1998 and the first quarter of 1999 and finally the first two quarters of 2001 matching this criterion are included as dummies into the analysis. The ERM crisis is reflected in Spain's regressions with a dummy covering the time span between the third quarter of 1992 and second quarter of 1993. Finally, an unexplained sudden drop in Polish GDP in the last quarter of 1996 (a possible correction in figures or misclassification between periods) is taken into account with a dummy for that quarter only.

4.2. Institutions

Proxies for institutions (institutional quality and conflict governance ability) are drawn from International Country Risk Guide (ICRG) database. The indices are chosen following Rodrik(1999), Hall and Jones (1999) Easterly and Levine (2003) and Easterly et al (2006). The data is monthly and averaged over quarters. The data span covers 1984Q1 and 2004Q4. The main criticism against the ICRG data is that they are based on the subjective assessments and therefore subject to measurement errors. However, the uniqueness of this data set comes from it being the only consistent monthly data source that can be used in time series. All the other sources are ill suited for this type of analyses because they have very short spans and are spotty. Transparency index, for example, consists of yearly series constructed by experts opinions and surveys, and includes only corruption related indices. Freedom House rates only political rights and civil liberties on the basis of surveys and the data is again yearly. Gallup International relying on participant surveys compiles a governance index once a while for special occasions (i.e. the millennium survey or the gallup international 50th anniversary survey, etc.). Therefore, ICRG data, does not only provide comparability across countries by using common criteria for all countries, but also it offers monthly and comprehensive evaluations of political risk components with much more extensive coverage than other survey data (Bubnova (2000)).

4.2.1. Institutional Quality Indicators

Proxies for institutional quality are law and order, corruption, investment profile and bureaucratic quality. The *law and order* indicator consists of two components (law and order) that are assessed

separately. While the law subcomponent evaluates the strength and the impartiality of the legal system, the order sub-component is an assessment of popular observance of the law. The *corruption* indicator assesses the corruption within the political system. The *investment profile* indicator consists of the three subcomponents: contract viability/expropriation, profits repatriation, and payment delays. The *bureaucratic quality* indicator measures the strength and expertise to govern without drastic changes in policy or interruptions in government services[1].

4.2.2. Conflict Governance Ability Indicators

Proxies for conflict governance ability are democratic accountability, internal conflict, ethnic conflict and socioeconomic conditions. The *democratic accountability* index assesses how a system of governance for a given country can be rated within a scale of alternating democracy to autarky. The *internal conflict* index assesses the political violence in the country and its actual or potential impact on governance. The index of *ethnic tensions* refers to the assessment of the degree of tension related to racial, nationality or language divisions in a given country. The *socioeconomic conditions* index assesses the socioeconomic pressures at work in society, while measuring unemployment, customer confidence and poverty[2].

[1] http://www.adbi.org/3rdpartycdrom/2004/12/01/1359.international.country.risk.
[2] http://www.adbi.org/3rdpartycdrom/2004/12/01/1359.international.country.risk

4.3. The use of Principle Component Analysis in Institutional Indicators

As some of the indices for a given country within a certain time span do not show much variation, I take a weighted average of these indicators using principal component analysis to decide on these indicators. I used the following procedure. I tested each institutional quality and conflict governance ability indicators for normality using the Jacque Bera (henceforth J-B) normality test. The indices for which J-B rejects the null hypothesis of normality (at 5 percent level) are grouped together to construct composite indices using the principal components analysis. Composite indices constructed as such tested once more for normality and the ones for which J-B fails to reject the normality are included into estimations. Consequently, while examining both the relationship between *EU membership and institutional quality indices* and the long-run relationship between *institutions (institutional quality and conflict governance ability) and growth*, the individual indices and composite indices considered in all analyses are those for which J-B fail to reject the normality[3].

In Turkey, J-B rejects the null of normality for *law and order*, *corruption*, *bureaucratic quality*, *ethnic tensions* and *socioeconomic conditions* indices. Therefore, four institutional quality composite indices (*'law and order-bureaucratic quality'*, *'corruption-investment profile'*, *'law-corruption-bureaucratic quality'* and *'corruption-investment-bureaucratic quality'*) and four conflict governance composite indices (*'internal conflict and ethnic tensions'*, *'democratic accountability and socioeconomic conditions'*, *'internal conflict, democratic accountability and socioeco-*

[3]The first principal components in terms of the eigenvectors used in the calculations are presented in Appendix C.

nomic conditions' and *'ethnic tensions, democratic accountability and socioeconomic conditions'*) are calculated. J-B fails to reject the null hypothesis of normality for these composite indices at 5 percent level.

In Poland, J-B rejects the null of normality for *investment profile*, *bureaucratic quality*, *democratic accountability* and *socioeconomic conditions* indices[4]. The four institutional quality composite indices constructed for Poland are *'law and order and bureaucratic quality'*, *'corruption and investment profile'*, *'law, corruption and bureaucratic quality'* and *'corruption investment and bureaucratic quality'*. The conflict governance composite indices calculated for Poland are *'internal conflict and democratic accountability'*,'*internal conflict and socioeconomic conditions*' and *'internal conflict, democratic accountability and socioeconomic conditions'*.

in Spain, J-B tests rejects *investment profile*, *bureaucratic quality*, *law and order*,*internal conflict* and *democratic accountability*. Similarly four institutional quality composite indices and four conflict governance indices for which J-B fails to reject the null of normality are calculated. The institutional quality composite indices calculated are *'corruption and bureaucratic quality'*, *'corruption and investment profile'*, *'law, corruption and bureaucratic quality'* and *'corruption, investment profile and bureaucratic quality'*. Conflict governance indices calculated are '*democratic accountability and socioeconomic conditions*', '*internal conflict and socioeconomic conditions*', '*internal conflict, socioeconomic conditions, democratic accountability*' and '*ethnic conflict, democratic accountability and socioeconomic conditions*'.

[4]Poland's ethnic tensions series is excluded from the study since the series do not exhibit any variation at all.

4.4. '*Other Factors*' (Fundementals)

To assess robustness of my estimations results, I include several possible determinants of economic growth suggested by previous studies. Specifically, I include a group of policy indicators: Inflation rates and government consumption expenditures over GDP capturing macroeconomic stability (Easterly & Levine (2001), Fisher (1993)) and the share of the total of imports and exports over GDP as an indicator of openness (Frankel & Romer 1999). These variables are incorporated into the study in the form of a composite index as well. The principal component analysis is used (once more) to construct composite indices for each country. it is worth emphasizing that forming the composite index as such does not suggest that these indicators are the most important factors that are associated with economic growth. Rather, the aim here is solely limited with constructing a comprehensive index of 'other factors' so that the test of long-run relation between the quality indices and growth are not biased by omitted variables.

The inflation rates and current account figures of Turkey are obtained from Central Bank of Turkey database (TCMB). The corresponding figures of Poland and Spain are drawn from International Financial Services (IFS). The government consumption expenditures of Turkey are drawn from IFS, and those of Poland and Spain are drawn from OECD database. The external trade data for Turkey comes from TCMB, and that of Poland comes from OECD, and that of Spain is obtained from IFS database.

Chapter 5

Results of Analyses and Estimations

This section evaluates the following two questions. First, does EU membership process affect institutional quality? Second, do institutions (both in terms of institutional quality and conflict governance ability) affect growth[1]? If EU membership process improves institutional quality and if institutions enhance economic growth, EU membership process can be considered beneficial on its own as a factor fostering economic growth. But if the EU membership process does not significantly improve institutional quality and if institutions affect growth, countries can pursue that path deliberately, with or without EU guidance[2].

[1] Since the membership process is not likely to affect the conflicting governance variables (i.e.ethnic tensions, internal conflict, etc.) these are excluded from the first part of analysis.

[2] A word of caution is in order. It might take generations to detect the effects of a major change (i.e. EU membership) on institutions (and similarly the effects of institutions on growth) and accordingly it might require an analysis with much longer time span than this study covers. This study aims to crystallize the simultaneity between the the membership process and institutional quality and the effects of institutions on growth using the data within the available time span.

5.1. Does EU membership process affect institutional quality?

The analysis has two parts: First, the simultaneity between the evolution of institutional quality indices and the membership process is explored by a trend analysis. Second, each institutional quality index is examined for the structural change. The aim is to investigate whether a major event like the membership process coincides with a structural change in the series or not. Finally, results of both analyses are compiled together to see whether EU membership process positively affected the institutional quality in countries studied. As mentioned above, while an improvement or deterioration in institutional quality indices can be affected by a number of political, social and/or economic factors, the aim is limited to see whether the amelioration in the indices coincides with the EU membership process.

First, the simultaneity between institutional quality indices and EU membership process are evaluated by a *trend analysis* where the indices are regressed against a time trend. The progress of the indices is studied in two sub-periods 'before the membership process' and 'during the membership process' for Turkey and Poland and 'before and during the membership period' for Spain. Thus, the comparison is both within and across the countries. The results are displayed on the Table 8. For Turkey, the membership process is assumed to start with Customs Union signed in December 1995, accordingly a break around or after will be indicative about the role of the membership process on institutions. Poland became an official candidate in December 1997 (and member in May 2004), any break date after or around the year 1997 can be considered as a possible effect of the EU membership process. Spain being a member for almost for the whole period under analysis (she is member since January 1986) is included as a control variable.

Panel A of Table 8 displays the results for Turkey. The individual index of *investment profile* and the composite index of '*corruption and investment profile*' are the only indices that are improved in Turkey after the membership process started. The other composite indices, '*law and bureaucratic quality*', '*law, corruption and bureaucratic quality*', and '*corruption, investment profile and bureaucratic quality*' are deteriorated with the membership process.

Panel B of Table 8 indicates the results for Poland. For Poland, none of the institutional quality indices improved during the membership process, except the ones which include investment/investor related index ('*corruption and investment profile*' and '*corruption, investment profile and bureaucratic quality*'). On the contrary, the individual indices of *law and order* and *corruption* and the composite indices of '*law and bureaucratic quality*' and '*law, corruption and bureaucratic quality*' deteriorated significantly after the membership process started.

For Spain (Panel C of Table 8), though within comparison rows are not much informative due to limitations in data span, time trend tests imply that all institutional quality indices either progressed after the membership or at least did not deteriorate after the membership.

Second, the structural changes in indices are studied with *Andrews-Quandt tests* (A-Q henceforth). The aim is to detect whether a major event like the membership process results in a structural change in the series or not. Panel A of Table 9 shows the results for the structural break tests for Turkey. The A-Q tests indicate a structural change in 1997Q3 for the *investment profile* index and the composite indices of '*corruption and investment profile*', '*corruption, investment profile and bureaucratic quality*'. The time of the break, almost a year after the membership started. The break can be assessed as a result of subsequent effects of the membership process.

Panel B of Table 9 shows the test results for Poland. A-Q tests indicate a structural break only for the corruption index (1999Q2). The structural break tests fail to reject the null of no break for other individual and composite indices within the time span analyzed. Panel C of Table 9 shows the results for Spain. The tests results do not suggest a structural break for the indices within the time span analyzed.

There are two caveats to note, before putting together results of above tests and analyses and starting to draw conclusions. First, as mentioned earlier, recognizing the fact that is not possible to decompose and deduct the pure effect of the EU membership process on the quality indices, the aim here is limited to see whether there is an(y) obvious effect of the process that will affect the prevailing trends on the indices under study. Second, institutional quality indices used are quantified by ICRG experts. The indices, although used in a number of studies (including Hall and Jones (1999), Rodrik (1999), etc.), are based on subjective assessments of ICRG experts. However, the uniqueness of the data comes from being the only consistent data set with monthly evaluations in addition to its extensive coverage for political risks.

Bearing these caveats in mind, the following conclusions can be drawn. In Turkey, EU membership process seems to coincide with the improvements only in the individual index of *investment profile* and in the composite index of '*corruption and investment profile*'. On one hand, both of these indices improved with the membership process and on other hand A-Q tests suggests a break within almost a year following the membership process. For Poland, only the composite indices including investment/ investor related indices, '*corruption and investment profile*' and '*corruption, investment and bureaucratic quality*' are improved after the process started. However A-Q

structural break test results do not indicate any endogenous break for these indices. Therefore, the membership process does not coincide with a significant improvements in institutional quality indices. For Spain, indices seem to improve (at least they are not deteriorated) with the membership process. However, the A-Q tests do not suggest any break for institutional quality indices of Spain. It is possible to conclude that there is a weak positive relationship between the membership process and the indices. However, given the institutional quality indices data start in 1984 and Spain became member in 1986 time span the relationship between the membership process and institutional quality indices in Spain needs to be evaluated with caution.

As a result, the answer of the question asked in the start, 'Does EU membership process helps improving institutional quality?' is 'It depends'. For some countries the membership process can be a deriving force for major institutional quality improvements, but it may not work the same on others. Furthermore, the membership process may help ameliorating some institutional quality indices in a given country while it may not work the same on other indices in the same country. The above test results and time trend analyses do not provide enough evidence to conclude that EU membership process affects institutional quality overall positively.

5.2. Do Institutions affect economic growth?

In order to evaluate the effects of institutions (both institutional quality variables and conflict governance variables) on economic growth two step ARDL methodology developed by Pesaran et al (1996) and (1998) is used. This section, different from the previous section (which analyzes only the institutional quality variables), considers the big family of institutions to analyze *institutions-*

growth relationship with a wider perspective. For this, a group of institutional variables embracing both institutional quality indices and conflict governance indices are examined. Since the aim of this section is to investigate which institutional component is effective in promoting economic growth, institutional quality and conflict governance indices are examined one-at-a time.

The first step in line with ARDL methodology is to test the existence of the long-run relation between institutions and growth. The long-run relation is tested based on the error correction version of the ARDL model (Equation 3.6). If the long-run relation between variables to be estimated is not rejected, ARDL estimation procedure proceeds to the second stage: estimation of the long-run coefficients. The long-run coefficients are calculated as described in Equation 3.8 using the optimal model based on both AIC and SBC model selection criteria. Furthermore, in order to check the robustness of the long-run coefficients estimated, the individual and composite indices with significant long-run coefficients in estimations performed in line with the second step of ARDL methodology are estimated once more together with *'other factors'*/fundamentals (that might affect growth). Given that the relevant data is quarterly, in each case variables are tested with up to 4 lags.

5.2.1. Institutional Quality and Growth, Turkey

The effects of institutional quality indices on growth are estimated using two step ARDL estimation, the composite index of '*law and bureaucratic quality*' is found to be effective in promoting economic growth in Turkey in ten percent level of significance. Table 10 summarizes F tests investigating the long-run relationship between institutional quality variables and growth in Turkey.

Results suggest a highly significant long-run relationship between indices and growth. When the long-run relationship is tested further in the presence of dummy variables and '*other factors*' (Table 11), the long-run relation between institutional quality variables and growth persists and remains to be significant in 5 percent. While the institutional quality indices can be considered as 'long-run forcing variables' variables, using the terminology of Pesaran et al (1996), the reverse is not true. In other words, economic growth can not be considered as long-run forcing variables for institutional quality variables suggesting that institutional quality factors are not affected by growth in Turkey.

Since the long-run relationship between the institutional quality indices and growth is not rejected, we can proceed to the next step in line with the ARDL methodology: To estimate the long-run coefficients. The results are summarized in Tables 12 and 13. Table 12 displays the estimation results with institutional quality individual indices. The first and and second rows show the estimates of the long-run coefficients of *investment profile*. The long-run coefficients do not come out with significant coefficients.

Table 13 shows the long-run coefficients of composite indices of institutional quality variables. The estimation results in the the first two rows show the long-run coefficients of the composite index of *'law and order and bureaucratic quality'*. Both coefficients estimates with AIC and SBC are significant at 10 percent level. The other estimates of long-run coefficients of composite indices, namely, '*corruption and investment profile*' (third and fourth rows), '*law and order, corruption and bureaucratic quality*' (fifth and the sixth rows) and '*corruption, investment profile and bureaucratic quality*' (seventh and eight rows) do not come out with significant coefficients.

The next step is to check the robustness of the long-run coefficients. Institutional quality indices that have significant long-run coefficients of *'law and order and bureaucratic quality'*) are tested further by including the *'other factors'*. The results are summarized in Table 14. Accordingly, the coefficient of *'law and order and bureaucratic quality'* (first two rows) remain to be significant even after inclusion of the *'other factors'*.

In sum, the coefficients of '*law and order and bureaucratic quality*' are found to be robust institutional quality indices affecting economic growth in Turkey. The magnitude of the coefficients suggests that a one point increases the composite index of *law and order and bureaucratic quality* are associated with 0.5 percent (if the ARDL order is determined in line with AIC) and 0.6 percent (if the ARDL order is determined in line with SBC) increase respectively in GDP growth rate in the long-run in Turkey.

5.2.2. Conflict Governance Ability and Growth, Turkey

The effects of conflict governance indices on growth are estimated using two step ARDL estimation, the indices of *internal conflict* and '*internal conflict and ethnic tensions*' are found to be effective in promoting economic growth in Turkey in ten percent level of significance.

F Test results (Table 15) indicate that there is a significant long-run relationship between the indices and output per capita growth. The second set of F test consists of a long-run relationship tests together with the crisis dummies and the *'other factors'* (Table 16). The significant long-run relationship between conflict governance indices and growth persists even after including dummies and *'other factors'*. Similar to the previous section, F tests results do not support the reverse

causality (from the conflict governance variables to economic growth) in Turkey for the period under analysis.

Second step of the ARDL estimation is to estimate the long-run coefficients of the individual and composite indices. Table 17 shows the estimation results with individual indices. The long-run coefficients of *democratic accountability* (first two rows) , *internal conflict* (third and fourth rows) are estimated. The coefficients of the *internal conflict* index (third and fourth rows) estimated with AIC and SBC are significant within 10 percent. Table 18 shows the estimation results with composite indices. The long-run coefficients of *'internal conflict and ethnic tensions'* (the first two rows) are significant in 10 percent.The estimates of long-run coefficients of *'democratic accountability and socioeconomic conditions'*(third and fourth rows), *'internal conflict, democratic accountability, socioeconomic conditions'* (fifth and sixth rows) and *'ethnic tensions, democratic accountability, socioeconomic conditions'* (seventh and eight rows) are not significant.

Finally, the long-run estimates that come out with significant coefficients (the index of *internal conflict* and the composite index of '*internal conflict and ethnic conflict*') are estimated once more together with '*other factors*'. As the estimation results show (Table 19), the coefficient of *internal conflict* is still significant in 5 percent (first two rows). The magnitude of the coefficient suggests that a one point increase in the *internal conflict* index is associated with a 0.34 per cent(if the ARDL order is determined in line with AIC) or 0.43 per cent (if the ARDL order is determined in line with SBC) increase in GDP growth rate in the long-run. Furthermore, the coefficient of the composite index of '*internal conflict and ethnic tensions*' (third and fourth rows) also comes out with a significant coefficient. the coefficient of *internal conflict* is still significant in 10 percent. The

magnitude of the coefficient suggests that a one point increase in the '*internal conflict and ethnic tensions*' index is associated with a 0.37 per cent(if the ARDL order is determined in line with AIC) or 0.46 per cent (if the ARDL order is determined in line with SBC) increase in economic growth in the long-run in Turkey.

5.2.3. Institutional Quality and Growth, Poland

Table 20 displays the results of the F tests investigating the long-run relationship between institutional quality indices and growth. F tests fail to rejects the null of no long-run relationship between individual institutional quality indices (both individual indices and composite indices) and growth. As a result, institutional quality variables (in terms of the indices studied) are not the 'long-run forcing variables' of economic growth in Poland for the period under analysis in Poland.

5.2.4. Conflict Governance Ability and Growth, Poland

The effects of conflict governance indices on growth are estimated using two step ARDL estimation, the composite index of '*internal conflict, democratic accountability and socioeconomic conditions*' is found to be effective in promoting economic growth in Poland in ten percent level of significance.

The F tests, as displayed in Table 21, reveal a significant long-run relationship between the individual indices, *internal conflict* and the composite indices, '*internal conflict and democratic accountability*', '*internal conflict and socioeconomic conditions*' and '*internal conflict, democratic*

accountability and socioeconomic conditions'. The F tests with conflict governance variables and '*other factors*' (Table 22) show that the composite indices of '*internal conflict and socioeconomic conditions*' and '*democratic accountability, internal conflict and socioeconomic conditions*' remain to be significant when tested together with the *'other factors'*.

Then, ARDL estimations are carried to the second step: estimations of the long-run coefficients of indices. Table 23 shows the estimations results. The coefficients of *internal conflict* (first two rows), '*internal conflict and democratic accountability'*(third and fourth rows), '*internal conflict and socioeconomic conditions*'(fifth and sixth rows), *internal conflict, democratic accountability, socioeconomic conditions'* (seventh and eight) are all significant either with AIC or SBC or both with AIC and SBC[3].

Next, the indices are estimated together with *'other factors'* (Table 24). The long-run coefficient of the composite index of '*internal conflict, democratic accountability and socioeconomic conditions*' remains to be significant if AIC used in estimation, but lost its significance if SBC used in estimation. Since AIC and SBC perform equally well in diagnostic tests, it is possible to conclude that the coefficient of the composite index of '*internal conflict, democratic accountability and socioeconomic conditions*' is significant in generating economic growth in Poland. The magnitude of the coefficient suggests that a one point increase in the composite index of '*internal conflict, democratic accountability and socioeconomic conditions*' is associated with 0.4 percent increase in GDP growth in the long-run.

[3]The estimation related to the composite index of '*internal conflict and democratic accountability'* may not be meaningful since F tests indicate a reverse causality.

5.2.5. Institutional Quality and Growth, Spain

F test results, as displayed in Table 25 and Table 26, do not reject the existence of a long-run relationship between institutional quality indices and growth. Table 27 shows long-run estimates of individual institutional quality indices. The estimations of the long-run coefficients *corruption* do not come out with significant coefficients. Table 28 shows long-run estimates of composite institutional quality indices. The estimations of the long-run coefficients of *'corruption and bureaucratic quality'*(first two rows), '*corruption and investment profile'*(third and fourth rows), '*law and order, corruption and bureaucratic quality'* (fifth and sixth rows) and *'corruption, investment profile and bureaucratic quality'* (seventh and eight rows) are not significant. However, these results are expected. Given that Spain, the control country of the study, is a developed country with well-established institutions, the results are in fact as expected. When a country is far from its potential steady-state income, even moderate movements in the right direction can produce a big payoff (Rodrik 2007). Though, for a country like Spain which is part of the 'developed countries' the reverse of the argument is valid[4].

5.2.6. Conflict Governance Ability and Growth, Spain

F test results, as displayed in Table 29 and Table 30 do not reject the existence of a long-run relationship between conflict governance indices and growth. Table 31 shows long-run estimates of individual conflict governance indices. The estimations of the long-run coefficients of *socioeconomic conditions* (first two rows), *ethnic tensions* (third and fourth rows) do not come out with sig-

[4]From the common list of developed countries of World Bank, IMF.(allexperts.com).

nificant coefficients. Table 32 shows long-run estimates of composite conflict governance indices. The estimations of the long-run coefficients of '*democratic accountability and socioeconomic conditions'* (first two rows), *'internal conflict and socioeconomic conditions'* (third and fourth rows), *'internal conflict, democratic accountability and socioeconomic conditions'* (fifth and sixth rows), *'ethnic tensions, internal conflict and socioeconomic conditions'*(seventh and eight rows) are not significant. The results, as mentioned above, are expected and in line with the growth theory .

Chapter 6

Conclusion

In this paper, I analyzed the validity of the following argument: EU membership process will foster economic growth through institutional improvements. To analyze this, I examined the case in Turkey (an eager associate member/candidate for a long-time) compared to Poland (a new member of similar size) and Spain (an old member of similar size) and studied two hypotheses embedded in this argument separately: the effects of institutions (both the effects of institutional quality and conflict governance ability) on growth and the effects of the membership process on institutional quality (since EU membership process will most likely affect the institutional quality, while it may have only some indirect effects on conflict governance ability). The ARDL estimation results indicate that in Turkey the composite institutional quality index of *'law and order and bureaucratic quality'* is significant to generate growth. In addition, conflict governance indicators matter for growth both in Turkey and in Poland. Specifically, the index of *internal conflict* and the composite index of *'internal conflict and ethnic tensions'* are significant in enhancing growth in Turkey, while

a composite index of *'internal conflict, democratic accountability and socioeconomic indicators'* is significant to foster economic growth in Poland. However, as expected, institutions (neither institutional quality indices nor conflict governance indicators) do not have a significant role in generating economic growth in Spain. Furthermore, the structural break tests and time trend analyzes indicate that, in Turkey, only investment/ investor risk minimization related index improves during EU membership process. Other institutional quality indices, the composite indices including the *law and order*, the (lack of) *corruption* and the *bureaucratic quality* are not improved and in fact deteriorated during the membership process. The case with Poland follows a similar pattern. In Spain, institutional quality indices seemed to be improved during the membership period.

However, my results are subject to a number of qualifications. First, institutional quality indices used in the study are quantified by the assessments of ICRG experts as mentioned earlier. ICRG indicators have been criticized for being constructed from the subjective evaluations of a small number of experts; but numerous studies, starting with Knack and Keefer (1995) and Hall and Jones (1999), have used them. Since this is the only available governance indicator data source with monthly or quarterly frequency; I use it in my analyses along with all its imperfections. Second and more important, Turkish economy underwent serious economic crises in the last twenty years, with a contraction rate varying from 2 percent to 10 percent per year. Working with such volatile growth rates (though trying to counterbalance them with crises dummies) impedes the crystallization of the effects of the institutions on economic growth. Finally, the time span available for Polish data is too limited to draw definite conclusions.

Cognizant of caveats, the results have the following implications. First, as far as its effects on institutional quality are concerned, EU membership process does not act as a beacon for (at least some) candidate countries. Second, the fact that estimation results for Turkey suggest that only the the composite index of the *'law and order and bureaucratic quality'* come out with significant coefficients should not infer that they are the only institutional quality indicators that matter for growth, and that other institutional quality indicators i.e. corruption do not matter for growth. Similarly, the fact that only the individual index of *internal conflict* and the composite index of *'internal conflict and ethnic tensions'* are significant in generating growth should not undermine the importance of other conflict governance variables, like democratic accountability and socioeconomic conditions. In fact, they rather should provoke discussions on 'getting institutions right'.

Actually, understanding and implementing 'the institutional diversity' emerges as a fundamental issue for less-developed economies. As Rodrik (2000) puts forward, it would be misleading just to rely on importing a blueprint for institutions from well-developed economies. In fact, with Qian (2003) words 'successful institutional reforms need not to be (since there is an enormous need for efficiency improvement and fine tuning adjustments are not necessary) and should not to be (since there exist country and context specific aspects of the initial conditions) a simple copy of the best practice institutions'. Actually, as Chang (2004) explains in detail, less-developed countries should learn more about the developmental experiences of the developed countries in order to make informed choices about the institutions which are right for them, instead of trying to imitate 'right institutions'. Finally, the fact that conflict governance ability of both countries (Turkey and Poland) is significant in generating economic growth makes the conflict handling an important duty for national leaders.

Part II

Economic History of Turkey

Chapter 1

Introduction

Today, the Turkish economy stands among the 20 largest economies of the world; its economic development, however, was not without halts. In fact, it was subject to a series of balance of payment crises over the past 50 years. Moreover, capital account liberalization measures undertaken in 1989 increased the 'vulnerability of the economy to banking, currency and generalized financial crises', and crises started recurring every couple of years with ever increasing magnitude. However, in the last few years, as a result of the measures implemented in line with the final disinflation program (nineteenth stand by agreement with International Monetary Fund) the Turkish economy is now been perceived as the 'strongest in a generation' by the IMF executive board [1]. Indeed, Turkey was able to decrease its inflation from upper double digits (where it stood almost for the last 20 years) to below 10%, albeit with a current account deficit of about 6% of GNP and public sector debt amounting to 60% of the GNP [2].

[1] IMF Press Release No. 05/104 May 11, 2005.

[2] The most recent figures available for the year end 2007 as provided by Turkish Treasury and the Central Bank of Turkey.

Furthermore, on the other side of the coin, Turkish economic governance has also displayed many instances of arbitrary policy making, mostly characterized by an absence of a long run perspective, trading today's benefit for the predictable future costs, while protecting interests of a small group of politicians, bureaucratic elite and business people. Such economic governance, however, impeded the way to stable, sustainable and equitable economic development in many respects.

At this point, referring to the historical evidence crystallizes the nature of the repetitive mistakes in implementing economic policies. However, trying to understand historical events is not only an intellectual exercise focused on the past. It has important implications for today's and future's policy making. More generally, while the series of events analyzed in this paper all remain in the past, understanding them helps us to understand today's Turkey. That is why the paper starts with a distant past in the Ottoman Empire, briefly describing its economic evolvement and governance. This is the only way, this paper argues, to understand the true heritage (with all its strengths and weaknesses) taken over by Modern Turkey. In addition, such an historical knowledge may prevent us from recurring mistakes. In this respect, disregarding the history for nations may be equivalently as tragic as a memory loss for human beings.

The motivation behind this paper is to review critically the near and distant past economic events. While doing that, it briefly illustrates the institutional environment within which these economic events took place. Since institutions are, following North (1990), humanly devised constraints that shape incentives, neglecting them would prevent us from seeing the whole picture. In addition, the study also includes the educational policies undertaken by governments (or rulers)

in charge. Since perception of education gives invaluable clues how a country plans to shape its future, incorporating an educational dimension into an economic history study enables us to take a wider perspective on historical events.

Given the lengthiness of the period under the analysis and limitations of such a short review, the paper is organized in two main parts: The Economic History of Ottoman Empire and of Modern Turkey. Ottoman economic history is reviewed in three sections: 1-The Ottoman economic mind (1300-1600), 2-Facing the Challenges (1600-1800), and 3-The Ottoman Modernization and Dissolution (1800-1914). Turkish economic history is examined in nine sections: 1-The years of war (1914-1922), 2-The time of recovery (1923-1929), 3-The protectionist and the etatist policies (1930-1939), 4-The years of world war II (1940-1945), 5-Agriculture-led growth (1946-1953), 6-The way out of the crisis: Experimental policies (1954-1961), 7-Neo-etatism: ISI (import subsidized industrialization) and populist policies (1962-1976), 8-The crisis (1977-1979), and finally, 9-The years of economic liberalization (1980-1995). The last section concludes.

Chapter 2

Ottoman Economic Mind (1300-1600)

The Ottoman Empire was founded around 1300 as a frontier municipality from which it would be transformed in a couple of centuries into a world empire ruling over the areas from Europe to Indian Ocean. The desire for territorial expansion, motivated by the 'Ideal of Gaza' and backed by a complex political structure, played a crucial role in the transformation process from an insignificant frontier municipality into a powerful empire[1].

Ottoman economic governance was guided by the principle of ***provisionism***, the economy of plenty, securing steady supplies of critical commodities for the well-being of the community, together with ***military imperialism***, ***fiscalism*** and ***traditionalism***. While, ***military imperialism*** denotes the use of military power to obtain and secure wealth, ***fiscalism*** signifies the maximization of revenues from the people under one's rule at all times and ***traditionalism***, aims to preserve the existing social and economic equilibrium in the society, while avoiding any tendency to change.

[1] Gaza is the holly war against the infidels.

The principle of ***provisionism*** finds its roots within the Islamic value system where the priority is given to the well-being of the community in order 'to gain acceptance of God' as Inalcik (1996) (p45-48) pointed out. Understanding the economic mind of Ottomans is especially important in realizing how they ensured a level of prosperity unmatched by that of Europe during the Middle Ages and how they remained backward as mercantilist polices later dominated European economic activities.

The economic reasoning of the Ottoman Empire, shaped by Islamic world view, defines its ultimate goal as 'obtaining the acceptance of God' where the real economic goal is not producing and obtaining profit out of it but insuring 'human welfare' by 'giving charity to the poor and needy, committing resources to the welfare of future generations and seeking to improve communal life'. The importance of charity emerges as an important institution which redistributes wealth in the society. As Inalcik (2000) (p142) notes, charitable institutions in Islamic societies were nearly always established as *vakfs*.

Vakf is unincorporated trust founded under Islamic law by a person for the provision of a designated service in perpetuity Kuran (2004). Even though vakfs were financially and administrative autonomous units (where the endower appointed a trustee), they were constantly subject to state inspection to ensure that they were working in line with their establishment purposes. Thus, the state, on one hand, encouraged the formation of pious foundations by giving them a tax-exempt status. On the other hand, the state controlled and confirmed all vakfs, as noted by Inalcik (2000 p142). The system of vakfs created impressive cultural and commercial complexes, mosques, schools, religious seminaries, caravanserais, soup kitchens for travelers and poors, bathhouses,

medical centers, bathhouses, roads etc. both in the capital city, Istanbul, and in the provinces[2]. The main motivation for forming a pious foundation for an endower was to help the needy and thus 'to gain the salvation for the next world' since the richness was considered to be 'temporary' as all things are in this world, and showy behaviors were not appropriate at all [3]. However, endowers via vakfs also 'secure the livelihood of their family and their descendents by appointing them as trustee' (Inalcik 2000 p148). In addition, vakifs worked as a shelter in the face of weak property rights. *Cash vakf* was another type of vakf where cash, instead of an immovable was endowed[4]. The purpose is to lend cash with an interest and to use the resulting interest income to fulfill the establishment goals of the vakf. Actually, cash vakfs which were significant loan providers, were only a part of complex set of institutions that maintained such a large empire for centuries[5].

As Ottoman state was transforming from a frontier municipality into an empire, its institutions together with its land system and military organization evolved accordingly. The ease of its rapid expansion can be mostly explained by the new regime it introduced; a central administration in

[2]In addition, studies on vakf records challenged the idea that women did not own significant property in Ottoman Empire. Baer (1983) as a result of the cadastral surveys in Istanbul in 1546 found out that 36.8 % of the new vakfs were women made. On the other hand, Gerber (1983) shows that 20% of new vakfs in Edirne during the fifteenth and the sixteenth centuries in Edirne were women made. Hoexter (1998) draws attention to the fact that the women endowers came from all socio-economic strata and that they also administered the property they endowed.

[3]It was not a coincidence that most splendid buildings in a given region were religious buildings and all others including the palaces of the ruling elite were rather modest. This reasoning was not easy to understand for some Europeans; for example Schweigger, a German priest, visiting the Ottoman Lands in the sixteenth century concludes that Turkish people, no matter what their status within the society were did not care about the appearance of their houses, but were making great mosques to deceive God (Ortayli (2007) p44).

[4]Although cash vakfs were opposed by those who believed that interest was forbidden in Islam, Pamuk (2004a) notes that pragmatism won the debate, the majority of Ulema (Muslim theologians and scholars) concluded that anything useful for the community would be useful for Islam.

[5]While some historians have not been much interested in the setting up and functioning of Ottoman economic institution, others (like Landes (1998) (p398) for example) went so far as to argue that Ottoman empire was a typical despotism. However, as Landes reduces the Ottoman Empire with Pamuk (2004a) words to 'a caricature of nomads and raiders, despotism, military conquest, corruption and looting', he fails to understand the reasons behind the longevity of Ottoman Empire; according to Landes (1998 p396), the duration of Ottoman Empire for centuries is a complete 'mystery'. When the perception of historical events is blurred with illiberalism and prejudices, the resulting historical outcomes would eventually appear mysterious.

lieu of feudal decentralization and general regulations instead of privileges that were left at the discretion of feudal lords. Hence the new regime was a significantly improved version of the old one. The two fundamental institutions of the classical Ottoman Empire, according to Inalcik (2000 p47), were the *Kul* and the *Timar* systems. While the kul system refers to a military-administrative servitude (a levy of Christian children to receive a special education in the palace (according to their talent) in order to acquire posts in the Palace, the administration and the army), the timar system refers to a fief whose revenues were held in return of the military service[6]. These two systems together define Ottoman social, political and economic structure. Lybyer (1913) (p36-37), on the other hand, associates the greatness of Ottoman state with, what he considers, two unifying institutions. One unifying institution was the Ruling Institution, including the Sultan, and those who came within the Kul system and occupying posts of government executive officers, varying positions in the standing army as infantry or cavalry, or in the court and the government. The other unifying institution was the Moslem Institution, including those who received a medrese education, and becoming educators, judges, jurisconsults, and priests. Itzkowitz (1962), criticizing Lyberer's classification as 'simplistic and biased', defines four main institutions: the military *(seyfiyye)*, religious *(ilmiyye)*, bureaucratic *(kalemiyye)* and Palace carriers (the ones controlling the military organization, governorships of provinces, the office of Vezir etc coming from the Palace school).

The main economic activity was agriculture and remained so for the entire life of Ottoman Empire. Ottoman rulers, according to Inalcik (2000 p145) and Pamuk (2004a), considered the family labor farm system as the foundation of the fundamental economic and fiscal unit of agri-

[6]While the kul is translated as slave in some texts, Inalcik (2000 p80) notes that this translation is misleading since being Sultan's kul was a honour and privilege and that kuls did not consider Anatolian Turks or any other group as their equals. Kunt(1983), on the other hand, shows that the meaning is closer to 'servants' or even 'subjects' Masters (1988) (p226-228).

cultural production and rural society in their empire, while they regarded the craft guild system as the fundamental institution of the city. Although there were some autonomous distant provinces (with varying degree of administrative control), the typical Ottoman province was where the timar system was in force[7]. Under the timar system, *Sipahis* (the cavalrymen) performing two functions: In addition to their role in the military force (they had to join into military forces when required); they were also provincial administrators (they had the authority to collect a predefined amount of tax and the obligation to ensure the security of the region). State control and (when necessary) intervention were apparent in all aspects of the agriculture from the production process to the distribution of goods[8]. The main reason for the control mechanisms was political (not economic) and it aimed to ensure the continuity of the principles above defined[9]. The presence of Ottoman state in economic activities, throughout the classical period (1300-1600), as a force trying to shape the market, would present a complete contrast with its European counterparts where economic developments were triggered with market forces within a capitalistic system.

Manufacturing, the second important sector in economy, was under the control of the Guild System. The Guild System, similar to the guilds in Europe in fifteenth and sixteenth centuries, aimed to control the supply of raw material, labor entrance conditions and output prices. The main difference in Ottoman state was the role of the state itself, which had a very strong relationship

[7]Different from medieval Europe, however, the Ottoman government, in order to establish and maintain a centralized control was determining in detail all sources of revenues and the rates and the conditions of how the tax would be collected. It was also determining the relations between the Sipahis and the peasants with special regulations called Kanuname.

[8]Pamuk (2004b) argues that while interventionism is considered as a permanent feature of the Ottoman economic policies by some historians, when biases of archival evidence and limitations of state power are taken into account, the Ottoman intervention seems like less permanent and less comprehensive than once thought, in a sense it is selective interventionism.

[9]In other words, the state control meant lowering prices of crops below the market value in time of crisis to obtain overproduction, thus increasing the revenues (fiscalism), or interfering with the distribution of the foodstuff to feed urban areas and even prohibiting the export of some goods to secure the economy of plenty (provisionism).

with the guild. The state, leaving the guild largely autonomous, interfered only to ensure the interest of the Treasury (to secure the related tax revenues) and to protect the interest of general public (to prevent fraud, profiteering, to inspect the quality of merchandise, the appropriateness of the weights used, etc.). In fact the stability of the economy and of the social order was the main objective for both actors. According to Inalcik (2000 p155), this conservative policy found roots within the idea that any innovation would plunge society into disorder and that consequently the state treasury could lose its sources of revenue. As a result, the guilds emerged as dominant players in the economy and strong enough to resist, when its European counterparts declined towards the end of 17th century. The absence of capitalistic development in Ottoman state can be partly explained by the powerful existence of the Guild System, which was by definition, anti-competitive.

Trade was the third important sector in the economy. It was mainly governed to keep the economy of plenty. The major concern was to ensure the adequate flow of necessary foodstuff to the capital city, Istanbul. In fact, internal trade was considered to be more important then international trade. However, international trade, inherited from the Byzantine Empire and Seljuk State, was also taken highly seriously by Ottomans in such a way that they made every effort to control the trade routes from Asia to Europe. A crucial aspect of trade, in line with ***fiscalism***, was the substantial amount of revenue derived from the custom dues[10].

[10]Originally, capitulations, the unilateral documents granting certain privileges to the beholder state (the grantee), were conferred by the Ottomans expecting reciprocal privileges. They could be void if the grantee did not fulfill its implicit obligations. Since the capitulations were granted personally by the Ottoman sultan, they were considered to be invalid after the death of the sultan, unless it was renewed by his successors. The first capitulation was granted to Genoese in fourteenth century, mainly for political reasons. Starting from the sixteenth century, capitulations were granted to many other European states, including France, Catalonia, England, the Netherlands, etc. After having lost their supreme political power, the capitulations were (in fact, had to be) renewed with additional clauses for the benefit of grantee states in line with their mercantilists motivations.

Education in the Ottoman Empire evolved also throughout the classical period. The early Ottoman rulers, and especially Mehmed II among them, attached a special importance to education; that in fact, was apparent from the prevalence of *mekteps* (school for children) and the large numbers of *medreses* (higher institutes), though the latter was concentrated mainly in large cities. In mekteps, the reading of Koran was mostly the main course thought. Medereses, on the other hand, were classified according to their rank and types[11]. The courses taught were, at first, the combination of 'rational sciences' (mathematics, philosophy. logic, etc.) and the religious sciences. But afterwards the latter group gained a central importance in the education (with the exception of the medical schools). The graduates, depending on the rank and type of the medreses they were graduated from, started their job carriers as mektep instructors, judges, higher institute professors or medical doctors, promotion coming with professional experience. On the other hand, Enderun was the palace school where sultan's kuls (devshirmehs) were educated according to their talent. Enderun, where the most prestigious professors came to teach, offered a superior education compared to that of medrese[12](Akyuz (2007) p98).

Although Ottoman Empire was not a religious state in the beginning, following the adoption of the caliphate in the 16th century, religious law became increasingly significant in state administration, and religious concerns started to dominate the making and the assessment of scholar works. Consequently, as 'the precedent' was adopted as the guiding principle, as keeping the traditional order in line with ***traditionalism*** was considered as the ultimate aim in every aspects of life includ-

[11]Medrese education was free in Ottoman Empire. In addition, accommodation and dining facilities also were offered free of charge to students. While mektep education was available to all children (girls and boys), medrese education was only for male students.

[12]Enderun, the palace school, (can be translated as the most inner section) produced artists (in addition to administrators, soldiers, scholars and craftsmen) who gave some of the finest works of Ottoman civilization. (Inalcik 2000 p88). The great architect Sinan for example was a devshirmeh.

ing education, and as the religious principles and dogmas started to dominate Ottoman scholarship, scientific works/thoughts did not find encouraging environment to flourish. Even when they did, they either remained in very limited circles or were not tolerated at all. What Takuyiddin Mehmet, the chief astronomer of the Sultan Murat III, had to face illustrates this phenomena. Takiyuddin founded an observatory in Galata (Istanbul) in 1577 and built also some new instruments (including an astronomer clock) to increase the accuracy of his observations. The observatory, according to Inalcik (1973 p179), was no less advanced than that of Tycho Brahe's, then the most modern in Europe. Inalcik draws attention to the striking similarities between the instruments these two astronomers used. However, a group of theologist (ulema) considered this (watching the sky) as being against the religion, and showed the outbreak of the plague as the proof. The observatory was finally destroyed with the sultan's approval (January 22, 1580)[13].

The principal sources of state revenue, besides war, were taxation related to production and the poll tax. Poll tax was a type of tax addressed to non-Muslim households. The other sources of revenue were the ones derived from mining and salt production. Table 33 prepared from an Italian source which was a copy of an original document, illustrates list state revenues in 1475 in detail. In order to enable its centralized administrative apparatus the Ottoman state needed constant flow of revenues in the form of cash or precious metals. The earliest official Ottoman balance sheet, according to (Inalcik 1996 p78), is dated 1527 (Table 34). The total of the revenues at this peak period of the Ottoman state was more than modest for an empire ruling over an area of about

[13]However, the fact that a new observatory could be built only after almost 330 years later, in 1911 explains great deal about the relatively obscure future waiting Ottoman Empire. ($http://www.tbmm.gov.tr/tutanak/donem21/yil1/bas/b039m.htm$). What is still more striking, today there is a Tycho Brahe museum (nominated for the European Museum of the year award 2007) and a Brahe working observatory in Sweden, while in Turkey, except few interested in Ottoman history no one knows Takuyiddin's name and works. ($http://www.tbobs.lu.se/obscam.html$, and http://$www.tychobrahe.com/eng_tychobrahe/index.html$)

19.9 million km squares, (Europe in total 11 million km square) though much of this was under its indirect control, if compared to the other actors of the time (Table 35). Put differently, if the figures in Tables 34 and 35 are compared in terms of state revenue per capita, using approximate populations, it turns out that all European states excluding France were all better off than the Ottoman Empire in terms of state revenue per capita and per capita state revenues of Italian States were almost 5 times higher than that of Ottoman Empire[14].

The Ottomans developed a system of governance that they built on the common heritage of Seljukid, Iran and pre-Islamic near-eastern rules and state traditions, and managed it to govern in line with their understanding of world, welfare and justice. The system seems to have worked like clockwork over its territories. However, at a time when the major actors of the time were redefining themselves, how did the Ottoman Empire in the middle of the Old World face the changes? The greatest challenge of the empire had a way to come.

[14]According to Barkan estimations, the population in the Ottoman Empire (including the population not entered in tax registers in Balkans and Asia Minor) during the period 1520-35 was around 12-12.5 million (Barkan 1957 from Inalcik 1996 p29). During the mid sixteenth century, the population in Naples, Venice, Florence and Milan were estimated to be around 300 thousand, 190 thousand, 60 thousand and 60 thousand respectively. Meanwhile, Spain's population in the early sixteenth century was estimated to be around 8 million and that of France was estimated to be 16-20 million during the period 1550-1580 (Cochrane (1976) (p19), $http://www.tacitus.nu/historical-atlas/population/westeurope.htm$, $http://www.wga.hu/database/glossary/cities/milan.html$, $http://www.answers.com/topic/venice?cat=travel$, $http://www.italylink.com/travel/naples.html$) .

Chapter 3

Facing the Challenges (1600-1800)

Starting from 16th century, there occurred some important changes both within the Ottoman Empire and in its surroundings. The economic instabilities coupled with financial difficulties led the Ottoman rule to lose its central authority within its domain and its supreme power in the international arena.

While the traditional economies like Genoa and Venice were losing their importance in the world trade; Atlantic economies like England, The Dutch provinces and France, pursuing mercantilist policies, emerged as new actors. Ottoman economic policies, on the other hand, were in 'complete contrast' with mercantilist polices. The main concern in Ottoman economic policies was ***provincialism***, securing the economy of plenty. In order to secure the people's needs, Ottomans could prohibit the export of some items important for local consumption, as mentioned earlier. The impact of ***fiscalism*** was not less salient. Accordingly, Ottomans, while governing their international economic relations, cared about the quantity of goods subject to trade and ig-

nored their quality (i.e. whether they were raw material or finished goods). Western European mercantilist policies, on the other hand, were aiming for a favorable balance of trade. To achieve the trade surplus and the continuous growth of home industries, they needed to import (relatively scarce) raw material, and export manufactured goods at competitive prices. The confrontation of Ottoman traditional economy with European mercantilism ended up being very profitable for European countries but had destructive impacts for Ottoman economy.

Starting from the 16th century, the Ottoman economy encountered another economic problem, the inflation. The sources of the inflation are debated among historians as Pamuk (1996) (p959-960) pointed out; while some argue that it was a purely monetary phenomenon with the injection of gold and especially silver from the Americas to Europe, others draw attention to the importance of real causes, (as the population increases put increasing pressure on the available resources) showing that the prices of commodities rose faster than the prices of the manufactured goods. Accordingly, the Ottoman inflation was either caused by real factors such as population pressure or 'imported' from Europe, or a combination of both. Its consequences, however, were more obvious; a decline in the purchasing power of the currency and instability in the fiscal system. In the face of rising inflation and increasing state expenditures necessary to finance warfare[1], Ottoman rulers who were used to managing a very stable economy and who were not familiar with the inflation, started to use devaluation as a short term solution[2]. The consequences of these efforts are apparent in the level of the prices and on the depreciation of the currency as indicated by the Figure 9 and Table 36 respectively.

[1]Long and costly wars with Iran, Austria, Venice (for Crete), Austria again (the second siege of Vienna.)

[2]The first dramatic devaluation in 1584-86, a turning point in the Ottoman economic history, resulted in a Janissary revolt in Istanbul.

Ottoman society reacted to the inflation burden and to the destabilization of the economy in different ways. As a part of the upper-ruler class tried to use its political power to compensate the decline in their real income, and became corrupted, some members of the bureaucracy lost most of their ethic concerns.

Janissaries (the infantry in the Ottoman army), even though they were previously banned from any sort of economic activity, they were becoming merchants or artisan and transforming to a group of 'small tradesmen with judicial and tax immunities' with McGowan (1996) (p659) words. They were also using coercive means vis--vis the merchants and craftsmen in return of their protection (from them!) or were engaging in rent-seeking activities.

Sipahis (the cavalry in the Ottoman army) disintegrated both in a financial and a military sense, According to Barkan (1975), by the extended inflation hurt by the increase While the agricultural tax collected by Sipahis was fixed in terms of akche (Ottoman currency) their expenses (costs of living and armament) were rising steadily. The central government, instead of adjusting for the tax amount that Sipahis were collecting, put extraordinary taxes that were collected by the central Treasury (Pamuk (2001)). Consequently, many of them choose not to join to the army and their continued absence led to confiscation of their timars (Shaw (1976) p261, 262). In fact, Sipahis were mostly considered to be useless by then with the developments in the warfare. Sipahis, in turn, either ignored the confiscation or started to engage in banditry and joined the Celali Rebellions, the uprising of provincial administrators and the irregular soldiers at the end of 16th century and during the 17th century (Shaw 1976 p186 and Faroqhi (1996) p416, 434). The absence of administrative power in the provinces was soon replaced by a group of notables (Ayan). They were

originally either timar holders, merchants, money lenders, military officers or tax farmers owning large estates. Being enforcing agents of the tax collection and of security, in time they emerged as 'quasi feudal lords'. Ayans, became increasingly a power on their own; so much as to force to Sultan to a treaty with them, The Document of Agreement (*Sened-i Ittifak*)[3].

Conditions for the peasants in the countryside worsened as their security was threatened by the banditry and/or their tax burdens increased in such a level that they did not justify their efforts. Peasants' flight was one of the typical reactions, a phenomenon known as 'Great Escape'. The signs of the social instability and an economic stagnation and even decline were increasingly apparent in all layers of the society. The Ottoman central authority would lose its power both in the capital city, Istanbul, but mostly in the provinces.

But why, with Inalcik words, this 'whole magnificent edifice was shaking to its foundations'? In fact, the changes in the outside world started already to challenge Ottoman Empire. In the sixteenth century and thereafter, the empire had already reached its 'natural' limits, neighboring with powerful states. Wars that used to have an economic value for the Ottomans were no longer profitable. The long wars in the 17th century caused major expenses for the treasury, in addition to their destabilizing effects on economic life Figures 10 and 11. Besides, the technological level of Ottoman military forces was not sufficient for further expansion[4] . Furthermore, since Ottoman attacks were mostly responded to by a Christian alliance, it became increasingly difficult to equip and maintain an army and/or fleet of equivalent power to the combined armies/fleets of the allied

[3]In line with the agreement, the Ayans confirmed their loyalty to the sultan and in return Sultan promised to levy taxes justly and fairly (Shaw & Shaw (1977) p2).

[4]Inalcik (1973 p44) supports this view by transmitting Sir Thomas Shirley memories. Shirley notes that in 1607, one English warship could defeat ten Turkish galleys. Murphy (1999)(p15), on the other hand, argues that there is no serious divergence in methods and standards until after 1680.

states (Inalcik 1973 p44). However, although it was true that Ottomans' 'vital arteries' felt threatened in its external domain everywhere from Mediterranean shores to Caucasia, the reason for the political and economic unrest was nonetheless internal.

As with some other Ottoman commentators, Inalcik (1973 p47) considers that the principle cause of 'decline' lies in the decay of institutions, the Kul and Timar systems[5]. The Kul system deteriorated as taxpaying subjects began to infiltrate into governmental and military services (once reserved only for Sultan's kuls); consequently the system lost its impartiality, and the discipline and the obedience to sultan's authority started to decay.

The timar system also disintegrated. Traditionally, Ottoman military forces consisted of two main groups: The cavalry (Timarli sipahi) and the infantry (Janissary). As military technology developed, the cavalry, which used to be the backbone of Ottoman army, became increasingly inefficient. Therefore, while the number of cavalry was gradually decreased, the number of the Janissaries increased dramatically. However, Timarli Sipahis was a self sufficient system, in which sipahis were using the income of the land devoted to them, so there was no cash outflow needed for their involvement from the treasury. The maintenance of the Janissary, on the other hand, needed constant transfers from the budget.

As a result, on one hand, military expenses increased substantially, and on the other hand, the Janissaries, starting from the end of 16th century, were increasingly becoming a power on their own. They played the major role in dismissing and even the assassination of Ottoman rulers, including the execution of the Sultan Osman II. Thus, although the Janissaries' international military

[5] 'The Ottoman decline' is a matter of debate among scholars. Faroqhi (1996 p553) notes that 'Ottoman Empire was still a formidable military and political power throughout the 17th century' and that major evidence of decline can be perceived only after the second half the eighteen century.

abilities were declining, their ability to defend their 'corporate interests' was strong enough to resist most of the efforts to reform their organization (Ralston (1990) (p46)[6] .

Another effect of the collapse of the cavalry was on the tax revenues, since they were also tax collectors[7]. To overcome the problem in the tax collection, Ottomans attempted to implement Iltizam system (tax farming), where the state sold its tax revenue to the tax farmers in the auction; tax collection was then to be performed by tax farmers (multezim). However, multezims (the highest bidders in the state auction for taxation rights) tried to maximize the surplus for their own benefits; acted autonomously and asked for illegal taxation. The state, in order to both increase its short term revenues and prevent peasants from overexploitation, resorted to life time tax farming (malikane)[8]. The price of that measure, according to McGowen (1996 p661), was to alienate permanently a number of estates of indeterminate size from the tax-farm reservoir due to deficiencies in record keepings.

Reform necessities in the Empire were seized as early as the 17th century, and some reforms were enacted (like reorganizing the timar system, ensuring an effective administrative system while controlling the bribery and/or neoptism, etc.) and some were withdrawn (i.e. creating a new infantry that would replace Janissaries) when confronted with resentment, oppositions or revolts. Pamuk (2004a), studying institutional changes of Ottoman Empire between 1500-1800, draws attention to the fact that Ottomans faced challenges and managed to persist (and also grow) thanks

[6]Since reforms on Janissaries did not seem to work, Sultan Selim III initiated a new army Nizam-i Cedid (New Order) which was aimed to be equipped with the modern world necessities. Janissaries soon revolted again (with the support of Ulema) to force the Sultan to disband it. Their last revolt in 1826 would result finally in their abolishment; The event would be called 'the auspicious event' (Vak'a-i Hayriye) in the history.

[7]One of the key factor feeding the disintegration of the Timar system, according to Barkan (1975) is the Price Revolution of the 16th century and the currency debasement (Pamuk 2001).

[8]While 65% of life lease holders were living in Istanbul in 1734, the ratio increased to 87% by 1789 (McGowen 1996 p 713).

to their pragmatism, flexibility and willingness to compromise, though the Ottoman bureaucracy brought institutional changes only in selective areas: military technology and organization and finance.

The Sultan (or his grand vizier when Sultan was young or incapable) had a determinative role in the initiation and the viability of reforms undertaken since he was the outmost authority. However, starting with the 16th century, Ottoman princes stopped being trained in the provinces with military and administrative duties, but rather started living an enclosed life in the Palace with a comparatively limited training for skills they would need to use. The lack of appropriate practice and education was a factor inhibiting a comprehensive understanding of the main source of problems and proper handling. Nonetheless, institutions in the Empire were strong enough to enable it to survive rather than to be dragged into a rapid disintegration. However, while reforming the existing institutions, the leading idea was that 'Ottoman institutions were superior to those of Europeans so that efforts should be focused to restore them' (Shaw 1976 p175). Within this framework, reforms at best were short-term solutions, which were 'saving the day' but offering no long-term remedy.

Under these circumstances, how did the main sectors in the Ottoman economy evolved? Due to lack of data, it is not possible to draw conclusions on the change of the volume of the agricultural output, manufactured goods and internal and international trade (Pamuk 1999 p184). However, as Pamuk noted further that, it is possible to infer that the increased insecurity with Celali rebellions, coupled with the increasing tax demands of multezims, created unfavorable conditions for the

producers in the agriculture. Finally the 'Great Escape', leaving the agriculturally productive land uncultivated, should have had a negative impact on the level of the agricultural output.

The manufacturing sector which expanded in the sixteenth century was also affected by the ongoing instabilities. However, taking into consideration anti-mercantilist policies of Ottoman rulers, during seventeenth and eighteenth centuries local manufactured goods were not yet hurt by the competition with the European manufactured goods. The reason was that the import items were mainly luxury wool tissue, paper and glass, and their import volume was very limited (Faroqhi 1996 p526, Pamuk 1999p198) at the end of the eighteenth century, the external trade reached at most 2 or 3% of the total production within the Ottoman Empire. The guilds, however, had difficulty in competing with European manufacturers in the purchase of the raw materials from the local markets and asked the authorities the prohibition of the export of the related materials. Accordingly, Ottoman rulers prohibited the export of some materials in the seventeenth and the eighteenth centuries. Another hardship that guilds had to face was due to the fact that the shops, bazaars etc which were mostly operated by vakfs were rented out in auction or (as an ultimate measure when extra sources were needed) were confiscated by state authorities (Cezar 1986 from Yildirim (2006)).

As far as the trade concerns; the internal trade was more important than the international trade in the seventeenth and the eighteenth centuries as it had always been. Even at the end of eighteenth century external trade was still insignificant within the total production of the Ottoman Empire. Within that small share of external trade, the trade with East Europe and Russia, was much more pronounced than the trade with Western Europe. The main export goods were the raw materials

like crops, cotton and raw silk, together with more limited quantities of finished goods like cotton thread and cotton fabric (Pamuk 1999 p197). In governing the internal (regional and inter- regional) trade, the major concern again was to have enough foodstuffs for the urban areas, and especially for Istanbul. The most salient interregional trade was executed with Egypt, the Balkans and Syria.

In the face of increasing military expenses, Ottoman rulers tried to find solutions to the resulting financial crisis. While Ottomans were reluctant to borrow from International markets at that time, they first turned to the 'internal treasury', and then tried internal borrowing. However, while seventeenth and eighteenth are known as the period in which the central authority started to lose control in the provinces, Ozmucur & Pamuk (2002) note that there was no economic decline documented so far in the same period.

In the realm of education however, the ***traditionalism*** continued to prevail. Reforms undertaken were supported by few members of orthodox Ulema, since 'innovations' were conceived as the source of all troubles by most of them, as reflected in chronicles of Naima, an official Ottoman historian of the eighteenth century (Thomas (1972) (p108)). The printing press was first used in 1727, three hundreds year later after its first use in Europe. According to Uzuncarsili (1988), education lost its quality as both the scope of scholar work (the rational sciences were abandoned and replaced by the religious sciences) and the professors' characteristics (they started to be appointed by favoritism rather than by merit) deteriorated. Scientific researches, on the other hand were not systematically encouraged. Ihsanoglu (2007) notes that the connection between research and technology was almost entirely missing in Ottoman technology transfer until the mid-1800s[9]. Partly because of that lack of connection, though there was some striking innovations (like the

[9] $http://www.scidev.net/content/opinions/eng/lessons-from-the-ottoman-empire.cfm$

construction of first submarine), they either performed or constructed for purely entertainment or artistic purposes[10].

In contrast, the European economy gained a new momentum in 'the long sixteenth century' that led to the rise of the capitalism, which paved the way for the Industrial revolution. However, the Ottoman Empire, first observing unprecedented economic as well as political developments in its periphery (within the Old Continent), then experiencing (direct or indirect) consequences of these changes within its domain, contended with short term solutions, which in turn, aggravated the existing problems.

[10]The construction of the fist submarine boat by Ottomans (a craft designed to be navigated underwater) recorded in 1719-1720. Based on what Seyyid Vehbi (contemporaneous poet) and what Abdlcelil Levni (miniature artist) transmit, during the circumcision fest of Sultan Ahmet III's three sons (together with 5000 poor boys) the navy yard's first architect Ibrahim Efendi designed a boat navigating underwater. The boat navigated approximately one hour underwater and carried dancers to the fest place. $http://www.denizalticilarbirligi.com/db.dztarih.htm$) Another innovation came into light with a research by Lu & Steinhardt (2007); from Harvard University. He found out that Penrose patterns (a nonperiodic tiling generated by an aperiodic set of prototiles, developed by Roger Penrose in 1970s) were applied in the Ottoman architecture since 1500s and refutes the conventional view which holds that girih (geometric star-and-polygon, or strapwork) patterns in medieval Islamic architecture a network of zigzagging lines and that the lines were drafted directly with a straightedge and a compass.

Chapter 4

Ottoman Modernization and Dissolution (1800-1914)

The nineteenth century was the period during which Ottoman Empire underwent major challenges in the political, military and economic domains. There occurred a dramatic territorial shrinkage accompanied by an increase in the population densities[1]. The reform efforts were not radical and confronted usually with resistance, financial difficulties of the treasury were more then serious and social unrest was apparent in all subjects within the Empire.

While the roots of the modernization efforts can be traced back to eighteenth century, the rate of change gained an unprecedented momentum in the nineteenth century for all Ottoman subjects. The modernization, though the conscious decision of Ottoman polity, was in fact inevitable. Three major events shaped the last century of the Empire: The Reform Edict of 1839, *Tanzimat* (means

[1] In 1800, Ottoman Empire ruled over an area estimated about to be 3,000,000 sq km, and it shrank to 1,300,000 sq km in 1914, while population densities are almost doubled (Quataert (1996) p777).

reorganization), the declaration of the Constitution and the (first) Constitutional Monarchy (1876) and the Young Turk Revolution and the start of the second constitutional era (1908). The period was characterized by the recentralization of the state apparatus and its expansion to all fields, ranging from industry to education (Ortayli 2004 p112, 123).

The reform efforts gained an historical turning point with Tanzimat, (later another reform edict would be declared at 1856) where the rule of law and the equality of all subjects were granted [2]. Ortayli (2004) (p91) notes that Tanzimat men (Reformists) were a group of intellectuals who were trying to bring a new order in an environment where every institution needed to be redefined. They were, according to Ortayli, Ottomanists (believing in treating all Ottoman subjects equal) though this concept was not internalized by the public as nationalist movements started prevailing all over its domain. They undertook reform measures with an autocratic approach, as they initiated and implemented modernization efforts while there was no widespread demand for the modernization and apply them in a pragmatic manner.

Modernization efforts were centered on the military reforms, where the failures were the most salient and the need of a reform was the most urgent. Accordingly, the establishment of the land and naval school (1776 and 1795), the medicine school (1827) and the military academy (1834) altogether were aiming to form a modern army (Akyuz 2007 p144-146). The modernization process started with military reforms, which inevitably spread to education, finance and administration fields which were directly and/or indirectly related with the reforming the armed forces (Ortayli 2004 p24).

[2]Tanzimat period (Ottoman reform period) started with the declaration of the Tanzimat (1839) and ended with the declaration of the constitutional monarch (1876).

Reformists diagnosed the under-developed status of the Ottoman Empire and associated that with the lack of the modern education and planned the necessary changes. However, there were many obstacles on the way. First, existing human resources and financial sources ready to use were not adequate to carry out these reforms to the full extent. Furthermore, since educational reforms affect (when/if they do) societies' development level in long-term, getting immediate 'tangible results' was not easy. In addition, reform efforts were upside-down; academies and institutions of higher education and secondary education were established and developed without reforming the primary education.

The Regulation for General Education (*Maarif-i Ummumiye Nizamnamesi*), initiated in 1869, was an important step for the modernization of the Education in the Ottoman Empire. In line with the regulation, the education was planned in three steps: the four year of compulsory primary education, following by secondary schools and high schools (Akyuz 2007 p162-163, Ortayli 2004 p 188)[3]. Secondary schools (*rusdiye*), planned to offer four year education following the primary schools, established separately for girls, boys and for those who would go to the military academy. Rusdiyes spread rapidly all over the Ottoman state within a less than half century. *Idadiyes*, the three year education offering high schools, were first established to educate students who would continue to military academia. Other idadiyes were later founded for civil education, but they did not spread as quickly as rusdiyes did (the fact that being a rusdiye graduate was a sufficient requirement for being government officials explains lack of demand on the part of students to some extent[4]) (Akyuz 2007 p164-166).

[3]The primary education was made compulsory in overall Ottoman territories in 1847, but was not enforceable for a long time (Akyuz 2007 p158).

[4]*http://public.cumhuriyet.edu.tr/aturer/balikesirdeegitim.html*

The first university of the sciences, *Darulfunun* (1863), and the first higher institute teaching in French (offering an education between a higher school and an academia) *Mekteb-i Sultani* (1868) were also established during Tanzimat period. In addition, technical schools like agricultural, forestry and veterinary schools and industrial schools for boys and girls were founded in the second half of the nineteenth century. Finally, the teachers' schools were established (for boys and girls) to raise instructors for both secondary and primary education. The scholarship remained to be the main practice, in the Ottoman education system with only few exceptions as it was always used to be (Ortayli 2004 p189).

Importantly, the modernization of primary education was neglected. The aim was to increase both the availability and the quality of primary education; but as the financial burden of new primary schools was asked to be met by the related community, and as instructors graduated from teachers' schools were extremely inadequate, the education reform was without the main foundation it needed.

In the financial domain, as the centralization of revenues was not being accomplished, one of the main pillars of the modern state, a centralized financial system, was missing. While the first primitive state budget was dated back to 17th century, the first modern budget was introduced for the 1863-1864 financial period[5]. Iltizam was supposed to be abolished; but brought into force again with few changes. Administrative reforms included the reorganization of the state structure both in the capital and in the provinces, the centralization of the state authority in the provinces, setting

[5] *http://www.tcmb.gov.tr/yeni/gen_sek/tarihce.html*

up provincial assemblies in each county and hence to ensure their participation and involvement and hence to secure a fair and lawful policy making, etc[6](Ortayli 2004 p156-163).

Judicial reforms opened the way for a secular state; i.e. the same criminal code started to be applied to all Ottoman subjects; Land Law (as timar system was abolished) defining the main categories of land and recognizing the private ownership on land and the equal share of inheritance for men and women (an important departure from Islamic Law) was issued, etc. However, these judicial reforms, while suggesting a new order, were creating and feeding back a chaotic environment since new courts *(nizami)*, mixed courts *(karma)*, consulate courts, and religious courts all existed and working at the same time (Aydogan (2005) p22).

Reform efforts though incomplete, inadequate, and most of the time ill-structured brought nonetheless some progress while they accelerated the painful dissolution of the 'Last Roman Empire'. In fact, reformists, while trying to build up a modern political and administrative structure of nineteenth century, took over an outdated economic infrastructure and instead of applying the radical reforms, where/when needed, to correct it, they contended with quick solutions lacking a long-term perspective. In the judicial and administrative arena, their inability to diagnose the essence of the problems coupled with a 'Western' admiration ended up with preparing reforms that would satisfy 'Great Powers' most of the time, which in turn increased more 'Western' involvement into domestic policies; a situation apparent from the following *(Islahat)* edict (1856)[7].

[6]Later, the ones elected within these assemblies went to Meclis-i Mebusan, the first Ottoman Parliament, 1877.

[7]Engelhardt (1999) (p235) explains this phenomenon, the results of Tanzimat reforms and the declaration of Islahat edict, with an outsider look; 'In sum, it was so far understood that Ottoman State was not able to perform any reform by it self (meaning Tanzimat reforms were a failure EH), therefore Europe decided to undertake reforms by itself (the Islahat edict of 1856)'.

The dilemma between their understanding of modernity and the state traditions of the Reformists preferred to keep was the tragedy of the delayed Ottoman modernization.

During that period, Ottoman Empire opened the doors for the capitalism, an economic system with which she was totally unfamiliar. On one hand, Ottoman polity was (had to be) committed to the economic liberalism and to the integration with European markets but, on the other hand, it was trying to find means of enhancing its centralized authority. The presence of a central authority enabled the Ottoman polity to keep its independence to a certain extent. While the Ottoman diplomacy used the conflict of interest between the 'Great Powers' in international relations for its own benefits, the Ottoman bureaucracy, on the other hand, took advantage of this conflict in carrying out the economic relations within a frame of a fragile game of balance.

Ottoman economic policy exhibited a series of direction changes throughout this period. First, starting from 1838, the restrictive economic policies on external trade, including the retention of the raw materials for domestic use as mentioned earlier, were replaced by the free trade policies. The landmark of this change was the famous Anglo-Turkish convention of 1838. Before then, the restrictive policies on external trade were in effect, including the retention of the raw materials for domestic use. Thus, the first 'free trade treaty' was first signed with England. Similar free trade treaties would be signed later with France and then with other European states.

The Anglo-Turkish convention of 1838 consisted of removal of monopolistic policies in exports and of various barriers European merchants were facing. The table 37 displays the evolution of the Ottoman foreign trade after the Anglo-Turkish convention until the WW1. The treaty had significant consequences for the Ottoman State; while it facilitated the integration of Ottoman raw

materials with the world markets, it also determined the limits on the Ottoman policy making. Specifically; first of all, it deprived the Ottoman polity of a right to put extraordinary taxes on external trade, a practice that it had used in times of war in order to pay for its huge military expenses. Secondly, it brought unfair regulations for Ottoman merchants compared to European merchants. According to the convention, European merchants were considered exempt from custom duty while Ottoman merchants were subject to duty. Finally, the fact that the custom taxes were agreed with the parties of the treaty placed restrictions on Ottoman's sovereignty. It's worth remembering that the treaty was a political obligation for the Ottomans in return for the support of England to deal with Kavalali Mehmet Ali Pasa[8]. Ottoman economic policy (excluding some increases in the import tariff rates starting from 1860) would regain its economic independence after 1908 Young Turk revolution and especially during the World War I (Pamuk 1999 p276).

Nevertheless, there was a dramatic increase (even though with ups and downs) in the external trade. Exports of Ottoman state increased from 4.7 million sterling in 1840 to 28.4 million sterling in 1913. During the same time period, imports increased from 5.2 million sterling to 39.4 million sterling. According to some estimations of Ottoman GNP (for the last quarter of the nineteenth century), the exports made up 14.1% and the imports made up of 19.4% of the GNP at the eve of the World War I (Pamuk 1994 p27). Since the share of the agricultural products was around 90% within the exports, for all of this time period, the increase in the total exports means that the exported agricultural products increased also ten folds.

[8]In the face of the struggle with Mehmet Ali Pasa, the ruler of Egypt, England recognized Ottoman territorial integrity and supported the Ottoman Empire. The motivation for England was the search of new markets for purchasing raw materials and selling manufactured goods as it had already established its industrial revolution. It is however, worth noting that, as Chang (2004 p19-24) puts forward, England too, during the period of industrialization along with other 'Now Developed Countries' adjusted its tariffs and duties to promote its manufacturing industries.

In fact, during the nineteenth century, agricultural production increased in terms of its total volume and changed in terms of its composition (from the subsistence crops to the cash crops). Among the crops exported, however, while the share of grains in general was higher then the other crops, there was no tendency for monoculture (none of them was dominant). Between the years 1840 and 1913, total production almost doubled; however, the increase in the exported agricultural products was even more dramatic as mentioned above. The factors supporting that increase were the rise in international demand, the relatively improved security, the rise in the population engaging in agriculture (taking into consideration the relative abundance of land suitable for agriculture), and the favorable conditions for external trade [9]. Dry farming was the general practice. However, the continuation of the subsistence farming and the heavy tax burdens were affecting productivity negatively. Agricultural taxes (the tithe, 10% of the total production and the animal taxes) were the most important revenue sources for the Ottoman treasury and they were collected by the *Iltizam* system. With the increased efforts of recentralization, Ottoman polity attempted to abolish iltizam practice as mentioned but readopted as it realized that it had no resources to collect taxes, a phenomenon that occurred over and over again in that period; the willingness of reforming the existing practices was halted by the limits of the available resources, generally in terms of financial and capable organizational means.

In the beginning of nineteenth century, Ottoman manufacturing sector consisted of mainly small production units (some employing only one person) performing within the guild system and it was not evolving in line with capitalistic principles. Manufacturing sector, given that technology differences reflected both in the quality and in the pricing of the goods, had limited ability to

[9]The immigrants from Balkans and Caucasia estimated around 1 and 1.5 million are settled in the Rumeli Region or in the Anatolia in rural areas to deal with agriculture.

compete with the European trade goods. However, it did not disappear altogether, but underwent some changes. Some of branches of handcraft production decreased in volume, some of them left the market, but others showed resilience. In Quataert's (1996 p889) words, 'in the face of European competition; vigorous and ongoing adaptation to changing conditions, and not collapse, is the main characteristic of the nineteenth century Ottoman manufacturing'.

The guild structure, on the other hand, also changed throughout the nineteenth century, though at a different pace, from place to place within the empire. Some of the policies of the reformists (like abolition of the officially fixed price) considerably reduced their power but there was no unique response on the part of guilds. Some of the guilds survived well into the twentieth century. Although the number of factories increased in the nineteenth century the production in factories remained insignificant within the total manufactured output. Reformists intended to build factories in the form of state ownership, especially in the textile and porcelain sectors. While most of them were not successful, some 'outlasted the empire'. There are no reliable statistics on the aggregate industrial production. However, the factories remained small, in total; they employed only 35.000 workers in 1914. The Table 38 summarizes the results of 1913 Industrial Count [10].

The Ottoman state had serious financial difficulties at the end of eighteenth and in the first half of the nineteenth century. At first, the Ottomans were reluctant to borrow from the international markets, so they used debasement, in addition to their internal borrowing efforts [11]. Between 1814 and 1839 (the Reform edict) Ottoman currency devalued almost 4 times against English sterling

[10]The industrial count of 1913 consists 239 of 560 business units employing more than 10 workers in Istanbul and Western Anatolia. The employment data however belongs to 226 business units (Tezel 2002 p105).

[11]The borrowing resources were the bankers of the Galata, Istanbul. There was no banking institution in Ottoman Empire before 1830. After 1830s the attempts of forming such institutions are organized by some Levantine capitalists. The Bank of Ottoman is established in 1863, with equal capital share from English and French capital and acted as a central bank of Ottoman state.

(Pamuk (1999)p278). These debasements, in turn, created their own inflation. The Ottoman Economy experienced an unprecedented increase in the price level between 1789 and 1844, general price level increased 12-15 times.

However, the huge expenses caused by the Crimean war (1854) forced the Ottomans to borrow from European money markets. Until 1876, the time when Ottoman state declared unilaterally its inability to pay, 'de facto Ottoman bankruptcy', it borrowed huge amounts and at very high interest rates compared to the other states as indicated by Table 39. For example Pamuk (1994 p64) notes that after 1860, every single British pound sterling that entered into the treasury created foreign borrowing amounted to more than 2 British pound sterling. In 1881, the Public Debt Administration was formed. The administration was governed by the debtor states and it was in charge of the collection of the some specified types of tax revenues of the central authority. That is the time when, the Ottoman finance administration, Ortayli (2004 p222) argues, got acquainted with the modern records and methods.

As a result, starting from the formation of Public Debt Administration until the resolution of the Empire, Ottomans were the net payers. In 1914, more than half of the foreign debt was in the hand of French investors. The foreign capital flow reached its peak around the 1890s and was concentrated mainly on the railroads as Figure 12 illustrates.

The railroads came very late into the Ottoman territories. In 1850, when Britain had 9.800 km, the Ottomans had just established their first. The Ottomans had big expectations from the railroad construction, including the increase in the effectiveness of the central authority. The railroads in the Ottoman Empire were financed by two means: by state means or by foreign capital (Quartert 1996

(p806)). The former method where the government provided directly the fund for construction was a rare case. In 1914, the state capital accounted for 10% of all sums invested in Ottoman railroads. The latter method where 'the government awarded concessions to organizations that raised capital through the sale of bonds for construction and operations' was the usual case. The Western capital holders, on the other hand, constructed railways to transport agricultural products to seaports, a phenomenon that reinforced further the role of the Ottoman Empire as a supplier of raw materials, as indicated by Table 40. Also, as they obtained privileges like profit guarantee per km, exploiting the mines located 20 km around the railways, etc., they defined and spread the tracks according to their aim of creating influence regions in line with economic and political goals of involving countries. Burak (2004) notes that the Ottoman state could not take the advantage of conflict of interest between Western States, but rather tried to follow a 'balance policy'. Consequently, the railroads' paths were defined in such a way that 'they should not conflict with the interest of England, but should also satisfy the French and German requests and should be far enough from Russian border.'[12]. As a result, lines constructed were quite inadequate to connect the capital (Istanbul) and many locations in Central, Northern, Eastern Anatolia, i.e. there was no single line established on the east of Ankara (Istanbul-Ankara line was established in 1892) except Kars-Sarikamis, the narrow gauge (282 km) built by Russians.

The 19th century Ottoman Empire was an agrarian empire without any integral economic structure. It was not able to transform and equip its economic, political and military structure in line with the modern world necessities. The last century of the empire was the 'its longest century', the most painful one in economic, social, military and political terms. The empire 'de facto' col-

[12] $http://www.sosbil.gazi.edu.tr/edergi/makale.php?Makale=7$

lapsed in a series of wars and revolts that took fourteen years (1908-1922), almost without halt, over its territories Boratav (2005)(p21)[13]. Following the years of War of Independence 1919-1922 (from foreign occupational forces) a new Turkish Republic was proclaimed in 1923. Taking over a nation exhausted with wars, an economy run out of resources and an Ottoman heritage with all its strengths and weaknesses, would the policy makers of the new republic be able to draw lessons from the past experiences? The answer to this question shapes the history of modern Turkey.

[13]First the Ottomans needed to deal with revolts in Balkans, and then had to face Balkan wars (1912-1913), and the WWI (1914-1918). While the Ottomans (the Istanbul government) accepted to sign Sevres Treaty (1920), the Ankara government never accepted it and organized the War of Independence (1920-1922).

Chapter 5

The years of War (1914-1922)

For Ottomans, the new century started with revolts and wars in the Balkans and continued with the World War I (WW1) during which they faced warfare in many fronts from the Balkans to southern extremity of Arabian Peninsula. After the war ended, they signed the Sevres Treaty (1920) which was imposed by Allies and accepted a loss of their sovereignty rights. Following the occupation of the capital, the parliament was dissolved (1920)[1]. In lieu, an alternative parliament, The Grand National Assembly, was formed in Ankara in April 1920 and elected M. Kemal Pasha as the President. The assembly, under the leadership of M. Kemal Pasha, repudiated the Ottoman government and the Sevres treaty and organized the War of Independence. However, in line with the treaty, the army was dispatched, arms were confiscated and invasions of the Ottoman Land were started in many different locations. Under these conditions, organizing a War of Independence and hoping to immerge victorious out of that was beyond a difficult task.

[1]The parliament decided to discontinue its sessions after the occupation of Istanbul in 1920, few months later the sultan dissolved the parliament.

The WW1 was a huge catastrophe for the Ottomans in every sense, but its effects on education were irreparable: a lost of a young and educated generation, mainly students and instructors. To give an example, the *Mekteb-i Sultani* (the school of Galatasaray), Izmir and Konya high schools and Istanbul Medicine School lost all their students to be graduated in 1915 in the wars (Battles of Dardanelles). This loss, the lack of young and qualified human resources, would be much more deeply felt during the formation of the new republic. Probably, to overcome the possible costs associated with such a shortage, M. Kemal Pasha assembled a Congress of Education in Ankara while the most intensive combats were taking place during the War of Independence (1921). Teachers from all over the country came together in this congress and discussed the ways to improve the education.

The economic governance in this period was first led by the Young Turk movement (1914-1918) then by the Ankara government (to a large extent) under the leadership of M. Kemal Pasha (1919-1922)[2]. While the motivation underlying the economic policies for both groups was centered around the development of a national economy, there were many obstacles. On the one hand, there was a continued state of warfare depleting all the economic resources and, on the other hand, the 'half colonized' status of the Ottoman state was determining the limits of political as well as economic, policies [3].

[2]In fact, the movement was effective in Ottoman policy as early as 1908 (Young Turk revolution of 1908).

[3]Given the capitulations (special rights and privileges granted to many European states) and the lack of economic independence due to the existence of Public Debt Administration, the economic status of the Ottoman state in nineteenth century is called 'half colonized' by scholars.

The years of war were characterized by a 25 percent decline in population both due to population left on the territories lost and casualties [4]. The war causalities in the WW1 and the ones in the War of Independence amounted to over one and half million soldiers . Also, the last century of the empire witnessed a large influx of immigrants and an outflow of emigrants.

First a big wave of immigrants came following Ottoman-Russian war. Out of 1.2 million Caucasians who were forced to migrate; 800 thousand Caucasians were able to arrive in Ottoman Lands. Although there was immigration before and after the period 1876-1896 from Caucasia and the Crimea, Table 41 gives an idea about the size of the Caucasian and Crimean immigrant flows during that time period. Next, Balkan wars (1912-1913) were resulted another big wave of immigrants. According to Ottoman statistics of 1911, there were around 2.315 million Muslim people living in former Ottoman states of Greece, Serbia and Bulgaria. While the total number of immigrants coming from these states between 1912-1926 was around 812 thousand the total number of the Muslim population living in Greece, Serbia and Bulgaria, according to their statistics, was 870 thousand in 1920s; consequently 600 -700 thousand Muslim people were missed/dead within or after immigration[5].

The Armenian emigration however was somewhat different. Armenians were fully integrated to the Ottoman society, they had an important role in Ottoman trade and manufacturing, specializing in jewelry making, money lending, construction, foreign trade, medicine and theater. It was possible to see many Armenians working in varying ranks of Ottoman state, including ministries

[4]The decline in population is from 18 million in 1914 in Ottoman Empire (including Iraq ,Syria and Phalestine) to 13 million in 1927 (Shaw and Shaw 1987,pp205 from Tableau indiquant le nombre des divers elements de la population dans l'Empire Ottoman au 1 Mars 1330 (14 Mars 1914) and $http://www.turkstat.gov.tr/yillik/stat\_indicators.pdf$)

[5]Turkish Historical Society, 'The big Turkish immigration'$http://www.ttk.org.tr/index.php?Page=Basinda\&HaberNo=321$ and $http://www.ortadogugazetesi.net/haber.php?id=2737$

of Foreign Affairs, Education, Justice, Finance and Interior[6]. As preparations for WW1 at the Northeastern front started, the Armenian population living in these regions was forced to emigrate. An Armenian rebellion with violent attacks characterized the decade before 1914 and the Ottoman government was worried that these attacks could undermine Ottoman warfare[7]. According to Ottoman archives, the total population of Armenians was around 1.25 million in 1914 (Table 42). Shaw and Shaw (1977 p316), using Ottoman archives conclude that, since 400 thousand persons were subject to compulsory emigration, 700 thousand persons fled to Caucasus, Western Europe and the United States and since 100 thousand Armenians remained in Turkey after the war, 300 thousand died before/during the war. According to Cukurova University Strategic Research Center's report based on Ottoman Archives, out of 439 thousand Armenians who were subject to emigration, 382 thousand safely reached to their destinations[8].

This sharp decrease in the population coupled with the continued state of warfare resulted in the massive decline in the total production of agriculture and manufacture. According to the estimations of V. Eldem, during the World War 1, the decline in various foodstuffs varied between 47%-69% (Boratav 2005 p34)[9]. Agricultural methods, apart from those applied in the coastal

[6]During a critical time like Balkan wars (1912), Kapriyel Noradunkyan was in charge of Ministry of Foreign Affairs.

[7]Starting from 1900s, nationalist Armenian groups were demanding autonomy and independence. Their demands soon were backed by violent actions; they were planning to force Muslims to make reprisal upon them and force British and Russian governments to intervene. Terrorism and counterterrorism went for a couple of years while their population within the Empire was rising. As the war preparations at the Northeastern front started and as 'it was impossible to detect which Armenians were still loyal' and which were not, an order was issued in May 1915 to evacuate the Armenian population only from the provinces in eastern Anatolia (Van, Bitlis and Erzurum) in order to prevent any actions that might undermine Ottoman campaigns against Russia. However, the State sent warnings to Ottoman military commanders to ensure their security so that they should not be subject of vengeance for their long year of terrorism (Shaw and Shaw 1977 p200-203, 314-315).

[8]The ones who died due to contagious diseases and attacks of some groups were also documented. $http://strateji.cukurova.edu.tr/ERMENI/soru\_cevap\_ermeni.php$.

[9]While there was no statistics covering the war years, the agriculture sector, employing more than 80 percent of the population was producing 40 percent of the GNP in 1923.

regions which were producing export crops like tobacco, figs, and raisins and so on, were highly primitive. Agricultural production was basically self sustaining in East and South East Anatolia. While ninety percent of the exported items consisted of agricultural products, there was a constant need of wheat importation to feed the large cities.

The existing industrial structure, on the other hand, was highly concentrated and underdeveloped; consisting of simple processing works to a large extent, mainly in foods and textile. The textile sector, for example, in 1915, could supply only 9.5% of local demand in cotton fabric, and the rest needed to be imported (Boratav 2005 p33). The industrial establishments were small in size, 97 percent of them employing 5 workers or less and there were no widespread use of machines, only 2822 factories were using machines. Table 43 summarizes the industrial count of 1921 which was performed by the Ankara government over the areas under its control. The table shows that the average worker per business units for the sectors under analysis was two, which implies that the production was based only on the artisan shops rather than the factories. Thus, the industrial sector was almost non-existent and accordingly, the export ability of the sector was highly limited (Yasa 1980).

Transportation within the empire was insufficient in terms of coverage area, and had very low quality. Most of the railroads and the highways that were constructed at the expense of huge debts remained in the areas lost after the Balkan wars and the First World War. When the Turkish republic was formed, the total length of the railroads within the republic was 3756 km and the railroads were mostly operated by the European states within the framework of the capitulations. The total length of the highways was 18 thousand km, 24% of which was dirt road (Yasa 1980). The lack of

an integral economic structure affected the economy perversely in the time of wars. The problem of providing the necessary foodstuff during the wars, for the giant cities like Istanbul, Selanik (Thessalonica) and Izmir, was more and more difficult for the polity[10]. Critical commodities needed to be imported; however, the wars blocked to a great extent the means of the import. The scarcity of many items reinforced the formation of the black markets. The economic heritage that the young republic took over in terms of basic economic indicators and the composition of the workforce in 1923 is summarized comparatively (to some other European countries) in the Tables 44 and 45.

When the War of Independence (against foreign occupational forces) was over with Ankara government's victory (1922), the economy bore every sign of an underdeveloped economy. The continuing state of warfare against the biggest actors of the time for more than a decade without halt had worn the resources of the economy. Kemmerer (1936) puts the situation as, 'it would not be an exaggeration to conclude that no single administration had faced greater obstacles than those transferred from the old (Ottoman) empire to the young republic (of Turkey)'.[11]. The following pages concern how far Turkey's future administrations coming to power were willing and able to surmount them.

[10]Boratav (2005 p28) notes a striking example; transporting the wheat from central Anatolia to Istanbul is 75% more expensive then importing it from New York.

[11]from Yasa (1980)

Chapter 6

The time of the Recovery (1923-1929)

Once the War of Independence was successfully accomplished, the treaty of peace was signed at Lausanne (Lausanne Peace Treaty) in July 1923. Following that, the republic was proclaimed in October 1923[1]. The Young Republic aimed both at achieving economic prosperity from a bankrupt 'empire' and at creating a modern nation state from an underdeveloped community. However, given the status of the heritage received from Ottoman state, carrying out these tasks would be the biggest challenge of the Young Republic.

After long tours of negotiations, The Lausanne Peace Treaty (1923) was signed with the states involved in the World War I. Its significance, above all, originates from the fact that it defined the framework of the economic as well as, social, legal and political relations of the Turkish Republic. There were some important features of the agreement underlying its economic significance; First of all, the regime of capitulations was abolished in every respect. Eldem (1999) (p280) notes that

[1] Ankara became the capital of newly founded Republic of Turkey (1923).

the capitulations, and more generally the growing influence of foreign powers, had thus created a strange - and rather vicious - situation through which the Ottoman state had become the instrument of foreign implantation and penetration against the will and interest of its own subjects. After so much suffered from the adverse effects of capitulations in the economy, achieving a complete independence (including an economic independence) was of paramount importance for the young republic (Ilhan (1988))[2].

Furthermore, according to the treaty of Lausanne, free trade treaties that were signed by the Ottoman state in the nineteenth century were no longer valid for Turkey. However, while the related treaties were ceased to be in effect, the practice related to the low tariffs would be valid until 1929. Turkey, on the other hand, accepted to pay Ottoman debt[3]. The debt payments were scheduled in yearly installments and the installments were increasing in time. The first debt payment was scheduled for the year 1929 (Tezel 2002p207). The installments would amount 13%-18% of the total budget expenditures throughout the 1930s (Hershlag 1968 p336)[4] . Consequently, while the Lausanne Treaty was shaping the framework of international economic relations for the new republic, it was also determining the limits of possible economic policies.

M. Kemal Pasha, leading the War of Independence as a president of the National Assembly and as a commander in chief started to implement what he envisaged for the Turkish nation. What

[2]M. Kemal Ataturk conceives the economic independence as an essential prerequisite of the political independence, with his words '*Our nation has crushed the enemy forces. But to achieve independence we must observe the following rule: National sovereignty should be supported by financial independence. The only power that will propel us to this goal is the economy. No matter how mighty they are, political and military victories cannot endure unless they are crowned by economic triumphs.*'

[3]The Ottoman state started to borrow form international markets in 1854 to meet the huge expenses required by the Crimean War. Until 1876, the time when Ottoman state declared its inability to pay, as displayed in Table 39, they borrowed large amounts at very high interest rates. After the foundation of the new Turkish Republic, these Ottoman debts were allocated among the states detached from the empire. Accordingly, Turkey undertook 67% of the debts.

[4]In the government budget of 1937-38, for example, the share of health expenses were around 2.6% within the total budget expenditures (Hershlag (1968)(p21)).

he projected for Turkey was shaped around a concept which he developed during his entire carrier throughout his struggles with both 'Westernists' and 'Sultanists -Shari'atists': *Kemalism*. His main objective for the new republic was to make it reach the level of contemporary civilization. In order to achieve that, he initiated a series of reforms, which as a whole were named as Ataturk's revolutions.

According to Kongar (1999 p111), there are two important characteristics of the Ataturk revolutions: they transferred the society's power allocation from traditional-religious pattern to a modern-democratic-secular pattern and they were parts of a meaningful whole instead of randomly initiated practices. There are six main principles of Ataturk guiding the reforms he initiated: *secularism*, *populism*, *nationalism*, *republicanism*, *reformism* and *etatism*.

Secularism means the independence of institutions from the dominance of the religious thinking and religious institutions. *Populism* refers to a symbol for social politics and a guideline for economic policies where no single group has a privileged status over another and all are equal before the law. *Nationalism* aims to create a nation state from a former empire composed of communities. The national identity refers to a common language and shared values (a common history and the will to share a common future) but does not refer to any specific ethnic origin[5]. *Republicanism* refers to the governance system where the sovereignty belongs to the nation and the executive power belongs to the parliament. *Republicanism* and *Nationalism* were complementary principles

[5]Ortayli (2004 p64) draws attention to the fact that the last nation within Ottoman subjects that was influenced by the nationalist movements was the ones with Turkish origins. He further notes that although the empire was dominated by 'Turkishness' (*en soi*), it was not consciously Turkish (*pour soi*). While Balkan revolts and wars helped flourishing the ideas of Turkish nationalism, Ziya Gokalp (1876-1924), Ottoman sociologist and philosopher, is known as the pioneer of this school of thought. Tanor (2007) (p244) highlights the role of the War of Independence in the formation of the nation sate, he notes that the success in the War of Independence helped growing the Turkish national consciousness, and hence Turkey emerges as a nation state.

to develop a national consciousness against the Sultanate regime and the Shari' a order. *Etatism* was a tool to create a national economy based on private entrepreneurship in a country where private sector was not powerful enough to undertake large scale investments. Finally, *Reformism* emphasizes the irreversible feature of reforms undertaken and the need to add new reforms to the existing ones in line with the target to reach the level of most developed nations. This principle adds build-in dynamism to the reforms and explains why M. Kemal Ataturk objected to efforts to develop Kemalism as a doctrine (Kongar 1999 pp109-123).

In line with these principles M. Kemal Ataturk initiated and implemented a series of reforms to convey the new republic to the predefined target of the level of contemporary civilization[6]. Some of these reforms were political like the abolishment of the Sultanate, proclamation of the republic (1923) and abolishment of the caliphate (1924); some of them were social like the recognition of equal rights to men and women(1926-1934), abolishment of nicknames, pious and royal titles (1934), the surname law (1934), the adoption of the international calendar and time and measurements (1925-1931); some of them were legal like the abolishment of the Islamic canonical law (1924-1937); some were related to education like the unification (medreses and minority schools were autonomous in Ottomans) of the educational institutions and the abolition of medrese education (1924) and the adoption of the new Turkish alphabet (1928), the establishment of Turkish Language and Historical Societies (1931-1932), and the organization of the university education (1933); and some were economic like the abolishment of the tithe (1925), the legislation for the

[6]Gentizon (1929), the correspondent of Le Temps between 1922-1928 in Turkey, notes that 'while Europeans were fighting for the inheritance of Ottoman Empire whom they considered as paralyzed and incapable of any change, Turks started suddenly to walk. The reforms undertaken between 1923 and 1929 are even more comprehensive than Ottomans did in five hundred years'. $http://www.atam.gov.tr/index.php?Page=DergiIcerik\&IcerikNo=178$

encouragement of the industry (1927-1929) and implementing the first and second development plans (1933-1937)[7].

The war against occupation forces was over but 'the main war, the war against ignorance' was just started[8]. Since the overwhelming majority of the population was illiterate (the rate was 94% in 1923 Aydogan(2005 p100)) the countrywide education campaigns were initiated; anyone with some education was invited to take role in the campaign[9]. The education system in the late Ottoman Empire was lacking certainty (about whether the guiding principles would be sciences or religious doctrines), unity (medreses and minority schools were autonomous) and consistency (education policies and class programs were changing each time with a new minister). Suffering from shortcomings associated with these problems, education was unified, the science was defined as the main and ultimate base of education, and education polices were determined with the experts, textbooks were re-written, teachers' salaries and working conditions were ameliorated, etc. The aim was to have 'virtuous, republican, reformist, optimist, capable, strong-willed and productive' young generations. The target of education was not to raise personnel for governmental offices as it once was, but to raise intellectual and patriotic young men and women no matter what their areas of expertise were. However, financial troubles and shortage of qualified human resources were needed to overcome in order to meet these ends. Figures 13 shows the share of total education spending with respect to the state budget. Figures 14, 15 and 16 illustrate the progress made by the young republic in the first two decades together with all these constraints.

[7]Kongar (1999) pp109-123 and $http://www.turkishembassy.org/index.php?option=com\_content/\&task=view/\&id=52/\&Ite$

[8]M. Kemal Ataturk, 1923

[9]The literacy rate was still very low compared to non- industrialized neighboring countries, i.e. Russian literacy rate was 21% in 1897 as reported in the first general census in the Empire, the rate rose to 28% in 1913 (Martin (1995))p454.

As the new government was aware of the costs of a dependent economy, it aimed to have a well-functioning national economy. In order to build and develop the national economy, the industrialization was considered as the key deriving force. In addition, to 'raise' a national bourgeoisie was adopted as an equally important policy objective, so that 'the active policy was the intervention in favor of private sector'. In the Izmir Economic Congress that was held in Izmir in the late 1923, a group of economic actors (including traders, landowners, farmers and workers) came to an agreement on certain principles governing industrial activity. In 1927, Law for the Encouragement of Industry, envisaging a wide range of incentives and subsidies to the industrial establishments, was enacted[10]. The government, after dealing with all the troubles caused by the insufficiency of the means of transport during wartime prioritized improving the transportation system, and mostly emphasized the construction of the railroads. The average share of the resources spared for railroads and harbors from the state budgets was around 16% during 1924-1930[11]. This was an important step to ensure the economic (as well as social and politic) integration that was neglected by the Ottoman state.

The period after the establishment of the Turkish Republic until the great depression can be summarized as 'a period of recovery and reconstruction under the conditions of an open economy'. The conditions of an open economy existed until 1929 since the low tariff regime according to the Lausanne treaty, (as Ottoman state formerly signed the free trade agreements) was valid until then. The shares of the exports and the imports within the GNP were 11.4% and 14% respectively for the year 1924. Comparing those with related estimated ratios of the Ottoman state in its last decade, no

[10]Law for the Encouragement of Industry was enacted initially in 1913. However, the start of the World War I limited its implementation.

[11]$http://www.ulugbay.com/blog\_hikmet/?p = 59$ with series obtained from Ministry of Finance.

dramatic policy change is observed. Turkey's integration with the world economy can be defined as the supplier of the raw materials, and the importer of industrial consumer goods. On the other hand, the vivid memories of the results of Ottoman borrowings urged the policy makers to balance the budget and the foreign trade. During this period, the average annual growth of GNP was around 10%. The factors feeding these striking growth rates were basically postwar recovery activities. The trends underlying this period and the other subsequent periods can be found in Tables 46 - 50.

The average annual growth in the agriculture was 13% for the same period. The main policy change in the agriculture was the abolition of the agricultural and animal tax in 1925; these taxes were around 20% of the state revenues in the early 1920s (Owen and Pamuk 1998 p15). To compensate for the loss of the related revenues, the government put indirect taxes on some commodities like sugar, gas oil, etc. The policy thus reduced the tax burden of people employed in the agriculture. In addition, changes in the existing Land Code resulted in improvements in land ownership. On the other hand, as the necessary foodstuff was increasingly provided by the Anatolian producers, the share of agricultural products within the imports was reduced. Yet, the main export items remained agricultural products. For example, in the years 1924 and 1925, the total of agricultural products within the total export items was around 80%. Agriculture continued to employ more than 80% of the labor force as it did during the last century of the empire [12].

The average annual rates of growth of the manufacturing industry, and of the industrialization in total (including construction) were 7.7% and 11% respectively. However, Boratav (2005 p52) compares the composition of the industrial output in 1913 (during the Ottoman state) with that of

[12]The official statistics for the share of the labor force in the agriculture (including also forestry, hunting and fishing) for the year 1929 is 88%.

1927 (after the foundation of the Turkish Republic) and drew attention to the striking similarities. According to the Industrial Count of 1927, 46% of the workers were employed in the factories that employed less then 4 workers. He concludes that the growth in output was not as a result of dynamic developments in industrial activities. Hershlag (1968 p33) mentions that inadequate initial capital was among the most crucial handicaps of the slowly emerging industry. The development of the banking facilities and especially of Isbank, reveals the determination of the government to support the private initiative in order to generate economic development[13]. The industrialization efforts, however, remained limited despite the heavily emphasized primary target: the acceleration of the industrialization process.

The year 1929 was expected to be significant for the Turkish economy. That was the year during which the first installment of the Ottoman debt (an amount equal to 10% of the total exports) would be paid. In addition, that was the last year of the low tariff rates in line with the Lausanne treaty. In order to take advantage of the low rates, the import volume increased. Both factors put pressure on the value of the Turkish Lira. On the other hand, the effects of the Great Depression were transferred to the Turkish economy as a deterioration in the terms of the trade. That, in turn, resulted in decline in the total exports. As a result the increasing pressure on the value of the Turkish lira in 1929 ended up as a 'severe financial crisis'. The crisis, however, was carrying in itself a momentum of change that would redefine the direction of the economic policies.

[13]Isbank, the first national bank of Turkey, was founded in 1924 to provide resources for the industrial sector. (www.isbank.com.tr) However, it is worth noting that Isbank was also subject to manipulations of some politicians, bureaucrats etc for their personal interests. Boratav (2005 p41) from S. S. Aydemir (1966).

Chapter 7

The Protectionist and Etatist Policies (1930-1939)

The years of Great Depression were transmitted into the Turkish economy with a decline in the prices of the agricultural goods and the deterioration of the terms of trade (since the decrease in the prices of the agricultural goods was greater than the decrease in the non-agricultural goods), which in turn reduced the import volume as mentioned above[1]. The results meant sharp decreases in the real income of agricultural and commercial sector. The trade deficit could be compensated by the capital inflow. However, while the government was not against the foreign capital, the Great Depression reduced the capital flows to a large extent. Consequently, the economic polices of the government, first shifted towards *protectionism*, and later towards *etatism*.

[1] Owen and Pamuk (1998 p16) notes that the decline in the prices of the wheat and other cereals was more than 60% from 1928-29 to 1932-33 and the deterioration on the external terms of the trade was around 21% between 1928/1929 to 1938/1939.

To overcome the crisis, at the first stage, protectionist measures were undertaken. The policies consisted of a greater control over the foreign exchange regime, and an increased control over the foreign trade. Hence, some quantitative restrictions on the imports were applied. In addition, while the tariffs on investment products were kept low, the tariffs on consumer goods increased.

The continuing decline in the price of the agricultural crops created a wide range discontent in the rural economy and the related commercial sector. As the unfavorable market conditions persisted in the world market, the government shifted in 1932 towards a new strategy: *Etatism*[2]. Within this framework, the government, being a leading investor, producer and regulator of the economic activities, assumed a dominant role in the economy. Most of the foreign enterprises inherited from the Ottoman period were nationalized and turned into state monopolies. The state, in addition to its monopoly over the railroads, emerged as a leading force in the industrial (iron, steel, textiles, sugar, glassworks, cements, etc) and mining sectors with its economic enterprises (SEES)[3]. Table 51 exhibits the composition of the investments between 1933 and 1940.The investments undertaken by the government were governed according to a five year industrial plan. The first five year industrial plan was implemented in 1934. The second five year plan, however, although initiated in 1938, was halted due to World War II.

The periods of protectionist and etatist policies can be considered as the first industrialization steps/attempts of Turkey ever taken. The average annual growth of GNP for the period was

[2]B. Lewis defines the Turkish etatism as 'The emergence of the state as pioneer and director of industrial activity, in the interests of national development and national defense, in a country where private enterprise and capital were too weak to do anything effective'(Hershlag 1968 p73).

[3]After living all the difficulties associated with non-modern military equipments during the War of Independence, building a powerful and an independent defense industry was important for Turkey. Accordingly, the average share of the defense related spending within the state budget between 1928-1938 was around 27%. Source $http://www.ulugbay.com/blog\_hikmet/?p=59$ with series obtained from Ministry of Finance.

6 percent. In a time during which all of the world economies suffered from the effects of the Great Depression, obtaining such a growth without expansionist monetary and fiscal policies was nonetheless a successful result. However, Hershlag (1968 p124) draws attention to the deficiencies of the planning; he mainly argues that planned activities were based on inadequate statistics and that planned development in the industry was overemphasized at the expense of the agricultural development (given that the agricultural sector was employing 80% of the labor force).

On the other hand, Tezel (2002 p250) emphasizes the advantages of the etatist polices for the capital owners. The share of the loans granted by State Banks to the trade and industry sector increased to 40% in 1938 from 28% in 1930. In addition, the sale and marketing of the goods produced in state owned factories like cement, iron, coal, and textile were left to private enterprises.

Despite the existence of the unfavorable conditions in the outside environment (i.e. significant deterioration in terms of trade, such as the price of wheat for example decreased by 68% from 1929 to 1932), the agricultural production did not contract, and exhibited a positive average annual rate of growth, 4.1 percent. Comparing the average production in 1938-1939 with that of 1928-1929, there are substantial increases in the production of some crops, like wheat 94% and sugar beets 754% (Boratav 2005 p67-72). As a result, Turkey, a net importer of wheat and other cereals until the end of 1920s, started being a net exporter of wheat and other cereals, despite a population increase of an average annual rate of 2.1% [4]. Some important factors contributed to the growth of the agriculture. First of all, the economic recovery was still continuing [5]. In addition, the government policies were effective in continuing the growth of agricultural output. The

[4]The growth rates are calculated using the 1927 and 1935 censuses.

[5]Owen and Pamuk (1998 p24) note that recent comparisons of the late Ottoman with the early Turkish statistics indicate that per capita agricultural output did not reach to pre- First World War levels until the early 1930s.

government initiated direct and indirect agricultural support programs including direct and indirect price support programs (later governed by an independent agency) to prevent sharp declines in prices[6]. It also facilitated the expansion of credits to agricultural sector through the state owned Agricultural Bank. In addition, new techniques that would increase the agricultural productivity were promoted. At the same time, the construction of the railroads contributed to the further integration of the economy especially the integration of the central and eastern Anatolia with the national market. Finally, as a result of some investments in drainage and some irrigation efforts, the area under cultivation increased from 4.86% in 1927 to 12.25% in 1940. (Hershlag 1968 p112).

The total output in the manufactured goods and the total of industrial goods (including construction) grew at an average annual rate of 11.6% and 9.1% respectively as shown in the table A-1 in the Appendix. The government aimed at being able to produce domestically the widely used commodities and, mainly, flour, sugar and textiles which were named as 'the three whites'. At the end of the decade, Boratav (2005 p71) notes, the three whites were being produced domestically. Share of the manufacturing goods and the share of the industrial goods as a whole (including construction) within GNP rose from 9% and 14% respectively in 1929 to 17% and 22% in 1939. In fact, the figures related to the share of the industry within GNP were not only unprecedented, but would remain unattainable until 1960s. It is noteworthy however; the attempts of the industrialization were not comprehensive; at the end of the period, the share of the labor force in the agriculture dropped to 86% in 1939 from 88% in 1929, though the ratio would not decrease below the 70% before 1960s[7]. Turning the other side of the coin, by the end of the period, total employment

[6]especially in wheat, tobacco, and sugar beets

[7]The share of the labor force in the agriculture also includes the share of the labor force in forestry, hunting and fishing, although their shares were estimated to be relatively small.

in manufacturing, together with the employment in mining, quarrying, electricity, gas, water and construction made up less than 10% of the total labor force. Nevertheless, the whole period can be defined as a starting step towards industrialization, even though it was modest and limited.

As a result of the economic crisis prevailing in the world economies and the change in the economic strategy at home, the imports/GNP was reduced substantially to from 11.8% in 1929 to 5.9% in 1939. The change in exports/GNP was not uniform throughout the decade; it was 7.2% in1929 and 6.3% in 1939 with ups and downs [8]. Consequently, there is no proof of closed economy type of etatism as suggested by some observers (Tezel 2002 p114). The trade balance, however, turned out to be in the surplus every year during the 1930s except 1938. The trade surplus was especially important for an economy which had an economic heritage that was used to carrying large trade deficits to survive and dependent on the constant inflow of capital to balance them.

The development of education was set as the number one priority of the young republic and remained to be so despite the effects of the depression on the economy. University reform was undertaken in 1933; the reform was later considered as a turning point for universities in their turn toward research institutions (Basgoz (1995)). Accordingly, professors from Europe were invited to lectures. The rising Nazi movement in Germany helped the university reform process in Turkey; many German professors who left their country came in Turkey and took an important role in shaping the tradition of university[9].

[8]During this period, while the content of exports remained roughly the same (agricultural products making 80% of the export volume); the content of imports changed significantly. Between 1929 and 1939 while the share of the consumer goods decreased from 51% to 20%, the share of intermediate goods increased to 41% from 26% and the share of investment goods increased from 9% to 22% (Tezel (2002) p121).

[9]While parliamentarians' salaries were 300TL, foreign university professors' salaries were 500-800 TL and Turkish professors' salaries were 150 TL (Aydogan(2005) p112.)

Given the shortage of primary schools and primary school teachers in rural areas, a 'village teacher project' was put into practice; from those who completed their military service as corporals or sergeants, some were selected and assigned as 'village teachers' after a short training. The project prepared the basis of Village Institutes, a project which left a lasting mark in Turkish education history[10]. Also, given that the majority of population had no basic education, Public Houses were started in 1932[11]. The Houses aimed to reach a wide range of population of all ages who were deprived from school education and/or who desired to learn new skills. In addition, Public Houses were also intended to facilitate the internalization of reforms. In these Houses there were many different branches including *fine arts* (acting and stage play), *sports* (different programs for a variety of age groups), *social assistance* (helping poor and needy people, provide free health care for primary school students, etc), *public classrooms and courses* (teaching reading, writing, foreign languages, sciences etc), *library and print houses*, *village-improvements units*, *museum and exhibition* (giving that Anatolia used to be home for many cultures for thousand of years, this branch aimed at teaching about the archeological sites around the area, to establish local museums or enrich the existing ones) (Ozsari 2006[12]). Hence, a comprehensive education policy was prepared and started to be implemented despite existing financial hardships.

The 1930s, a period during which the economy was attempting to industrialize within the framework of protectionism and etatism, was the last period of the economy before the Second World War, and the last period of the governance under the leadership of M. Kemal Ataturk. It is

[10]The Ministry of Education declares in 1936 that 35 thousand out of 40 thousand villages had no school and/or instructor (Akyuz 2007 p346)

[11]Public Houses were opened in 14 city centers in 1932, then their number multiplied in time. $http://www.halkevleri.org.tr/include/he\_hakkinda.php?no=85$

[12]$http://w3.balikesir.edu.tr/\ mozsari/Halkevleri.htm\#\_Toc121732267$

worth noting that the measures taken by the government under protectionism and etatism were not at the expense of the development of the private sector. On the contrary the government continued to support the private sector and the formation of ‘the national bourgeoisie’. The State Economic Enterprises, on the other hand, undertook the large and expensive projects; the ones which private sector was not willing and able to promise.

Chapter 8

The years of War (1940-1945)

Turkey did not participate into the Second World War, but was kept alarmed with all of its resources until the war ended. Therefore, the economic indicators of the period bear the consequences of the mobilization to their full extent. The industrial plans were suspended due to the increase in the military expenditures. The increase in the military force (keeping an army more than a million), reduced the labor force (Owen and Pamuk 1998 p24). Consequently, the agricultural and industrial production declined substantially. The lack of necessary commodities, in turn, created widespread discontent in the economy. The ongoing economic development of the republic was 'interrupted' as a response to wartime urgencies, and the direction of the economic polices once again shifted.

Inonu became president after M. Kemal. The two were totally different personalities and that difference reflected in their governance. M. Kemal Ataturkwas a leader, a revolutionist and a modernist; Inonu was rather a practitioner, a reformist in Ottoman sense (like Tanzimat men) and

a westernist (Ilhan 2005)[1]. Soon after Inonu became president, taking advantage of approaching wartime conditions he named himself as National Chief (similar to Duce and/or Fuhrer) and started to undertake excessive oppressive measures against the press and his opponents[2]. In line with National Defense Law, some of the basic rights granted to workers in 1936 (i.e. having day(s) off, leaving their jobs, etc.) were abolished, all investments were required to be approved and controlled by the government, government assumed the priority to buy and sell any product in any sector at any price (1940)[3]. The autocratic governance coupled with financial hardships that became more serious due to effects of war on the economy, or due to the way how these effects were managed, increased the discontent from the single party regime.

The economic policies applied in this period can be observed under two sub periods; the first period, lasted until 1942, was characterized by the strict price controls. The aim was to prevent sharp increases in the prices of the widely used commodities. The second period, continued until the end of the war, was a period during which strict control mechanism over the market were reduced. In fact, keeping prices at unreasonably low levels would create its own inflation through monetary policies. As the wartime expenditures were financed by printing money, the general price index increased, and the economy reached unprecedented inflation rates i.e. Consumer Price Index 67% and 46% in the year 1942 and 1943 respectively. In order to cope with wartime unfair enrichments and fiscal problems, the government implemented two extraordinary taxes: the tax of agricultural production and the Wealth tax. The tax of agricultural production consisted of

[1] $http://tilahan.net/default.asp?lang=0\&pId=6\&fId=4\&prnId=83\&hnd=1\&ord=82\&dbId=595$

[2] Between the years 1940-1944, the newspapers Cumhuriyet was shut down 5 times, Vatan 9 times, Tasviriefkar 8 times, Yeni Sabah 3 times, Akbaba humour magazine 4 times, Son Posta 4 times and Haber 2 times. Some of these shutting down for months. (Ilhan 2005, 'Mill Sefin Demokratligi!') $http://tilahan.net/default.asp?lang=0\&pId=6\&fId=4\&prnId=53\&hnd=1\&ord=52\&dbId=565$

[3] $http://tilahan.net/default.asp?lang=0\&pId=6\&fId=4\&prnId=54\&hnd=1\&ord=53\&dbId=566$

a 10% tax rate over the total production, similar to the tithe (the agricultural tax inherited from the Ottoman state that was abolished in 1924 as mentioned before). The new tax of agricultural production was discontinued in 1946. The wealth tax, a one time tax over the wealth addressed mainly on the merchants, turned out to be an unfair practice which targeted non Muslims. It was discontinued the next year, but remained an embarrassing experience for the government.

The wartime mobilization efforts were costly for the Turkish economy as a whole, in the sense that total GNP declined 35% between 1939 and 1945, an average yearly rate of contraction of 7%. The total agricultural production declined drastically; according to the official statistical figures, total production of wheat and barley decreased by 48% and 60% respectively by 1945 compared to their pre-war levels. As a result, the prices of foodstuffs increased dramatically. The period was characterized by the scarcity of widely used commodities and starting with 1942 by the high inflation. That in turn, hurt badly the small farmers who did not have strong ties with the market; but helped the enrichment of the large farmers by taking advantage of the increase in the prices.

The contraction in the manufacturing output was also dramatic. The total manufacturing output declined 38 % between 1939 and 1945. The bottlenecks and black markets were widespread. As the imports ability was restricted due to the ongoing warfare, industrial machines and equipments could not be renewed and/or maintained properly and that in turn decreased the labor productivity. In addition, industrial investments initiated by the State were halted due to mounting wartime expenses (Owen and Pamuk 1998 p26).

Foreign Trade sector, which was already contracted with the import substitution industrialization efforts throughout the previous period, shrank further given the wartime difficulties of keeping

up the international trade activities. Hence, the share of the exports and the imports within GNP reduced to 4% and 2.3% respectively by the end of 1945. The dramatic decrease in the imports, affected the importation of raw materials, intermediate goods and the machinery. That in turn reduced the manufacturing output, the scarcity of which was feeding its black market.

There were two important undertakings of this single party regime: one related with the Education (1940) and the other related to the Land Reform (1945-1950), both of which were either abolished after some time or changed the content after raising reaction from Landlords. Village Institutes, a group of co-ed, public, boarding, normal schools, were designed as main pillars of education improvement and rural development projects[4]. Institutes, established on vast lands in rural areas, adopted the principle of learning by doing and by producing and hence aimed to improve the rural life with its own means [5]. The education in Village Institutes included both practical (agriculture, construction, arts and crafts etc.) and classical (mathematics, science, literature, history etc.) courses where the daily routine included morning gymnastics, reading hours and farming[6] . Though Institutes were short-lived (the course content was changed in 1946 and they were totally abolished in 1950) they helped to create a group of young people who learned analytical thinking and questioning. They were also training a qualified workforce for the industry sector. However, the enlightenment of the young generation in rural regions annoyed the landlords as they felt their

[4]In order to deal with the shortage of teachers in rural regions, first village teachers'school were opened in 1926, then first village institute was opened for testing purposes in 1936, finally they started to operate in 1940. In 6 years the number of village institutes reached to 21.

[5]1-During the period 1940-1945 where Village Institutes were active 1726 village primary schools were started to operate, 2757 teacher, 604 educator, 136 mobile head teacher, 265 health officer were raised. Village institutes managed to create on their own 741 ateliers, 993 teacher's residence, 406 school. (Aydogan 2005 p144) 2- They also encouraged young people to practice arts if they were interested in. It is not coincidence that today a generation of artists (painters, writers, etc.) born in rural regions in Anatolia was of mostly Village Institute origin.

[6]$http://www.cumok.org/html/cumok/istanbul/koyenstitu.htm$

authority threatened. They accused institutes of being immoral/ communist/ fascist places and put pressure on government to shut down.

The other project of the government was the Land Reform (1945). The reform was consisted of the distribution of lands to landless and land short peasants and the provision of the agricultural equipment. However, that caused violent criticisms of landlords within RPP. This opposition front led by the landlords was so strong that they finally established a new party: Democratic Party (DP)[7]. The Law could not be enforced until 1950, the same year the DP won the election and abolished the critical part of the Law, so Land Reform remained as a project that no one dared to undertake.

The years of WWII were not only a period of intermezzo, they were a period of transition from the etatist strategy to more liberal policies as strict price control mechanism removed gradually (starting from 1942) and as the political regime was transformed from single party system to multi party electoral system. This was the period during which wealth transfer from the people who had loose or no ties with the government and the minorities to the people who were able to develop some kind of ties with the government. After the war, new trends in the world economy started to emerge, and yet, the direction of the economic policies had already started to reorient accordingly.

[7]DP was formed in 1946, won the elections in 1950 and remained in power until 1960.

Chapter 9

Agriculture-led Growth (1946-1953)

As the war ended, most European countries (both winners and losers) were trying, to repair damages and to clean up the remaining traces. Turkey, on the other hand, did not actively participate in the war but suffered economically (from the effects of the war on the economy). The discontent from the single party regime was widespread. At this stage, a new era, in which both internal and international forces were effective, started for Turkey.

In 1946, while the Republican People Party was still in power; it initiated the multi-party electoral system[1]. This was not only a political landmark in the history of the republic, but also a turning point in economic terms. Its significance in economic terms originated from the fact that, from then on the electors' wishes would start having an effect over the policies of the governments. In a sense 'populism might pay' for those in power. From then on, the following years and decades would be filled with the unfortunate examples illustrating that expression.

[1] According to Rustow (1973) 'Ismet Inonu has the honor to be the only statesman in the world who voluntarily limits his dictatorship power in order to enhance democracy' (from Kongar 1999 p148).

The international environment, on the other hand, considerably changed after the war. The United States of America (US) emerged as the dominant world power and, consequently, liberal and open economic models began to gain popularity. Meanwhile, United Soviet Socialists Republic (USSR), Turkey's north and north-east neighbor, adopted an aggressive political strategy against Turkey, including some territorial demands. Ironically however, the Soviet policies strengthened the politic and economic relations of Turkey with US.

While relations with United States were tightened, in a period when the trade balance gave the surplus, Turkey started receiving foreign aid in line with Marshall Plan. Meanwhile, the numerous foreign experts visited Turkey and emphasized the benefits of more open and liberal economic polices. In 1947, Turkey became a member of IMF, World Bank and OECD.

In fact, the changed direction in economic policies appeared long before the Democrat Party (DP) came into the power. The policies initiated by the Republican People Party (RPP) started to diverge in 1946; RPP abandoned the previously prepaid the Five Year Industrialization Plan which underpinned the priority of industrialization in all sectors and the importance of economic independence within an etatist framework; instead the RPP adopted another economic plan (newly prepaid) favoring especially agriculture, transportation and energy sectors, emphasizing more open and liberal policies and a greater reliance on the private capital. After all, the etatist -protectionist approach would no longer be the viable one if Turkey was to seek foreign aid[2]. In a sense, while DP was eagerly arguing the benefits of liberalization and openness, there was a continuity (along with the dissimilarities) between RPP and DP in the understanding of the economic policies underlying

[2]Boratav (2005 p99) argues that Turkey's efforts in the search of a foreign aid was not meaningful given the large trade surplus (i.e. the ratio of exports to imports was 174% and 180% in the years 1945 and 1946 respectively).

the role of the state and the role of the private capital, in addition to the approach in international economic relations, including foreign aid, foreign capital etc.

The period was characterized by 'an agriculture-led growth' following an after-war recovery, coupled with a capital inflow in the form of foreign aid and foreign capital. The pre-war GNP levels were attained by 1947. The average annual growth in GNP between 1947 and 1953 was 9.2%. Within that period the agricultural sector demonstrated an outstanding performance, with an average annual growth rate of 10.5%. There were some special factors feeding these 'golden years of the agriculture'. First of all, part of the growth in the agriculture was associated with the increase in the area cultivated. According to the official figures of the State Statistical Institute, the total of area cultivated increased by 35% between 1948 and 1953 [3]. Secondly, weather conditions, an important factor for a sector relying on dry farming, were favorable. In addition, government policies supported the modernization of the agriculture through the Marshall Plan Aid. Finally, the external terms of trade turned in favor of the agriculture, in line with the increasing world demand for wheat, chrome, etc., as a result of the Korean War. As a consequence, the country's external terms of trade improved by as much as 44% (Owen and Pamuk 1998 p107).

The establishment of the Industrial Development Bank of Turkey (TSKB) in 1950 by RPP was an important step in the encouragement of the private industry. The aim was to deal with the problem of capital shortage and lack of initiative on the part of private enterprise (Hershlag (1968) p176). While the industry sector (including construction) as a whole grew at an average annual rate of 9.1% between 1946 and 1953, the manufacturing sector specifically grew with an average

[3]The increase was 60% between 1950 and 1960 (Statistical Indicators of State Institute of Statistic of Turkey).

annual rate of 4.2%, far below the growth rate in agriculture and the industry sector in general[4]. Accordingly, the share of the manufacturing industry within the industry sector was reduced to 55% in 1953 from 75% in 1946, and consequently, its share within GNP fell to 12% in 1953, the record low since the years of the Great Depression. The industrialization, as the ratios made obvious, was no longer a primary concern.

The steps towards the liberalization policies in imports were first implemented in 1946, under the governance of RPP. When DP came to power, from 1950 until 1953, the all sorts of protectionist measures (other than tariffs) were abolished. Consequently, the external trade increased significantly. While the export/GNP returned to its prewar levels, imports/GNP increased sharply. The ratio of exports to imports reduced to 74.4% in 1953 from 180.5% in 1946. The year 1946 would be the last year of the trade surplus for the rest of the Turkish economic history so far noted.

Although RPP also favored liberalism after 1946; this period of time (1946-1953), remembered as a period of abundance and prosperity and was identified with the DP's governance. The growth in the economy, although remarkable, was based on the performance of the agriculture. Considering the fact that 80% of the population lived in rural areas, the agriculture-led boom ameliorated the real income of all the groups in the economy (Boratav 2005 p102). On the other hand, while the increased import volume supported an economy of plenty which created a wide spread content (especially after the scarcity of many commodities in the mobilization period), at the same time it used up the foreign reserves accumulated until then. Agricultural sector of course, however, has

[4]The industry sector includes also electricity gas and water sub-sectors in addition to the manufacturing industry. For the convenience in the analysis the construction sector was also included into the general caption of the 'Industry Sector'.

its own risks and weaknesses. Accordingly, agriculture-led economic growth would be based on a fragile ground, the one which, the new government soon would need it to test.

Chapter 10

The way out of the Crisis: Experimental Policies (1954-1961)

The agriculture-led growth policies were dependent on the existence of some favorable environmental conditions; and yet their fragility became increasingly apparent following the year 1953. Soon after the Korean War ended, the international demand became stagnant and the prices of the export commodities fell. In addition, weather conditions worsened after 1953. Since the agriculture was based on mostly dry farming, it was vulnerable to bad weather conditions. What was interesting within this context however, was DP's changing practices. While DP was eager about the benefits of the liberal economic and political policies before coming to power, a few years after taking charge of the government, it abandoned its liberal economic policies as well as its liberal political policies.

DP, led by a group of landlords and notables who called themselves as conservatives (traditionalists), defined itself as the real representatives of the nation. However, after they came to power, they took an unfavorable attitude towards intellectuals and bureaucracy (both civil and military), since DP perceived them as keepers of Ataturk reforms (Kongar 1999 p149). Given that RPP's role as a 'follower of Ataturk reforms' (at least in form if not in subsistence) was identified with its autocratic/undemocratic policies, DP's anti-reformist behavior was mainly concentrated on taking advantage of this popular discontent (about RPP) and using it as a part of their populist strategy. Accordingly, compromises from *laicité* (the absence of religious interference in government affairs and the absence of government interference in religious affairs) started in this period i.e. priest and preacher schools were presented as a choice to the mainstream education, different religious orders leaders were extremely respected as community leaders, the calling prayer in Turkish replaced with the Arabic one, etc.

Although they promised to undertake democratic developments, once they came in power they first disregarded the criticisms and adverse views of intellectuals, universities and press, later the ignorance was replaced with a severe repression. University autonomy was abolished and they were assigned to the Ministry of Education; the scope of crimes committed through media was widened and punishments were made more severe (1954); a city (Kirsehir) where the DP had no vote support was made a district (1954), etc. Their oppressive measures increased in time. Finally, just before they will be forced to leave the government with a military coup, DP put into operation 'a government coup': they formed 'an inquiry committee' in the parliament which was equipped with the authority of all civil and military judges and prosecutors where all decisions

were final with no recourse appeal. The commission had every right to censure and to ban all kind of meetings, etc. (Kongar 1999 p153-154).

Given their understanding of political liberalism was that limited, their understanding of economic liberalism was also somewhat unclear. They favored an open economy model where the integration with West was desirable at any price[1]. In fact, DP contradicted its open economy policies as early as 1954, and adopted a new trade and foreign exchange regime that included protectionist measures and restrictions on imports. The reason lay partly in DP's 'experimental' policy-making behavior. When the policies they adopted, coupled with the changing environmental conditions, ended up with a balance of payment crisis, they shifted from open economy policies that they had argued so ardently to import substituting industrialization (ISI) policies. Owen and Pamuk (1998 p107-108) note that as the Korean War ended, the international demand for the export commodities declined. The export volume declined further due to the overvaluation of the currency. Under a liberalized import regime, foreign exchange reserves depleted quickly. Since the ability to import was curtailed (as foreign exchange reserves were exhausted), the shortage of raw materials and intermediate goods resulted in the scarcity of many items for consumption. Thus, not as a part of a planned strategy but as a result of the acute necessities, the DP government returned to import substituting industrialization (ISI) policies.

The state economic enterprises, on the other hand, were a subject of debate between the RPP and the DP. One of the main differences in the arguments was that DP argued heavily for the

[1]DP's perception of independence, democracy and sovereignty can be briefly illustrated with Menderes (the leader of DP) words where he explains their understanding of foreign politics and democracy: 'Having an independent foreign policy or a national foreign policy means going away from democracy.' Another example demonstrating DP's understanding of sovereignty rights is the article 136 of the Petroleum Law (1954) that allows the management of oil reserves by foreign companies. The article 136 states that 'this law can not be changed without the consent of foreign companies'.(Aydogan 2005 p147-149).

sale of state economic enterprises to the private sector while RPP favored keeping them under the state's control. Ironically however, DP, due to unwillingness of the private sector, far being able to privatize them, it needed to increase state investments.

The balance of payment crisis led to a series of negotiations with IMF and Organization for Economic Cooperation and Development (OECD) between 1954-1958 about a stabilization program in return for rescheduling the debt. The stabilization program contained the familiar measures of a 'standard IMF package' like the liberalization in the external trade, an increase in the prices of the state economic enterprises (that were kept unrealistically low) and the removal of price controls and the liberalization of the imports (Boratav 2003 p110). The government was unwilling to adopt the stabilization program and the devaluation needed before the elections and postponed it until 1958 [2].

The period was characterized by a relatively modest growth in GNP, an average annual rate of 4.7%. The average annual change in GNP per capita was 1.8% means a period of recession when compared with 6%, the average annual per capita growth of the previous period. The average annual rate of growth in the agriculture was 3.9%. As the external terms of trade became unfavorable for agriculture, the government, in order to prevent the decline in the income of the rural population, initiated price support programs for wheat[3]. Those programs, on one hand, created a tool for the governments (for the current government and the ones following that) to affect the agricultural income, hence fed the populist expectations of three fourths of the population; and

[2]The rate of the devaluation that occurred in 1958 was more then 200%, and in fact shows the rate of the revaluation in Turkish Lira (Owen and Pamuk 1998 p109).

[3]Soil Production Office, the agency that is responsible for the purchase of crops was financed indirectly through the loans extended from the Central Bank.

on the other hand they were estimated to increase the money supply and hence resulted in the increasing inflation. Nevertheless, those price support policies favored rural population until 1957 (Owen and Pamuk 1998 p110). Also, the government by interfering with the prices of State Economic Enterprises decided to subsidize the private sector and to control the inflation. However, the consumer price index rose over 20% in 1959 from 4.8% in 1953 and hurt mainly urban wage and salary earners. The inflation had a both demand pull and cost push character. While the former was caused by increasing the money supply beyond the gains in real consumption, the latter was caused by highly inefficient government spending (Alpozden 2004).

Despite the fact that the share of gross fixed investments within GNP increased to 16.1% in 1960 from 11% in 1950, investment projects undertaken by the government were inefficient in many respects[4]. First of all, they were uncoordinated. DP administration used to identify planned economy with 'communist policy making behavior' and thus avoided it as much as possible. In addition, investment projects were motivated with political aspirations; the location of factories and the sectors in which investments were decided on non-economic grounds[5]. While private investments were concentrated in the manufacturing and construction sectors, public investments were concentrated mainly in agriculture related projects and transportation (essentially highways).

[4]DPT (State Planning Organization) database

[5]Alpozden (2004) gives the example of sugar industry; while the sugar production increased at a rate of 16.7% annually throughout the 1950s, the consumption of sugar grew only at a rate of 8.8% annually. While 'the sugar became the symbol of the industrial advance of Turkey' during the 1950s; Singer (1977) describes the situation as 'it was undisciplined in its expansion and wasteful in its use of resources and its progress all too often politically inspired'.

In fact, during the DP government, the construction of railways was almost stopped; instead building of highways was prioritized [6]. Urbanization increased at an unprecedented rate. Mass migration, facilitated with the road construction, was resulted in shanty towns built on the outskirts of the major cities. The population increase in the cities (5%) was more than twofold the population increase in the villages (1.8%) between the census years 1955 and 1965.

The education was no longer a priority in the government's agenda. Between the years 1955 and 1960, the literacy rate fell for the first time since 1923. Village institutes were shut down and replaced by village teachers' school. Public Houses were also closed[7]. The close relation of DP (the party in general, the prime president (Menderes) and the Minister of Education (Ileri) specifically) with the religious order leaders reflected itself in the increasing weight of the religion in the education. On one hand, the religion course incorporated into the class programs (1951 primary schools, 1956 secondary schools), on the other hand, the teaching personnel was subject to an ideological comb-out process[8]. In addition, the unity of education was bruised by the opening of priest and preachers school[9]. The aim of the ministry deviated from improving education to transforming both the content and the tools of the education.

[6]According to State Planning Organization statistical database, while there was 1624 km of hard surfaced road in 1950, 5425 km of hard surface two lane highways was built between 1950 and 1960. During this period, the number of cars and buses increased three folds.

[7]When Public Houses were shut down, there were 48 Houses Public Houses (bigger ones) and 4322 Public Rooms (smaller ones) operating in the country. Only, during the year 1940, 345.672 persons were continued into courses like Turkish, foreign languages, sewing, painting, sculpture, etc. There were cinema rooms in 38 of them. The 26 Public Houses were publishing regular magazines. Ten years after Turkey closed its Public Houses, Culture Houses (very similar to Public Houses), were opened in France by the Minister of Culture, Andre Malraux. The Culture Houses are still operating in France(Ince 2008, $http://www.hurriyet.com.tr/yazarlar/8259326.asp?yazarid=72\&gid=61\&sz=32377$.

[8]$http://muazzezcig.blogcu.com/2388616$ and $http://www.cnnturk.com/YASAM/DIGER/haber\_detay.asp?PID=223\&HID=1\&haberID=136511$

[9]In eight years (1950-1958) 26 priest and preachers' school were opened. In time their number increased at an increasing rate and reached over 600 in forty five years. ($http://www.cnnturk.com/OZEL_DOSYALAR/haber\_detay.asp?pid=392\&haberid=9260$)

The leader group of DP, being the large landowners, argued that their policies were different from protectionist and conservative economic policies of RPP and they would prioritize the people's needs. They promised populist/expansionist policies and they undertook them to the full extent without considering their long term results. As they started to loose ground, their liberal political rhetoric turned out to be authoritarian vis-a-vis the press, the universities and the judiciary. Although the policies that they engaged had long lasting and severe consequences, they were mostly remembered favorably by the 'conservative' electors. The political heritage of the DP would later be carried by another party which would be effective in the policy making throughout the 70s, the Justice Party.

Chapter 11

‘Neo-Etatism’: ISI and the Populist Policies (1962-1976)

DP period was characterized by three different phases: first by an agriculture-led growth under the conditions of relatively open economy, and then with bottlenecks and shortages and finally by a recession. During this time, they (DP policy makers) considered any approach underlying economic and political independence as undemocratic, the inclusion of religion and religious orders into politics as political liberalism and the support of private sector by state means and/or undertaking unplanned/ experimental economic policies as economic liberalism. Soon after they left the political scene with a military coup (1960), a new constitution was formed by the Constituent Assembly[1]. However, contrary to what was expected, the fresh start with a new and much more democratic constitution resulted in more and more severe conflicts in the country. Also, the shift

[1] A referendum on the draft constitution was held on 9 July 1961

of the economic policies towards economic planning (as measures which may disturb the existing interest groups were not undertaken) failed to deliver long-lasting satisfactory results for the development of the economy.

After having experienced drawbacks of DP's power abuse when holding the majority of seats in parliament, the constitution of 1961 envisaged a democracy concept where the coercion of majority was blocked. 1961 constitution was different from that of 1924 in two main aspects. First, it includes a group of institutions that shared the authority of the parliament and the government (Kongar 1999 p161). The Senate of Republic was one of them. The parliament consisted of two houses: The National Assembly and the Senate. Laws issued by the National Assembly were to be approved by the Senate[2]. In addition, the Constitutional Court was established. Its role was to check the congruity between laws issued and the constitution. Furthermore, the National Security Council was established. The council gathered under the presidentship of the President of the Republic where the Prime President, a group of cabinet members, Army General and Commanders-in-Chief were members[3]. The role of the council was to assist the cabinet in the decision-making and the coordination of the national security related issues. Hence, with the new constitution, for the first time, the army assumed a constitutional role. Moreover, the constitution defined the Supreme Court, the Council of State, and the Supreme Military Court as constitutional institutions.

[2]The senate consisted of three group of members; those who are appointed by the President of the Republic (15 senators), those who were elected (150 senators) and the natural members (previous Presidents of Republic and the members of constituent assembly). While the members of Parliament were elected for four years, senators were elected for six years. Kemal Gozler, 1961 Anayasasi, *www.anayasa.gen.tr*/1961*anayasasi.htm*, 2008

[3]The members were the Prime President, Army General, Minister of State, Assistants Prime Minister, Minister of National Security, Minister of Interior Affairs, Minister of Exterior Affairs, Ministry of Communications, Ministry of Labor and Commanders-in-Chief of the armed forces. *http* : *//www.mgk.gov.tr/Turkce/Yazdirilabilir%*20*Surum/Tarihce/Tarihce_*3.*pdf*

Also, in order to secure the juridical impartiality, the 1961 constitution foresees the establishment of Supreme Council of Judicature.

Second important aspect of the 1961 constitution differentiating itself from the 1924 constitution was that it emphasizes the social welfare state. However, neither the new constitution envisaging a more democratic environment nor different governments with changing elections could prevent the rise of violence between 'rightist' and 'leftists' in the country[4]. Ironically, liberal 'rightist' parties were blaming the new constitution for the ongoing unrest in the country and arguing that the constitution was 'too much' (democratic?) for Turkey.

The increase in turbulence in the country ended up with a military intervention; the army issued a memorandum in 12 March 1971. However, it was soon evident that the intervention of the military administration in the unrest was not an ideal remedy since 'the solution' brought its own problems[5]. The next elections could be held only after two and a half years.

In economic arena, the main criticism that DP was facing throughout this period was day to day policy making without having a long term perspective. The election took place in October 1961. According to the election results RPP formed a government. Responding to a widespread wish, policies of the new government were now based on planning. The planning efforts, although evolved in content since 1930s, were lacking -to a large extent- the fiscal and monetary grounds

[4] 1-Rightist groups were defining themselves as conservatives (of traditional order?), leftist groups were consisted of different views ranging from social democrats to socialists. 2-The fact that many 'agent provocateurs' from various security organizations infiltrated into these groups was an important factor in the escalation of the violence.(Mumcu 1975 from Kongar 1999 p173)

[5] The murder of Israeli consulate by some 'leftist groups' triggered the state violence (1971). Kongar (1999 p174) notes that 'the state violence is the most horrible of all existing violence types, since in case of the state violence, there is no place to turn to ask for shelter' All groups and individuals including journalists, writers, academicians, school teachers who were estimated to have a 'leftist' worldview were arrested. Some of them had to face severe tortures during interrogations. Mumcu (1975b); notes that the torment procedures had striking similarities to those applied in Chili, Uruguay and Greece. *http://www.alevileriz.biz/archive/index.php/t41673.html*

that they were supposed to be based on. The import substituted industrialization (ISI), a conscious and strategic decision of the policy makers, started in a promising way but remained limited and in time even became problematic.

The State Planning Organization (SPO) was founded in1960 under the consultancy of Nobel laureate economist, Jan Tinbergen, who was known to develop 'the concept of planning in stages'. The first five-year plan was prepaid under his supervision, based on the three stages approach. Accordingly, the first stage was called the 'macro stage', where the economy's overall desired rate of growth and required saving and investments are determined; the second stage was called the 'middle stage' or the 'sectoral stage' where the total investments were to be distributed across sectors in order to achieve the targeted growth rate while avoiding shortages and bottlenecks, and the third stage was called the 'micro stage' or the 'project stage' where the projects in line with the defined targets were to be chosen (Kol & de Wolff (1933)) . While the plan was imperative for the public sector, it was only indicative for the private sector. The planners aimed to manipulate the private sector's decisions (on which they had no direct control) only through incentives and disincentives.

In fact, the early planners conceived of planning as a tool to shape an economic and social development path for Turkey via a series of reforms. They proposed the reorganization of SEEs which were used by governments to gain political support. The goal was to make them more efficient, competitive and profitable institutions. The actual practice however was 'useful for the individual capitalist interests and politicians but dysfunctional for the expanded accumulation of the capital'. In addition, they proposed a land reform in order to secure the social and economic

development of the backward regions and a tax reform to ensure the effective taxation and widening of the tax base (Alpozden (2004)). None of these reforms could be implemented as they were strongly opposed by a group of politicians, bureaucrats and businessmen, an alliance who were afraid to loose their privileged/advantageous position for different reasons. Hence, the efforts of transforming Turkey into a modern state both in economic and social terms had no medium of enactment, at least for this period under analysis.

Nevertheless, five years plans started to be implemented starting in1962 and continued through the 1970s. The aim was to industrialize through import substitution and the protection of the domestic markets. However, the ISI approach of the 1960s was different from that of the 1930s in some important respects. One major difference was that in the 1930s industrialization had to be led by SEEs since the private sector was weak; however , in the 1960s, while SEEs were investing in large scale intermediate goods industries, private sector, grown stronger by then, was enjoying opportunities in a protected environment (Owen and Pamuk 1998 p111). Yet another difference between two periods: The type of products. While in the 1930s, the focus was on the widely used commodities; at the 1960s the emphasis had shifted to consumer durables like refrigerators, television sets, car, kitchen appliances etc.

At the first stage, ISI started with a manufacturing process that was entirely based on the imported materials. Since neither the cost nor the quality of production was competitive in international terms, export ability remained very limited. The subsequent stage of the import substitution process was initiated with the establishment of the state economic enterprises on large scale intermediate goods like iron, steel, aluminum, chemicals and so on. However, the import substituted

industrialization could not reach the following stage: the capital goods industry. Instead it remained within the 'easy phase' as defined by Hirschman (1968) with all the predicted adverse consequences[6].

Here, Boratav (2005 p125) draws attention to the nature of policies adopted by SEEs; they were put in a position to sell their price below the equilibrium price to protect the final producers and hence affected the distribution of the income within the society. In fact, the political economic ground of the ISI strategy was a 'grand yet delicate alliance between bureaucratic elites, industrial capitalists, industrial workers, and the peasantry' where the protectionist trade regime (strong non-tariff barriers), intermediate goods sale strategy of SEEs (on artificially low prices), and overvalued domestic currency (enabling easy financing for fixed capital investments) created all together an advantageous environment for the private industrialists (Boratav & Yeldan (2001)).

Accordingly, the ISI policies at first were successful in fostering economic growth. GNP increased at an average annual rate of 6.3% between 1962-1976. Within that time period, average annual output growth in the agriculture was 3.5% similar to the previous period rate of 3.9%. However, the share of the population in agriculture declined from almost 70% to 54%. Manufacturing industry, on the other hand reached an average annual growth of 8.3% compared to 7.9%, the previous period's growth rate. Nevertheless, the share of total industry in GNP did not increase significantly in this period. While share of agricultural sector contracted from 36% to 30%, the share of the total industry increased slightly from 18.2% to 18.6% during this period.

[6]Hirschman (1968) catalogues the main reproaches against ISI as observed in Latin America; first, it has a negative effect on the balance of payment. After the first successes, 'easy' import substitution opportunities are exhausted. To increase the production the importation of the semi-finished materials and the machinery were needed, hence balance of payment became more vulnerable. In addition, there exists an innate inability to move to export markets. Finally, new industries are making inadequate contribution to the solution of the unemployment problem.

The ISI policies were built on the premise of ever growing domestic market, and in fact, during this period, consumer durables reached a wide range of the population. What was noteworthy, however, was that real wages displayed an increasing trend in this period; for example, the increase in the average annual payments per worker/employee was more than twice of the increase in the Consumer Price index between the years 1962-1976. Owen and Pamuk (1998 p112) note that urban real wages almost doubled between 1963 and 1977. On one hand, there was an increasing labor demand in the growing sectors of the industry. Furthermore, there was an emigration of workers to Europe, both of which boosted the demand for labor domestically. Another factor feeding the economic growth was the capital inflow, both in terms of loans and workers' remittances. Workers remittances sent from Europe increased dramatically after 1970, reached its peak in 1974 with \$1.42 billion and almost equaled the economy's total earnings from exports[7].

The ratios of the external trade, on the other hand display the effects of the ISI policies applied. While the share of the import in GNP display clearly an increasing trend after 1969 (from 4% in 1969 to 9.6% in 1976), the share of the export in GNP failed to exhibit the parallel trend, and decreased to 3.7 in 1976 to 6% in 1962, though fluctuating. The share of the agriculture in the total exports did not decrease below 55% within that period, while the share manufacturing output increased to 40% the highest[8].

As a result of the nature of the ISI policies applied, industry focused mainly on the domestic market and did not need to bother with testing its competitiveness internationally. However, in-

[7]Owen and Pamuk (1998 p113) draw attention to the fact that while workers remittances supported the balance of payments and growth in the short term, but they also contributed to the over valuation of the domestic currency hence reduced the competitiveness of exports.

[8]Owen and Pamuk (1998 p113) note that the share of the exports within the total manufacturing output remained below 12% throughout the 1960s and the 1970s.

dustrialization could not be carried to the higher stages of the ISI, the capital goods industry, as noted earlier. Consequently, the economic growth became increasingly dependent on importation of intermediate goods (and petroleum) with a decreasing ability of exporting.

The balance of payment difficulties had to be surmounted with another IMF arrangement in 1970. Within the period 1964-1976, the total external debt climbed from 964 million to 6.9 billion dollars and reached 13% of the GNP. However, while some of the problems in the economy were rather systematic, like populist policies (including under pricing of the intermediate goods by the Sees, the overpricing in the purchase of raw materials from the agricultural population), the inadequacy of the ISI policies, and so on, the solutions were often short term remedies. Finally the petroleum crisis of 1974 tested the fragility of the system.

When the oil prices started to increase world wide in 1973 there was an ongoing election setting in the country resulting in weak governments. In that year the ratio of outstanding debt to GNP was 9.5% and the ratio of export/ import was 63%. However, policy makers instead of applying anti-expansionist policies and surmounting the crisis as many industrialized economies did; they chose to continue the expansionist policies as the Figure 17 illustrates. Strikingly enough, the growth rate of the economy reached to 6.1% in 1975 and 9% in 1976. On the other side of the coin, the current account deficit over GNP increased to 5.1% in 1977 while the export/ import ratio decreased to 30% hitting the historically lowest rate for the republic. Consequently, the crisis came with a few years delay but this time with much more violent consequences.

Education, which was considered as a tool of, with Kongar words, 'backward social engineering' ever since DP era, was deteriorated further during JP period [9]. JP enabled the graduates of Priest and Preacher Schools to be primary school teachers (1965). In fact, JP program for the first time, promised to the graduates of Priest and Preacher Schools the right to enter to (all departments of) universities. In 1968, the ministry of JP (Ertem) declared their aim as to open a Priest and Preacher School to very city (1968). Actually, in line with that aim, the highest number of Priest and Preacher School (312 out of 610) opened while Demirel (DP leader) was prime president [10]. Furthermore, when university students asked for reforms in universities (including conditions to move to the subsequent level, participation into university management, etc) and declared their requests with protests; their protests, which needed to be solved within universities, were responded by a police force or a military force. These violent repressive methods contributed further to the increase in violence within university students of different views.

The new constitution of 1961 envisaged a more democratic environment. However, the democratic environment took a chaotic shape in the hands of political leaders who were evaluating even the most serious event in terms of its contribution to their voting support. In fact, the constitution emphasized economic development and social justice specifically as two simultaneous objectives of the state (Alpozden 2004). Yet, policy makers, far being pursuing these goals, adopted a short sighted approach. The application of populist policies coupled with an approach of 'saving the day' in the face of major economic problems and trading short term individual benefits for long

[9] $http://www.kongar.org/aydinlanma/2005/470\_Islam\_Devletine\_Dogru.php$

[10] Although women can be neither priest nor preacher in line with Islamic practice, Priest and Preacher School started to accept girls starting with 1976.($http://www.tumgazeteler.com/?a=406761$)

term wide spread costs, brought the economy to the eve of the most severe crisis of the postwar era.

Chapter 12

The crisis (1977-1979)

In the face of growing balance of payment problems, IMF requested the implementation of a full scale stabilization program in return for rescheduling the existing debt, and signaling the green light for the new credits. The program had three principal demands: extensive cutbacks on the government subsidies, the elimination of controls on imports and exports, and a major devaluation (Owen and Pamuk 1998 p115). The governments in charge were reluctant to apply the measures suggested by the IMF, and contend with modest devaluations. The result was the bottlenecks, shortages and queues on widely used commodities. In addition this period was characterized with the terrorist attacks and anarchist actions of different political groups. The economy was in the deep crisis, and the country as a whole was on the eve of a civil war.

In this period, the annual growth rate declined to 0.4% much below than the rate of the increase in population. GNP per capita contracted by almost 2% between 1977 and 1979. The ever-growing inflation rate reached to 60% in 1979, the record high rate in the economic history of the republic

except the war years. The period was ended with a military coup in the September 1980; a series of highly radical stabilization measures, prepaid by the JP government in the January 1980 (known as 'the January 24 program'), could now be undertaken under the military regime. The civil war also ended with military coup at the expense of the suspension of civil rights, including the strict limitations on organization at the work place and the bargaining rights of labor unions. Starting in 1980, economic governance would shift towards liberal (and export oriented policies), while strangely enough the political governance would shift into the opposite way, strictly restrictive and prohibitive policies, which are by definition far from being liberal.

Chapter 13

The Years of Economic Liberalization (1980-1995)

Giving the rising country-wide violence, the military coup of 1980 was anticipated by everyone[1]. In fact, the coup was 'invited' by political leaders as they stayed indifferent while the country was almost in a civil war. Besides the ongoing violence between terrorists groups of different views, starting with 1978, well-known academicians, intellectuals, famous journalists and a highly reputed state prosecutor were assassinated. The assassinations remained either unresolved or criminals who were found and among those who were condemned some managed 'somehow' not to stay in jail and get rid of all charges. In time, individual crimes were replaced by mass crimes[2].

[1] During the years 1977-1980 4663 people were killed in anarchical events (Kongar 1999 p200 from Keles and Unsal 1982).

[2] According to official records, in Kahramanmaras for example (a city located at the junction of Mediterranean, Eastern and Southern eastern Anatolian regions) 111 people were killed between 21-25 December 1978. The event was known as 'Kahramanmaras massacre'. The target was those who assumed to be leftists and Alevis (partisans of the caliph Ali who are known to be mostly 'leftist'.

Though the coup was almost expected to happen, the cost of the intervention was not estimated to be that high.

The military intervention of 1980 cut back almost all the democratic expansions foreseen by that of 1960. While 1961 constitution was prepared to protect the democracy against the party(ies) in power, the 1982 constitution was made to protect the democracy from opposition parties and/or groups. The aim was to create a more centralized structure. The centralized structure was intended to be obtained mostly by increasing the authority of the President of the Republic. The changes in political parties' law and the election law were also supporting the idea of a strong government (Kongar 1999 p198).

The military administration was steadily emphasizing the need to stay in line with Ataturk reforms, but coming to actions they did just the reverse. They did not hesitate to close down Institutes (the Turkish Historical Society and the Turkish Language Society) established by Ataturk himself to which he devoted his heritage to facilitate their developments. On the other hand, they made the religion course compulsory in primary and secondary education (1982), a practice that was abolished in 1931 (from secondary schools) and 1935 (from primary schools). Furthermore, the opening of new Priest and Preacher schools were encouraged in country wide. Most important of all, graduates of Priest and Preachers schools obtained the right of entering all university departments (1983) (Cakir, Bozan & Talu (2004) p67). In fact, the military administration figured out students as memorizers who were not supposed to question or to investigate and shaped the education system accordingly. Unfortunately, governments in charge then after failed also to undertake

a comprehensive education reform. While efforts in education were not focused to increase its quality, Figures 21- 24 illustrate the quantity-wise educational developments.

The interventionists considered that the society was 'too politicized' therefore banned unions, academicians, students, public servants and civil servants, etc. from politics. The military administration also forbade organization at the work place, collective bargaining rights, the activities of the labor unions, and brought strict limitations to civil rights and freedoms. The central authority on associations, syndicates, universities and chambers was increased as a result of new regulations and state was made more powerful against individual and organizational rights in social, economic and politic sense (Kongar 1999 p199).

The consequences of these changes in laws and regulations on economic, politic, and social life was better understood in time but immediate results of oppressive policies were non less ignorable. During the military administration (1980-1983) 650 thousand persons were arrested, 230 thousand were judged, 1million 683 thousand people were subject of a file at a police office, 7 thousand capital punishments were asked, 517 of them realized, 300 persons were dead during inquiries for unknown reasons The press also was under severe repression, 400 journalists were arrested, 21 were condemned [3]. Oppressive measures affected universities as well, 1255 academician were either dismissed or resigned as a reaction (Kongar 1999 p541 from Hatipoglu 1990).

A restricted environment as such however was suitable for the implementation of the stabilization package (the January 24 program) that was prepaid on 24 January 1980 but that had to be suspended after then, given the ongoing political turmoil [4]. Ozal, who was in charge of overseeing

[3]Cam (2007), The General Secretary of Disk, $http://www.disk.org.tr/print.asp?ContentID = 404$

[4]If the January 24 program was to be implemented before the military coup, the measures brought with the program would rise the objections of political parties, syndicates, chambers and associations, etc. since it suggests major

the implementation of the program in JP government, became deputy prime minister in charge of economic affairs during the military regime. He later founded a new party, Motherland Party, participated into the restricted elections of 1983, and after being elected, formed the government. For a whole decade, the Motherland party would remain in power and determine the direction of political, as well as economic, policies. It is worth analyzing this period under two sub-periods, 1980-1988 and 1989-1995, the cutoff year 1989 signifying the time when the capital account liberalization was put into practice.

13.1. Export Led Growth and Arbitrary Policy Making (1980-1988)

The economic polices applied within the framework of the January 24 program had three principal aims as Owen & Pamuk (1998) (p118) noted, to restore the balance of payments, to reduce the inflation rate in the short term and to create a market-based export oriented economy in the long term. Accordingly the application of the program started with a major devaluation, devaluating TL 100% at once, and then the currency was allowed to depreciate with the inflation rate. In line with the program, the prices of State Economic Enterprises' products were increased, price controls were abolished, trade and payment regimes were liberated, interest rates were freed, exports were encouraged through subsidies and other measures and foreign capital was promoted.

changes in economic life including privatization of SEEs, removal of agricultural subsidies, sale of state monopolies to foreign capital, etc.

At first, the program was effective in bringing down the inflation. The inflation rate was around 100% in 1980 and decreased to around 34% in 1981 and in three years, in 1983, it went down to 31%. The policies supporting exports were also successful, the ratio of exports to GNP increased to 9.5% in the 1983 from 2.8% in 1979 [5]. The balance of payments, on the other hand, was improved after being negotiated with IMF, as a result of rescheduling of the existing debt and obtaining new credits. The first results seemed to be in line with the aims of the program. In the remaining years of the period, namely between 1984 and 1988, the average annual inflation climbed to over 45%. The share of exports in GNP increased to 11% on average but the share of imports within GNP rose even further, to 16% on average. The economy overall was growing at a rate of 5.1%, while GNP per capita was growing at about 2.7%.

While the economic performance was not outstanding, the price of obtaining that was quite high; the total amount of external outstanding debt went up to 47% of GNP in 1987 from 16% in 1979.Although the growth of the exports was the successful part of the economic results, some of the export volume was later found to be fictitious because of over-invoicing in order to take advantage of the related incentives. On the other hand, Boratav and Yeldan (2001) draws attention to an anomaly in the investment trend in manufacturing sector; while gross fixed investments of the private sector increased by 14.1% per annum between 1983 and 1987, the rate of growth of the private manufacturing was as low as 7.7%[6]. They conclude that this divergence between the declared foreign trade objectives and the realized pattern of accumulation away from manufacturing would be one of the main structural deficiencies of the period.

[5]While the ratio of imports to GNP was mounting also to 15.3% from 6.2% between 1981 and 1983.

[6]Housing investments increased by an annual average of 24.5% during 1983-87.

According to an econometric study performed by R. Barlow and F. Senses (1995), from the longer perspective, the policy measures, mainly the real exchange rate depreciation and export subsidies rather then the external demand conditions, emerged as the most important explanations for the strong export performance during the 1980's. Boratav (2005 p163) draws attention to the same point, that the increase in the exports was basically related to the foreign exchange policies pursued and not with productivity increase originating from a technological development.

However, as the restrictions in the parliamentary system were relieved, the political competition was tightened towards the end of 1980s. Then the government turned to more populistic policies so that public sector wages, salaries and the agricultural income rose sharply; urban real wages doubled within the period 1987-1990 (Owen and Pamuk 1998 p121). As the public sector borrowing requirement increased, the difference was financed by internal and external borrowing and printing money, a phenomenon which resulted in inflation rising at an accelerated rate.

Yet, the government was frequently criticized for pursuing arbitrary policies which resulted in favoritism towards a group of firms and entrepreneurs along with claims about briberies and corruptions. Kongar (1999 p415) gave the example of change in the enactment of certain custom duties for few hours to enable some group of people to take advantage of the situation; so that, in the afternoon the same day, the enactment of a new communiqu abolishing the change and returning to the old practice. He concludes that the period brought the use of state power to the enrichment of certain individuals disregarding the rules of a competitive economy.

Overall, the income distribution was adversely affected from the policies. In fact, one of the important features of the 1980 package was the repression of labor and agricultural incomes. Few

years after the coup, the prohibition regarding labor organizational activities was transformed into strict limitations over them; a phenomenon that helped the undertaking of policies that brought about reductions in the real wages[7].

The period started within a constrained environment of a military regime, and then gradually moved into political liberalism. While the economic liberal policies undertaken by the government at first gave dynamism to the economy, in fact, they generated economic growth at the expense of ever growing amount of debt and a chronic inflation in upper double digits. In addition, they were overshadowed by the arbitrary policy making behavior and therefore did not generate a suitable environment for a stable long run growth.

13.2. Capital Account Liberalization and Vulnerability (1989-1995)

This sub-period starts in 1989 with the liberalization of capital inflows and the outflows[8]. The international financial institutions supported the policies undertaken by providing increasing amount of capital inflows. The support of the international institutions was often associated with the close cooperation in undertaking not only economic but also political policies. From then on the total

[7]While Owen and Pamuk (1998 p120), quoting from Pamuk (1995), note that the urban real wages decreased 34% from 1977 until 1987; Boratav and Yeldan (2001) point out that the suppression of wages was instrumented both to lower production costs and also to constrict domestic absorption. Boratav and Yeldan put forward that the share of wage-labor in manufacturing value added declined from an average of 35.6% in 1977-80, to 20.6% in 1988 while average mark up rates (gross profit margins as a ratio of current costs) in private manufacturing increased from 31% to 38%.

[8]Turkey removed capital controls at a time when France and Italy with much more developed economies did not liberalize their capital accounts. The capital account liberalization took place in France and Italy in 1990, in Spain and Portugal in 1992.(Somcag (2006) (p26))

outstanding debts started to increase at an unprecedented rate Figure 18. Large amounts of accumulated internal and external debt, coupled with the short term capital flows within a liberal financial framework, resulted in a highly fragile financial structure that would be apparent later in a series of balance of payment and banking crises.

The growth rate of the economy was 4% on average, though with an erratic growth pattern as is shown below in Figure 19. Within this period, the highest growth rate occurred in 1990 with GNP growth rate of 9.4%; and the highest contraction occurred following the crisis of 1994 when the economy was shrunk by 6.1%, the record negative growth rate since World War II. The ups and downs in the growth rate created an environment full of uncertainties which obviously tended to discourage any sort of medium or long term investment decisions.

During the same period, the ratio of budget deficit to GNP increased at an increasing rate from 3.3% in 1989 to 8.3% in 1996[9]. The budget deficits were financed with domestic borrowing with ever increasing interest rates[10]. Onis & Rubin (2003) argues that the impact of financial liberalization in the presence of large budget deficit was a systematic increase in domestic debts and borrowing requirements, which in turn pushed the interest rates even higher, a phenomenon leading Turkey in a vicious cycle of increasing debts and rising interest rates. Within this picture, external borrowing was executed from private financial institutions which were the main source of demand of the domestic debt instruments.

[9]The increases in the government expenditures according to Celasun (1998) were the total wage bill of the government, generous agricultural support policies, worsening performance of the state owned economic enterprises (SEE), the increase in the military expenditures and increased interest payments after 1992.

[10]The rate of the total domestic debts over GNP rose up to 60% in 2005, latest available data when this paper was still manuscript.

The hasty capital account liberalization of 1989, without meeting the necessary conditions like a strong banking sector, a strong regulatory and legal regime, sound macroeconomic environment regulations etc., increased the instability of the financial system; and a mismanagement of the economy under these conditions finally resulted in the most severe crisis of Turkish economic crisis of post-WWII era. During the crisis, the overnight interbank rates skyrocketed to above 500%. The 1994 crisis turned out to be highly costly. By the year end of 1994, the total output contracted by 6.1%; the inflation rates rose over 100%; and the devaluation of the Turkish lira against USD mounted over 165%[11]. Consequently, total domestic and external debts over GNP increased (in one year) from 18% and 38% to 21% and 50% respectively.

Boratav and Yeldan (2001) explain the reasons of this riskier environment following the capital account liberalization of 1989 as followings: First of all, the economy was drawn into a viscous cycle of high interest rates and an overvalued Turkish lira where high interest rates can not decline because of the threats of capital flights. Secondly, the growth path of the economy had become more volatile subject to a newly emerging financial cycle, and the period between its boom and bust phases shortened considerably. Thirdly, external debt has grown at a pace totally unrelated with the external financing needs of economic growth. And, finally, arbitrage-seeking and short-term capital ('hot money') flows constituted a rising share of total capital movements, causing instability in the economy. Boratav (2005 p192) further argues that Turkey, following the tightening monetary policies as suggested by IMF, had been dependent on foreign capital inflow to generate growth in the economy after 1989.

[11]The increase in the CPI average for 1981-1988 and 1989-93 was 42% and 65% respectively.

Growing public debts and hasty capital account liberalization coupled with 'the bad governance' paved the way for increased instability in the economy and the currency crisis of 1994 became inevitable. Hence, the economy within a fragile structure would move into an increasingly erratic growth pattern. The 1994 crisis was the heaviest crisis that Turkish economic history notes so far; but, given the unwillingness to undertake the necessary structural reforms, it will not be the last and biggest crisis that Turkey would experience[12].

[12]After the 1999, the financial crisis of 2001 broke out; the output declines were 6.1% and 9.5% respectively. The 2001 crisis occurred under the close supervision of IMF (when the crisis broke out, an exchange rate based disinflation and stabilization program that had been designed and closely monitored by IMF). The 2001 crisis brought the highest economic contraction that Turkish history so far noted.

Chapter 14

Conclusion

When the Republic of Turkey was founded in 1923, its major aim or challenge had been to join the family of the most civilized and prosperous nations[1]. However, after eighty years, the goal of economic prosperity (the score in the goal of civilization is beyond the scope of this study) was not fully achieved. GNP per capita grew at an average rate of 4.7% per year during this period (Table 46). Yet, if we compare this rate with other (already prosperous) nations' growth rates, we can see that Turkey did not grow faster (Table 52). Furthermore, during all those years, the growth rate of Turkish economy exhibited an unstable behavior, a typical pattern in underdeveloped economies[2]. This erratic growth pattern, however, became more volatile after the capital account liberalization of 1989 as the Figure 20 illustrates.

[1]The expression is drawn from M. Kemal Ataturk discourse in honor of 10th year anniversary of the foundation of the Turkish Republic (1933). The original sentence: *'We shall raise our country to the level of the most prosperous and civilized nations of the world'*

[2]In order to compare the volatility of Turkish economy with that of another less developed economy, Egypt, the variance of the residual from the time trend of GDP per capita figures are calculated. Accordingly the variance of Turkey's GDP per capita (for 1923-1995) is 177,360 whereas that of Egypt (1950-1995) is 34,945.

The Turkish economy developed from a raw material producer that could not feed itself to the seventh largest economy of Europe within less then a century. On the other side of the coin, it ended up with a large public debts (total public debts finally stand around 80% of GNP), a current account deficit being one of the highest in EU zone, and a relatively low educated workforce compared to European counterparts with 30% still hired by the agricultural sector. And over the last ten years, the economy has been dragged into and out of economic crises.

Being at the crossroads, governments, to be in charge after this point, will either be able to undertake polices generating a long term economic development and a sustained growth or they will be contented with solving problems with a 'save the day' approach (proven to bring more problem than those solved). While choosing the former, Turkey might still have a chance to be one in the league of developed nations. While choosing the latter, however, she would inevitably accept being one of the underdeveloped economies of the world with all the predicted outcomes. In fact, one of the purposes of this study is to call attention to this upcoming junction.

Part III

Interest Rates Linkages between Turkey and Europe

Chapter 1

Introduction

The Turkish economic and financial landscape has changed significantly over the past decades. Being part of the Group of Twenty, Turkey is one of the most important emerging market countries. Having a fast-growing debt stock amounting to as much as 10% of the emerging bond market, she is also 'one of the main players in emerging financial markets'[1].

In fact, Turkey's financial integration with the world markets started about twenty years ago with the capital account liberalization policies (1989). While the capital account liberalization did not produce the desired outcome in the absence of the adequate regulatory framework and resulted in a series of serious financial crises, the recovery performance following the 2001 crisis (including bringing down the annual inflation rate to below 10% from 70s% (last decade average) while achieving one of the highest growth rates of European Union (EU) domain) looks 'impressive'[2].

[1] 'Charting a new global landscape: the growing impact of emerging markets on the world economy', Jean-Claude Trichet, President of European Central Bank, 1 June 2007

[2] The assessment for the recovery performance belongs to IMF Executive Board, 'IMF Executive Board Concludes 2007 Article IV Consultation with Turkey' Public Information Notice (PIN) No. 07/66 June 12, 2007.

The macro- and micro-economic policies applied were backed by strong international anchors, provided by the IMF program and the preparation for EU membership negotiations[3]. As the capital flows between Turkey and EU are largely liberalized, EU-based banks play also a major role in cross-border financing of Turkey's economy.

Within this framework there is not much question whether Turkey was started to be integrated into European Markets or not. Rather, the degree of this integration is of much greater interest. We study the strength of the financial linkages between Europe and Turkey comparatively with those of Poland using both short and long-term interest rates. Given that Poland has a similar economic size and that it recently joined the EU, Poland is a suitable comparison companion.

Since monetary policies are usually 'believed to primarily influence short-term rates', our analysis examining linkages among short-term rates aims to reveal the extent to which monetary policies in European Union and Turkey are linked[4]. The linkages with long-term rates can be stronger or weaker than the short-term rates depending on the expectations about the exchange rates. If real exchange rate is assumed to be constant in the long-run in line with the theory of purchasing power parity (PPP), expectations of changes in real exchange rates will be close to zero. This results in a situation where long-rate linkages will be stronger than short-rate linkages as short-term rates will tend to reflect short-run disturbances[5]. There is also empirical evidence indicating that there are greater co-movements among major long-term interest rates (Friedmann & Hermann (1989)), (Nambara & Fukao (1989)) and (Laopodis (2000)). However, if we assume that real exchange rates

[3]Angel Gurra, OECD Secretary-General, Presentation of the OECD Economic Survey of Turkey, 2006 edition. *http://www.oecd.org/document/21/0,2340,en_2649_201185_37560981_1_1_1_1,00.html*

[4]Baum & Barkoulas (2006).

[5]Real exchange rates will be subject to exogenous shocks (such as German reunification) where nominal and in turn real exchange rates overshoot in response, leading to disparities in short rate linkages (King (1992)).

can vary nearly as much as nominal rates (Pigott (1994)), meaning exchange rate expectations are nonstatic, this implies the presence of currency risk premia in real rates. Given that exchange rate expectations are likely to be more volatile in long rates than short, linkages between short real rates would be stronger than those for long rates (Devine (1997)).

Since for Turkey, expectations in real exchange rates are not static (i.e. major devaluation in 2001) we expect that short-term linkages between Turkey and Europe are stronger than the long-term rates linkages. However, if the analysis with long-term rates also indicate linkages between Turkey and EU, this will present evidence to the strength of the financial linkages despite financial crises that Turkey went through during the last decade. The Polish case is rather different. Given that the exchange rates are much more stable in Poland compared to Turkey, unlike the Turkish case, we do not expect that the short-term linkages between Poland and Europe are stronger than the long-term rates linkages[6]. However, since Polish interest rate data consist of a highly limited time span (14 years for short-term rates and 6.5 years for long-term rates) we are aware that the test results are only suggestive.

The short-run dynamics underlying linkages of monetary policies between EU and Turkey are studied by analyzing transmission of shocks between Turkey and Europe. For this, the the study adopts an error-correction vector autoregression (ECM-VAR) and vector autoregression (VAR) analyses to investigate the block exogeneity assumption among Turkey and EU. Hence, if there is any cointegration relation between variables, this method enables us to perform multivariate

[6]Kelm and Beza-Bojanowska, 2008, National Bank of Poland, $http://www.nbp.pl/homen.aspx?f=en/publikacje/inne/bank\_i\_kredyt/2005\_10/kelm.html$.

Granger-causality tests controlling for the cointegrating vector(s). Thus, by incorporating the error correction term(s) into the analysis, this study takes into account the cross-country effects.

This study has one major contribution. The paper analyzes the relationships between the interest rates of Turkey, an important borrower in international markets, and of the EU, possessing an increasingly higher share in Turkey's cross-border financing. Hence, estimation results convey important information about Turkey's degree of the closeness to EU in financial terms. While there is an abundance of research related to interest rate linkages within EMS and/or Pacific Basin Region, the interest rate linkages between Turkey and Europe is not extensively studied. In addition, as the study compares the Turkish case with Poland, a country who plans to join ERM in 2009, it shows the comparative strength of these linkages. Thus, the study attempts to fill an important gap in the literature.

The rest of this paper is organized as follows. Section 2 describes briefly the economic portrait of Turkey and that of Poland together with the monetary policies applied. Section 3 summarizes the background literature. Section 4 discusses the data and the methodology adopted. Section 5 presents the empirical findings and Section 6 concludes.

Chapter 2

Economy of Turkey and Poland

2.1. Economy of Turkey and monetary policies applied

2.1.1. Economy of Turkey

Turkey is a low-middle income country with a large size economy. While the economy is the seventeenth biggest economy of the world (the sixth largest in the EU domain), income per capita ranks the eighty-ninth in the world and the last within Europe[1]. Typical of less developed economies, its economic growth follows an erratic path interrupted with crises. The balance of payment crises and resulting stand-by arrangements with International Monetary Fund (IMF) started as early as 1950s and 1960s respectively[2]. However, the implementation of capital account liberalization policies

[1] *http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP_PPP.pdf* and *http://siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf*

[2] Turkey and IMF made eighteen standby agreements so far: 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1978, 1979, 1980, 1983, 1984, 1994, 1999 and 2002.

(1989) together with a lack of strong institutions led to financial crises recurring every few years (1994, 1998-1999 and 2001) with ever-increasing magnitude (-6.1%, -6.1% and -9.5%)[3].

In fact, as the efforts of full convertibility invited short-term international capital, they also create a fragile financial environment which led to successive crises. With Boratav and Yeldan (2001) words, 'Capital account liberalization increasingly forged the economy to be dependent on the financial cycles. Substantial leakages from net inflows (i.e. through capital outflows) transmuted the conventional linkages between growth, current account balance and capital flows. Finally, arbitrage-seeking ('hot money') inflows and outflows contributed to rising external and domestic instability'.

During the 1990s, inflation rates were floating in the upper double digits, the decade's average was 78%. As the public sector expenses could not be covered by its revenues, the difference is 'balanced' with the inflation tax. However, since the inflation tax is one of the most unfair methods of taxation, it distorted further the income inequality already existed in the society. Meanwhile, the budget deficit was steadily rising; the budget balance over GNP which was -3.3% in 1989 mounted to -10.2% in 2000 (Figure 25). Meanwhile, domestic and external debts followed an increasing path (especially in the second half of the decade), total internal and external debts over GNP which was 18% and 39% respectively in 1989 climbed to 29% and 59% in 2000. Throughout the decade, nominal interest rates were rising frequently over 100% so did the cost of borrowing for domestic debts. Accordingly, the ratio of domestic debts' interest payments to GNP rose from 2% in 1989 to 15% in 2000 [4]. While the cost of the economic growth was that high, the resulting performance

[3]The GNP growth/ contraction rates are from State Statistical Institute of Turkey.

[4]During the 1990s interest rates on government debt exceeded the inflation rate, on average, by more than 30 percentage points. (Akyuz & Boratav (2003)).

was extremely modest, the decade's average of GNP per capita growth was 2.3% with ups and downs oscillating between -7.8% and 8.7%.

After a series of unsuccessful stabilization attempts adopted during the 1990s (both with and without IMF), the government undertook another stabilization program (December 1999), which was designed, led and monitored by IMF. This exchange rate-base disinflation and stabilization program, gaining wide range public support and confidence, started promising at first, but ended up with the biggest financial crisis in the postwar era. In fact, 2001 crisis of Turkey shares a number of common features with other crises in emerging markets following exchange rate-based stabilization programs where the exchange rate is used as a credible anchor for the inflationary expectations, i.e. the real appreciation of the domestic currency, capital flows attracted by existing arbitrage opportunities, growing external deficits and deterioration of trade balance and current account balance. But, the consequences of the crisis in Turkey were more severe due to difficulties associated with the structural problems and fragilities mainly in public finances and the banking sector of Turkey. (Akyuz and Boratav, 2003). Interbank overnight interest rates skyrocketed to over a couple of thousand per cent, and remained there for few days, then settled at rates comparable to those before the program was launched. The costs of the crisis include the sharp increase in the domestic debts, domestic interest payments and foreign debts (Figure 26). As the domestic currency was depreciated more than 100% in one year, the economy as a whole was contracted by 9.5% and income per capita was contracted by 11%. Dufour & Orhangazi (2007) assess the consequences of the 2001 crisis and find out that international finance capital and large domestic financial capital benefited from the crisis by increasing its total assets and profits; industrial capital benefited also via a repression of labor wages.

The recovery (after-crisis) process just as the period before the crisis is managed with the close involvement of IMF. In line with new IMF program, contractionary fiscal policies (via a primary budget surplus of 6.5% of GNP) and monetary policies (via inflation targeting) are applied. The result is 'impressive': the annual growth rate of GNP is averaged around 7.5% over the last five years (2002-2007), inflation dropped to single digit (first time in 40 years) and a series of privatizations attracted a large flow of FDI. However, the post crisis performance of Turkish economy needs to be assessed with caution. First, the growth was 'speculative led in nature' due to the massive inflow of foreign finance capital enjoying high real interest rates offered (as displayed in Figure 27), and also it was jobless-growth type (Yeldan (2007)). Second, the fragility of the Turkish economy still continues. The influx of hot money amounting to 72 billion USD, on one hand makes the economy vulnerable to global fluctuations, on the other hand helps appreciation of the domestic currency[5]. The current account deterioration was then unavoidable as seen in Figure 2 above.

2.1.2. Monetary policies applied in Turkey

The TCMB announced its monetary programs in 1990 for the first time[6]. Bank's medium term strategy was aiming to increase foreign assets (*foreign reserves*) and controlling the expansion of domestic assets (*domestic credits*). Target variables (and target percentages) for the end of the year were *balance sheet* (12-22) , *total domestic liabilities* (15-25), *total domestic assets* (6-16) and *Central Bank money* (38-48). The end of year realization of these target variables in percentages

[5]The flow of 'hot money' short-term foreign investments such as three-month or one-year bank deposits into Turkey increased by $6.6 billion in January 2007 up to $71.6 billion, according to the central bank and data from the Turkish Treasury. ($http://news.netscape.com/story/2007/02/20/turkish-hot-money-grows-to-716-bln$)

[6]Monetary policies explained in this section closely follow the monetary programs summary in Emir, Karasoy & Kunter (2000) and yearly publications of TCMB.

were respectively 24.1, 21.6, 11.9 and 26.6. Final objective of the program was the restructuring balance sheet, controlling the size of balance sheet and maintaining financial stability.

In 1991, due to the Gulf Crises and elections, the TCMB pursued a policy which would bring the instability in the exchange rates to the minimum levels without incurring large losses in foreign reserves. Bank's medium term strategy was aiming to increase foreign assets (*foreign reserves*) and controlling the expansion of domestic assets (*domestic credits*). While target variables were *balance sheet*, *total domestic liabilities* , *total domestic assets* and *Central Bank money*, target percentages were not announced. The end of year realization of these target variables in percentages were respectively 58.9, 66.6, 64.3 and 82.6. Final objective of the program was financial stability.

In 1992, TCMB made a monetary program under the assumptions that inflation would be 43%, the consolidated budget deficit would be 32 trillion TL and the public sector's borrowing from the TCMB would not exceed 11 trillion TL. However, the rapid expansions of the credits extended to the public sector made it impossible for TCMB to comply with the monetary program targets. Instead, TCMB strove to eliminate excessive fluctuations in the exchange rates. Target variables (and target percentages) for the end of the year were *balance sheet* (37-47) , *total domestic liabilities* (38-48), *total domestic assets* (27-39) and *Central Bank money* (40-50). The end of year realization of these target variables in percentages were respectively 85, 101, 75 and 100. Final objective of the program was financial stability.

In 1993, TCMB did not announce a monetary program because of the difficulty in controlling the monetary aggregates due to the inability in controlling the financing needs of the public sector. TCMB tried to prevent the pressures of the increasing liquidity on the foreign exchange

rate without reserve losses. While target variables were *balance sheet*, *total domestic liabilities*, *total domestic assets* and *Central Bank money*, target percentages were not announced. The end of year realization of these target variables in percentages were respectively 60, 49, 55 and 46. Final objective of the program was financial stability.

The year 1994 starts with a financial crisis. In April 5th 1994, a *Stabilization Program* was put into effect and several new regulations were put forward regarding the financial markets. Targets from balance sheet were determined within the context of stand-by agreement signed with IMF. While *Net International Reserves* was set as a yearly target variable, targeted amount was not announced. Other target variables were *Net Domestic Assets* and *Exchange Rate Basket*[7]. The target variable of *Net Domestic Assets* was set for June, September and December. The target amounts and realizations were respectively 306 and 271 trillion TL, 295 and 260 trillion TL , 293 and 272 trillion TL. *Exchange Rate Basket Targets* were set quarterly but targets were not announced. Final objective of the program was price stability together with financial stability.

In 1995, a monetary framework using exchange rates, net international reserves and the net domestic assets of the TCMB as targets was put into practice in the first ten months, however, in October the TCMB mainly tried to limit uncertainties in the economy arising from the elections. According to the stand-by agreement signed with the IMF at the beginning of 1995, the increase in the foreign exchange basket, defined as 1.5 German marks and 1 US dollar, was targeted to adjust by as much as the monthly inflation rates that were also projected in this agreement. The target variable of *Net Domestic Assets* was set for March, June, September and December. The

[7]Net Domestic Assets = Reserve Money + FX Deposits of Banking Sector - Net Foreign Assets
Net Foreign Assets = Net International Reserves + Net medium FX credits + Others
Net International Reserves = Foreign Assets - International Reserve Liabilities

target amounts - realizations were respectively 342 - 260 trillion TL, 367 - 269 trillion TL , 334 - 217 trillion TL and 366 - 393 trillion TL. *Exchange Rate Basket Targets* were set quarterly but targets were not announced. The target of *FX Deposits of Banking Sector* was not announced but realized as 102.6 trillion TL. Final objective of the program was price stability together with financial stability and competitiveness.

In 1996, a new monetary program aiming at controlling the growth of the net domestic assets and creating the domestic liabilities in return for an increase in foreign assets was put into effect in the middle of the second quarter of the year. In this framework, short-term advances to the Treasury were limited by the structural law of the TCMB and the credit was not extended to the public sector other than the Treasury by TCMB. While target variables for the end of the year were *Net Foreign Assets*, *Net Domestic Assets*, *Reserve Money*, *FX Deposits of Banking Sector* targeted amounts were not announced. The end of year realization of these target variables respectively were 632.2 trillion TL, 331.7 trillion TL, 610.4 trillion TL and 353.4 trillion TL. Final objective of the program was price stability together with financial stability and competitiveness.

In 1997, TCMB announced every six months its inflation forecasts and its inflation forecasts and its intention of basing the implementation of its monetary policy on those forecasts. With a protocol signed with the Treasury, TCMB stopped extending short term advances to the Treasury. While target variables for the end of the year were *Net Foreign Assets*, *Net Domestic Assets*, *Reserve Money*, *FX Deposits of Banking Sector* targeted amounts were not announced. The end of year realization of these target variables respectively were 1,791.1 trillion TL, 142 trillion TL,

1,129.6 trillion TL and 803.5 trillion TL. Final objective of the program was price stability together with financial stability and competitiveness.

In 1998, while the fight with the inflation was the main aim in the first half of the year, the stability policy gained importance in the second half of the year due to Russian crises. The growth rate for reserve money (consistent with the expected money demand) was declared to the market. In July 1998, in line with the 18-month Staff Monitored Program (SMP) signed with the IMF, TCMB announced a six-month monetary program and a new definition of the '*net domestic assets*' item was set[8]. *Reserve Money* target rates for 31 March and 30 June were respectively 18-20% and 14-16%. The realizations of these targets for 31 March 17.3% and for 30 June 13.1%. End of year target and realization for *Net Domestic Assets* were 699 and 579.4 trillion TL. Final objective of the program was price stability together with financial stability and competitiveness.

Starting from January 1999, FX basket is defined as 0.77 Euro + 1 US dollar. SMP has continued and prior actions are set by the IMF as a bridge to a probable stand-by agreement at the end of 1999. In December 1999, a stand by agreement was signed with the IMF. *Net Domestic Assets* target amounts for 5-9 April and 30 June were 850 and 999 trillion TL. The realizations for this target were respectively 369.1 and 899.3 trillion TL. The other targets were *Reserve Money* and *Net Foreign Assets*. While these targets were set quarterly, they were not announced. Final objective of the program was price stability together with financial stability and competitiveness.

The disinflation program was undertaken in 2000. The aim was to bring down inflation in single digits in three years. The program had three main pillars: a tight fiscal policy, an income

[8]Net Domestic Assets = Reserve Money + FX Deposits of Banking Sector - Net Foreign Assets
Reserve Money = Currency Issue + Required Reserve of Banking Sector - Free Deposits of Banking Sector + FX Deposits of Banking Sector

policy in line with the targeted inflation and monetary and exchange rate policy. A ceiling was set for *Net Domestic Assets* as -1,200 trillion TL, while it was left to float only within a band consisting of +/- 5% of Reserve Money. The realizations in the first three quarters were respectively, -1,260, -1,295 and -1,308 trillion TL. As a result of the crisis in November 2000, in financial markets Net Domestic Assets target was not met as of year end 2000. Similarly, the quarterly targets of *Net Foreign Assets* were met in the first three quarters of the year 2000. The increase rates of the FX basket for each quarter were 2.1, 1.7, 1.3 and 1% and they were in line with pre-announced targets. Final objective was the disinflation.

In February 2001, a financial crisis was broke out. FX rates were left to float. As a result of the crisis, requirements for the inflation targeting was not ready for TCMB. *Base money*, *Net Domestic Assets* and *Net International Reserves* were considered as a indicative targets. The Base Money (upper limit) targets for 31 August, 31 October and 31 December 2001 were respectively 7.175, 7.550 and 7.750 trillion TL. The realizations for these targets were respectively 6.748, 7.140 and 7.642 trillion TL.

In 2002, the 'Transition to Strong Economy Program' was initiated. The aim of the program was to increase the resilience of the economy against shocks. Since requirements for inflation were not ready, monetary targeting policies were applied. The increase in the *Base Money*, *Net Domestic Assets* and *Net International Reserves* were considered as a target variable. The Base Money (upper limit) targets for 28 February, 30 April, 30 June, 30 September and 31 December 2002 were respectively 8.250, 8.900, 9.089, 10.600 and 10.850 trillion TL. The realizations were

7.283, 8.680, 9.009, 10.104 and 10.720 trillion TL. As FX rates were left to float, TCMB declared that it would not intervene the FX rates unless there were some sudden and violent fluctuations.

In 2003 and 2004, the 'Transition to Strong Economy Program' was continued to be carried out. *Money Base*, *Net Domestic Assets* and *Net International Reserves* were determined as indicative targets to be overseen. The Base Money (upper limit) targets for 30 April, 30 June, 30 September and 31 December 2003 were respectively 12.800, 13.200, 14.100 and 14.900 trillion TL. The realizations were 11.883, 13.039, 13.877, and 14.657 trillion TL. The Base Money (upper limit) targets for 31 March, 30 April, 30 June, 31 August, and 31 December 2004 were respectively 16.100, 17.500, 20.500 and 20.900. The realizations for these targets were respectively 16.948, 17.508, 19.301 and 19.190. The final target was covered inflation targeting and short-term interest rates were the main instruments.

While TCMB pursued covered inflation targeting during 2002-2004, the year 2006 was announced as the starting period of open inflation targeting and the year 2005 was announced as the transition year. *Money Base*, *Net Domestic Assets* and *Net International Reserves* were determined as indicative targets to be overseen. The Base Money (upper limit) targets for 31 May, 30 June, 30 September, and 31 December 2005, 23.600, 23.600, 24.700 and 29.200 million YTL. The realizations for these targets were 22.976, 22.598, 26.835 and 28.756 million YTL. Short-term interest rates were the main instruments.

The open inflation targeting was started in 2006. The inflation path consistent with year end target was announced together with uncertainty path. TCMB announced quarterly *inflation* targets in line with this year end target. The quarterly targets were 7.4, 6.5, 5.8 and 5%. The realizations

respectively were 8.16, 10.12, 10.55 and 9.65%. The main instruments were short-term interest rates.

According to ECB (European Central Bank) president, macroeconomic stability is especially important while considering accession countries[9]. In Turkish case, while dis-inflation was achieved to a great extent, the central bank independence was secured, some structural reforms were already implemented (in line with IMF commitments) and fiscal discipline was taken under control, the economy still bears signs of vulnerability. Within this framework, interest rates, another measure of macroeconomic stability, are used in the Section 5 (Empirical Tests and Results) to test the degree of financial integration of Turkey into EU comparatively with that of Poland.

2.2. Economy of Poland and monetary policies applied

2.2.1. Economy of Poland

Throughout the 1990s, the United States and other Western countries supported the growth of a free enterprize economy by reducing Poland's foreign debt burden, providing economic aid, and lowering trade barriers. Poland was graduated from U.S. Agency for International Development (USAID) assistance in 2000 and paid the balance of its U.S.-held Paris Club debt in 2005. Poland officially joined the European Union (EU) on May 1, 2004.

The economic reforms introduced in 1990 removed price controls, eliminated most subsidies to industry, opened markets to international competition, and imposed strict budgetary and monetary

[9] $http://www.ecb.int/press/key/date/2002/html/sp021014.en.html$

discipline. Poland was the first former centrally planned economy in central Europe to end its recession and return to growth in the early 1990s. The private sector accounts for over two-thirds of GDP in 2008.

The Polish economy grew rapidly in the mid-1990s, slowed considerably in 2001 and 2002, and returned again to healthy growth rates in 2003. Faster growth has begun to reduce persistently high unemployment, from nearly 20% in the middle of 2004 to 10.6% in April 2008. Tight monetary policy and dramatic productivity growth have helped to hold down inflation, which was 2.5% on average in 2007. Poland's current account deficit increased from 1.4% of GDP in 2005 to 3.7% in 2007. The budget deficit was only 1.5% of GDP in 2007 compared with 4.9% in 2002 and is likely to stay around a 2% level in 2008[10].

2.2.2. Monetary policies applied in Poland

In Poland, monetary policies applied evolved along with the evolution in its institutions. According to Kokoszczynski (2002) there were four distinct stages in the evolution of the Polish monetary policy. The first stage started with the regime change. Macroeconomic policy was part of the stabilization program. The aim was to create an environment for the monetary policy dominated by indirect instruments. Therefore basic market institutions were formed. The second stage (1991 -1995) was a period of combining disinflation (based on money supply control and crawling peg regime) with maintaining positive developments in trade balance and foreign exchange reserves. While the current account surplus accompanied by the surge in capital inflows in the mid-1990s put

[10]Source for Poland's economy is US Department of State.

too much strain on this strategy, government managed to control the magnitude of the fiscal deficit. When sterilization costs were too costly to deal with, the exchange rate regime was made more flexible. That change marked the beginning of the third stage which consisted of the disinflation within the framework of money supply control combined with the craw- ling band regime. The band was introduced in 1995. According to Kokoszczynski, it is more difficult to pinpoint the end of that stage. Since, institutional changes within the central bank which prepared the ground for adopting formally the direct inflation targeting started in 1998-1999 and the change in the exchange rate regime, i.e. introduction of pure floating, started only in early 2000. The current stage is, in Kokoszczynski words, an 'intermediate period'. The medium-term strategy of monetary policy, formally adopted in 1998, was defined in line with reducing the inflation gap between Poland and the European Union to enable her to get smoothly into the ERM II.

As Kokoszczynski (2002) put forward, monetary policy between 1991 and 1995 was shaped by two different goals: disinflation and external balance. In that respect, maintaining the steady disinflation was a long-run priority. Also, Poland was in the process of negotiating foreign debt restructuring with London Club and Paris Club debtors. In order to complete these negotiations successfully, Poland aimed to reach a much higher level of foreign exchange reserves than the one maintained in the beginning of the 1990s.

The monetary policy applied between 1995 and 1998 was 'eclectic' which incorporated the parallel control of money supply and exchange rate within more flexible framework. According to Kokoszczynski (2002), the new regime had an important advantage for monetary policy: more flex- ibility meant more autonomous interest rate policy and fewer incentives for short-term speculative

flows. The inflow of foreign reserves continued in 1995. Favorable inflation developments were a strong argument for relaxing interest rate policy, particularly at the beginning of 1996. Polanski (2004) notes that legal framework for macroeconomic policy related to Poland's harmonization of the pivotal decisions were made in 1997 when the country adopted the new Constitution and the new central bank's law. Polanski (2004) argues that, in particular, the Constitution introduced two important provisions from the Maastricht Treaty: it prohibited central bank financing of budget deficits and it instituted the rule forbidding the public debt to exceed 60 percent of GDP.

Starting from the beginning of 1999 until 2003, National Bank of Poland (NBP) officially conducted an inflation targeting strategy. The primary goal of the central bank was to maintain price stability. This could be accomplished by applying direct or indirect strategies to meet the inflation target. The strategy to meet the inflation target indirectly assumed stable links between the aggregates which the central bank attempted to influence (intermediate targets) and inflation as the ultimate goal. There were two methods of the indirect strategy: one based on a stable rate of exchange between domestic currency and currency of a low inflation country, and the other one based on controlling the money supply growth. This strategy did not allow meeting the two intermediate targets in full, although initially, given the limited links between the Polish economy and the global financial market implying greater monetary policy sovereignty, it allowed for reducing inflation. An advancing integration of the Polish financial markets with the global markets coupled with relatively low investment risk in Poland prevented effective continuation of such a monetary policy strategy. The Monetary Policy Council, by deciding to increase the float of the Polish Zloty

within a widened band, reduced the conflict between the intermediate targets of monetary policy pursued earlier[11].

The framework for the Monetary Policy Strategy after 2003 is based on experience connected with the implementation of the direct inflation targeting strategy, the completion of the disinflation process and the approaching membership in the European Union followed by membership in the euro-zone. New experience gained over the implementation of the direct inflation targeting strategy as well as new challenges faced by monetary policy after year 2003 forced certain modifications to the current monetary policy strategy. With inflation stabilized at a low level, annual inflation targets set out at the end of a given calendar year could be replaced by continuous targeting. Monetary policy was targeted to attain a stable inflation rate of 2.5% after year 2003 with a permissible volatility band of 1 percentage point either side of this target. In the opinion of the Poland's Monetary Policy Council, the above-defined continuous inflation target was consistent with strong economic growth[12].

[11]Source: Medium-Term Strategy of Monetary Policy (1999 - 2003) by NPD.
[12]Source:Monetary policy strategy beyond 2003 by NPD.

Chapter 3

The Literature Review

There are a number of studies examining interest rate linkages across international financial markets and specifically across European Monetary System (EMS) countries. Earlier researchers have used the terms *asymmetry* and *dominance* to describe the relationships between the EMS members and Germany. Dominance occurs when two forms of asymmetry (European and international) occur simultaneously. While *European asymmetry* refers to unidirectional causality from German variables to the EMS variables; *international asymmetry*, a stronger version of these interactions, arises when monetary disturbances originating in the rest of the world (ROW) can affect EMS countries only through their effects on Germany (Uctum (1999)).

While recent studies examine relationships among interest rates across countries, studies testing the German dominance in EMS offer conflicting views. Studies examining the relationships among interest rates mostly use vector autoregression (VAR) analysis since this approach assumes that all variables in the system are potentially endogenous, as explained further in the next section,

Data and Methodology. Karfakis & Moschos (1990) examine interest rate linkages between EMS countries using bivariate Granger causality tests. They argue that Germany has a dominant role in the EMS while there is no systematic long run relationship between Germany and other EMS countries. Their cointegration analysis, however finds no support for the existence of systematic realtionships in the long-run. On the other hand, Katsimbris & Miller (1993) report that their trivariate analysis fail to support the dominant role attributed to Germany within the EMS. Henry & Weidmann (1995) show evidence in favor of the German dominance hypothesis (GDH) using a recursive error correction model[1]. Hassapis, Pittis & Prodromidis (1999) study short rates within bivariate and trivariate VAR systems and show that the evidence support the symmetry hypothesis within the EMS (German rate affects each of the EMS rates and is affected by them).

Uctum (1999) reconciles these seemingly conflicting views in her study where she investigates the GDH by conducting an error-correction vector autoregression (ECM-VAR) analysis. She shows that German dominance hypothesis was supported until German unification (before 1990) but was is not supported after 1990. Laopodis (2000) using major long-term rates (Belgium, Canada France, Germany, Japan, Netherlands, United Kingdom, and United States) and applying a multivariate EGARCH model investigates the implications of monetary polices in the face of increasing integration of the capital markets. His estimation results suggest that there are stronger linkages among major bond markets since 1990. Wang, Yang & Li (2007) study both contemporaneous (through directed acyclic graphs analysis) and Granger causal relationships among major Eurocurrency interest rates. They also, like Uctum(1999), find that German dominance in Europe

[1]Ever since EMS began to operate (1979), the generally accepted view is that system operated in asymmetric manner; Germany being the center country and the remaining countries bear the burden of adjustments. This asymetric effect of German central bank is referred in the literature as the 'German Dominance Hypothesis'(Baum and Barkoulas (2006).

is declining. There are fewer empirical works after the implementation of euro as a single currency across EU (euro zone) countries.

This study, adopting a parallel approach to the literature, analyzes a subject where there have been relatively much less empirical works: interest rate linkages between Europe and Turkey comparatively with those of Poland. The paper examines long-run relationship between Turkish/Polish and European rates using Johansen (1995) cointegration approach and investigates short-run causal relationships and tests the validity of European dominance hypothesis (EDH) by employing an error correction vector autoregression (ECM-VAR) and a vector autoregression (VAR) analyses. The EDH implies two forms of asymmetries. *European asymmetry* occurs in case of a unidirectional causality. This implies that there exists European asymmetry for Turkey/Poland if European rates (represented by German rates in this study) Granger-cause Turkish/Polish rates while they are not Granger-caused by Turkish/Polish rates. *International asymmetry* occurs if disturbances originating in the rest of the world (represented by US in this paper) can affect Turkey/Poland only through European financial markets.

Actually, it is important for the EU to ensure the transmission of a common monetary policy without obstacles. In that respect, the existence of a such transmission will signal the readiness of a country to join the Euro area, besides Maastricht conditions. In addition, it is also important for the country who wants to join the Euro area to be aware about the existence of such transmission mechanisms. The failure of such knowledge may lead to the inability in conducting the 'right' macroeconomic policies. Given that Turkey has been opening up to European markets since the end of 1980s, our hypothesis is that European disturbances will affect the Turkish rates, despite

Turkey's sometimes 'violent financial conditions'. Hence, we expect that *European asymmetry* will hold for Turkey. If our results reject *International asymmetry*, that will provide evidence about the integration of the Turkish financial markets with the European markets. Finally, comparison of Turkish results with those of Poland will indicate which economy (Turkey or Poland) shows further convergence with the European financial markets. The next section highlights the methodology adopted while conducting these analyses and the following section summarizes related empirical findings.

Chapter 4

Theoretical Background, Data and Methodology

4.1. Theoretical Background

The theory of interest rate parity suggests that given perfect capital mobility, fixed exchange rates and perfect capital markets, interest rates will be equal across countries. This situation however is valid only in a perfect world where there exists single market and no market imperfections. The fact that imperfect capital mobility and floating exchange rates exist imply that interest rate differentials across countries will persist (Devine 1997).

In the absence of fixed exchange rates and perfect capital mobility, the existence of differentials across international interest rates imply the possibility of the interest arbitrage. The interest

arbitrage implies that the interest rates on two traded one-period bonds in different currencies are related as follows:

$$r_{1t} - r_{2t} = f_t - s_t, \tag{4.1}$$

where r_{1t} and r_{2t} are the one period interest rates in countries 1 and 2, f_t and s_t are the natural logarithms of the forward and spot exchange rates.

$$f_t - s_t = Ds_{t+1} + (E_t s_{t+1} - s_{t+1}) + \Pi_t, \tag{4.2}$$

In the above (4.2) definition D and E are the first-difference and expectation operators, and Π_t is the risk premium. Ever since the well-known contributions of Meese & Rogoff (1983), exchange rates are modeled as random walk, implying that Ds_{t+1} is stationary. The conventional wisdom suggests that it is unlikely that risk premium are to be nonstationary. Therefore, national interest rates should be cointegrated (Katsimbris and Miller 1993). This implies that f_t and s_t should be cointegrated, which in turn implies that r_{1t} and r_{2t} should also be cointegrated.

4.2. Data and Methodology

The data used in this study consists of short-term and long-term interest rates. Short term are three months time deposits of Turkey, interbank rates of Poland, three month treasury bills of United States (US t-bill rates) and of Germany. Long-term rates are one year time deposit rates of

Turkey, ten year government bond index of Poland, three years bond yield of United States and of Germany[1]. German rates are used as a proxy for European rates and US rates are used as a proxy for the rates presenting the rest of the world. The data are monthly. The testing the interest rate linkages between Turkey, Europe and the rest of the world covers the period 1987:01 to 2006:12. The beginning period of Turkey's analysis coincides with the restructuring of the banking system in Turkey and the full liberalization of the interest rates[2]. The testing of the short-term and long-term linkages between Poland, Europe and the rest of the world covers the period 1992:01 to 2006:12 and 1999:04 to 2006:12 respectively. The start of the period is determined by the availability of the Polish data. All data are drawn from International Financial Statistics database, Central Bank of Turkey (TCMB) and Global Financial Data sources. Turkey's major financial crises of 1994 and 2001 are incorporated in the analysis with a crisis dummy.

The testing procedure we follow involves four steps. The first step is *to test stationarity and the order of integration* by computing the Augmented Dickey Fuller (ADF) test methods. The test involves estimating the following equation:

$$\Delta R_t = \alpha_0 R_{jt-1} + x_t^{'}\delta + \beta_1 \Delta R_{jt-1} + \beta_2 \Delta R_{jt-2} + ... + \beta_p \Delta R_{jt-p} + \varepsilon_t, \tag{4.3}$$

where the Δ is the first difference operator, x_t are optional exogenous regressors which may consist of a constant, or a constant and trend, and ε_t is a random stationary error. The null hypothesis is that the interest rate R_t of jth country is a nonstationary series. If the null hypothesis is rejected for

[1]Given the Turkey's financial instability in the last decade, the only complete long-term rate available for the period under analysis is the one year term time deposits.

[2]$http://www.tcmb.gov.tr/yeni/mevzuat/BANKACILIK/1-ia.htm$

a level variable suggest the existence of a unit root in the series. The differences tests are tested using ADF tests to determine the order of the integration. The tests are performed by including a constant and both a constant and linear time trend.

The next step, conditional upon the outcome, is to test for cointegration of interest rates. *Cointegration analysis* is conducted using the methodology developed in Johansen (1991, 1995). The Johansen cointegration test procedure is a more powerful technique than the Engle-Granger technique as it provides a unified approach for estimation and testing of cointegrating relations in the framework of vector autoregressive error correction models (Ukpolo (1997)). The vector autoregression analysis (VAR) is used to analyze the long-run relationships that might exist between the interest rates. The advantage of VAR analysis is that the approach assumes that all variables in the system are potentially endogenous, so each variable is explained by its own lags and lagged values of the other variables. Consider a VAR of order p:

$$R_t = A_1 R_{t-1} + ... + A_p R_{t-p} + Bx_t + v_t, \tag{4.4}$$

where R_t is a k-vector of non-stationary I(1) variables, x_t is a d-vector of deterministic variables, and v_t is a vector of innovations. The same VAR is rewritten in the following way:

$$\Delta R_t = \Pi R_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta R_{t-i} + Bx_t + v_t, \tag{4.5}$$

where $\Pi = \sum_{i=1}^{p} A_i - I$ and $\Gamma_i = -\sum_{j=i+1}^{p} A_j$. In the above Equation 4.5 Γ represents the short-run dynamics and Π represents the long-run impact matrix, which will have a reduced rank in

the presence of cointegration. Granger representation theorem asserts that if the coefficient matrix Π has reduced rank $r < k$, then there exists k x r matrices α and β each with rank r such that $\Pi = \alpha\beta'$ and $\beta' R_t$ is stationary. The number of cointegrating relations is denoted by r. Accordingly, Equation 4.5 takes the following form[3]:

$$\Delta R_t = \sum_{i=1}^{p-1} \Gamma_i \Delta R_{t-i} + \alpha\beta' R_{t-1} + v_t, \tag{4.6}$$

where α is the matrix of the error correction terms, which represents the adjustment parameters (also the direction and the strength of the adjustment process) of the vector autoregression (VEC) model. The cointegrating vectors (the linearly independent combinations of R_t that are stationary) are presented by β matrix. To determine the rank of the estimated matrix Π, eingenvalues, λ_is need to be calculated. The number of significantly non-zero eigenvalues shows the rank of the matrix Π and can be evaluated by the trace and maximum eigenvalue tests. The trace statistic for the null hypothesis of r cointegrating relations is calculated as follows:

$$\lambda_{trace} = -T \sum_{i=r+1}^{n} \log(1 - \lambda_i), \tag{4.7}$$

where λ_i is the i-th largest eingenvalue of the Π matrix in Equation (4.5). The maximum eigenvalue statistic which tests the null hypothesis of r cointegration relations against the alternative of $r+1$ cointegrating relations. The test statistic is calculated as follows:

[3] Vector of deterministic variables, x_t is dropped from the equation for the sake of simplicity.

$$\lambda_{max} = -T\log(1-\lambda_{r+1}), \tag{4.8}$$

for r = 0,1,..., n-1. Critical values for these tests are based on MacKinnon, Haug & Michelis (1999). The limiting distributions depend on the set of deterministic components considered in Equation 4.5 and depend also on the set of deterministic components allowed in the cointegrating relations. When we test the series, we concluded that there is a significant deterministic trend in the data. Therefore, we consider an intercept in the estimation of Equation 4.5. That is equivalent to assuming that there is a linear trend in the series. For cointegrating relationships, while we consider the case where the long-run relationship has only intercept, we display in the Appendix E (Tables E.1- E.8) test results of the case where the cointegrating equation has both an intercept and a time trend for comparison purposes. Both cases mostly yield similar results. If the results of trace and maximum eigenvalue tests yield conflicting results while applying the Johansen test, following Johansen & Juselius (1990), the maximum eigenvalue test results are considered[4].

The third step is to carry out SUR-based *block-exogeneity tests*[5]. If two variables are cointegrated then there exists an error correction model for the variables (Engle and Granger 1987). Then, block exogeneity tests are performed within an error correction model to examine the transmission of shocks between Turkey/Poland and Europe while controlling for the cointegration vector (when it exists). Consider the following error correction representation where Equation 4.6 is expressed in matrix form:

[4]As summarized in Islam (2005) Johansen and Juselius (1990) suggest that the maximum eigenvalue test, which test the hypothesis that there are *r* cointegrating vectors against the alternative *r+1* cointegrating vectors, performs better than the trace test.

[5]The methodology explained and applied in this section closely follows Uctum(1999).

$$\Delta R_t = \Phi R_{t-1} + A(L)\Delta R_t + v_t, \tag{4.9}$$

where A(L) is a polynomial in the lag operator L. A moving average representation of the model can be obtained by inverting the matrix (I-A(L)) where I is the identity matrix:

$$\Delta R_t = C(L)R_{t-1} + B(L)v_t, \tag{4.10}$$

where $B(L) = [1 - A(L)]^{-1}$ and $C(L) = B(L)\Phi$. The significance of responses of ΔR_t to changes in v_t is calculated depending on the partitioning of the A matrix (DeKock & Nadal-Vicens (1995)). In order to test the significance of country x's response to an innovation coming from country y, $\delta(\Delta R_x)/\delta v_y = 0$, the moving average representation of the model is expressed in terms of the partitioned A matrix as:

$$A_{ky}(L)A_{xk}(L) + A_{xy}(L)(I - A_{kk}(L) = 0, \tag{4.11}$$

where $k \neq x, y$. Equation 4.11 is a necessary and sufficient condition for the null hypothesis (B_{xy}(L)=0) to hold. The weak sufficient condition is derived from the third fundamental axiom of probability and calculated from the following critical value[6]:

[6]The third axiom of probability is P(A∪B) = P(A) + P(B) - P(A∩B), implies that the probability of a union of two events, A and B, is the sum of the probabilities of each event less the probability of the joint event that both occur.

$$P[A_{ky}(L) = 0 \ \ and \ \ A_{xy}(L) = 0] \quad or \quad P[A_{xk}(L) = 0 \ \ and \ \ A_{xy} = 0], \tag{4.12}$$

For each set of interest rates, a system of seemingly unrelated regressions (SUR) is estimated to analyze the contemporaneous correlation of the disturbances across equations.

Final step is the sensitivity analysis. Since the results can be affected from a variety of factors (i.e. omitted variables, time span covered by the study, etc.), this step thoroughly tests the robustness of these results by conducting block exogeneity tests across different additional variables and model specification while keeping the time span[7].

First, we test for the effects of omitted variables. Even though the TCMB (The Central Bank of Turkey) announced its first monetary program in 1990, it did not implement a consistent monetary policy reaction function until very recently when the objective was mostly limited with to maintain financial stability (avoidance of shocks that might lead to crisis-prone environment)[8]. Therefore, I did not consider TCMB's monetary policy reaction function in the estimations. However, given that inflationary shocks are supposed to increase both short and long run interest rates as argued by Bordo & Haubrich (2004), European inflation rates are included into the study. If there is a transmission mechanism from Europe to Turkey/Poland, inflationary shocks will have an effect on Turkish/Polish interest rates. Also, since inflation enters into ECB's monetary policy reaction function, by including European inflation rates into our estimations, we are able to control for its possible effects. In addition, we also included US unemployment as another additional variable.

[7]The reason for keeping the time span is that the data set is of the maximum possible length though it is just enough for carrying out our estimations.

[8]Inflation rates of Turkey are also not considered in the estimations since they are already embedded within interest rates.

The reason is twofold. First, US unemployment is included in the US's Monetary policy reaction function. Second, since US growth is one of the main engines of the global economic growth, and that rising unemployment may hold back of economic growth (or vice versa) US unemployment rates are also included into estimations as a proxy for the world growth rate.

Hence, in order to estimate the transmission of shocks from Europe into Turkish/Polish rates, we conduct SUR based-block exogeneity Wald tests in four cases. First case consists of testing only with interest rates and three additional cases are estimated to ensure robustness: testing interest rates with European inflation rates (represented by German inflation rates), testing interest rates with US unemployment rates and testing interest rates together with both European inflation rates and US unemployment rates. Estimation results of these four cases are displayed together as a matter of convenience.

Furthermore, we test for the effects of a different model specification. We perform VAR/VEC based Granger Causality/ Block Exogeneity Wald tests for the same four cases: interest rate only, interest rates with European inflation rates, testing interest rates with US unemployment rates and testing interest rates together with both European inflation rates and US unemployment rates. The block exogeneity test is used to determine whether an endogenous variable can be treated as exogenous. The Wald statistics for the joint significance of each of other lagged endogenous variables are calculated as $(T-C)(\log|\sum_r| - \log|\sum_u|)$ where T refers to the sample, C is the maximum number of regressors in the model, $\sum_r$ and $\sum_u$ are the residual variance/covariance matrix of restricted and unrestricted models. The test statistics has a χ^2 distribution with degrees of freedom *2 p* with *p* being the number of parameters restricted to be zero.

Chapter 5

Empirical Tests and Results

Testing the interest rate linkages between Turkey/Poland, Europe and the rest of the world is perfomed in three stages. First, the series are tested for stationarity. Next, if the series are non-stationary and integrated of the same order, they are tested for cointegration using the methodology developed in Johansen (1991, 1995). Finally, the causality analyses between rates are performed with SUR-based Wald tests and VAR/VEC based Granger Causality / Block exogeneity Wald tests. Hence, this final step consists of both SUR-based Wald test estimations and the robustness checking of the results across different additional variables (German inflation rates and US unemployment rates) and model specification. Estimation results of these four cases are displayed together to ensure the ease of comparison. The optimal lag length in VAR/VEC is determined based on Akaike Information Criterion (AIC). Residual serial correlation LM tests are checked and the null hypothesis of no serial correlation is not rejected for the lags chosen in the study. The stability

conditions are satisfied. In addition, residuals are checked for unit roots by performing ADF tests and they are found to be stationary.

5.1. Interest Rate linkages between Turkey and Europe

5.1.1. Short-term Rates

First, short-term rates are tested for stationarity. Table 53 presents the ADF test statistics for levels and first differences. Tests are performed including both a constant and a constant and a linear trend. The null hypothesis that the levels of the series contain a unit root can not be rejected. However, when first difference data are tested, the ADF test results reject the null hypothesis of a unit root in all cases. These results therefore suggest that all short-term rates analyzed are I(1).

Since the short-term interest rate series are of the same order, the next step is to test for the cointegration between the series. The tests are performed using the methodology developed by Johansen (1991, 1995). The tests for cointegration between Turkey, Europe (presented by Germany) and rest of the world (presented by United States) are reported in the Appendix D (Tables D.1, D.2, D.3 and D.4). Tests are performed only with short-term rates, short rates together with German CPI rates, short rates together with US unemployment rates and short rates together with German CPI and US unemployment rates. Cointegration test results indicate that the hypothesis of a single cointegrating vector is not rejected in all four cases examined.

Next step is to investigate the causality between the short term rates. The validity of European Dominance Hypothesis (EDH) for Turkey is evaluated with SUR-based Wald (block exogeneity) tests and VAR/VEC based Granger Causality- Wald tests (Tables 54 and 55). In the case where cointegration is indicated, Wald tests include the error correction term.

Table 54 represents the test results where probabilities estimated indicate both direct and indirect effects of innovations following the methodology discussed in the previous section. European asymmetry holds if European rates Granger-cause Turkish rates while the reverse does not hold. International asymmetry implies that U.S. rates affect Turkish rates only through European rates.

The top panel shows the extent to which shocks originated in Europe (presented by Germany) or in the rest of the world (presented by US) are affecting the Turkish rates. The null hypothesis is that short rates of Europe or short rates of the US do not Granger-cause Turkish rates. The null of European rates do not Granger-cause Turkish rates is rejected at six percent (first row, first column in the top panel). The null of US rates do not Granger-cause Turkish rates is rejected at the ten percent level of significance as displayed in the second row first column in the top panel.

The second column in the top panel displays the extent to which shocks originated in Europe or in the rest of the world are influencing the Turkish rates when tested together with German CPI rates. The null of European rates do not Granger-cause Turkish rates is rejected at five percent (first row, second column in the top panel). The null of US rates do not Granger-cause Turkish rates is rejected at the ten percent level of significance as displayed in the second row second column in the top panel.

The third column in the top panel displays the extent to which shocks originated in Europe or in the rest of the world are transmitted into Turkish rates when tested together with US unemployment rates. The null of European rates do not Granger-cause Turkish rates is once more rejected at five percent (first row, third column in the top panel). The null of US rates do not Granger-cause Turkish rates is rejected at five percent as displayed in the second row third column in the top panel.

The fourth column in the top panel displays the extent to which shocks originated in Europe or in the rest of the world are transmitted into Turkish rates when tested together with German CPI rates and US unemployment rates. The null of European rates do not Granger-cause Turkish rates is again rejected at five percent (first row, fourth column in the top panel). The null of US rates do not Granger-cause Turkish rates is also rejected at five percent as displayed in the second row fourth column in the top panel.

The middle panel shows the extent to which shocks originated in Turkey and in US are transmitted into Europe. The null of Turkey's short rates do not Granger-cause European rates is not rejected in all four cases analyzed (first row in the middle panel). The null of US short rates do not Granger-cause the European short rates is not rejected when tests are performed only with short-term rates or together with German CPI rates (second row first column and second row second column in the middle panel). However, when short-term rates are tested together with US unemployment rates or when tested together with German CPI and US unemployment rates, the null US short rates do not Granger-cause the European short rates (second row third column and second row fourth column in the middle panel) is rejected at five percent level of significance.

The bottom panel shows the extent to which shocks originated in Turkey and in Europe are transmitted into US. The null of Turkey's short rates do not Granger-cause US rates (first row in the bottom panel) is not rejected in all four cases tested . Similarly, the null of European short rates do not Granger-cause the US short rates (second row in the bottom panel) is not rejected in all cases analyzed.

As a result, Turkish monetary policies are directly affected by European monetary policies. However, the null hypothesis that US monetary policies do not Granger-cause Turkish monetary policies is only weakly rejected, since the null rejected at five percent when tested with US unemployment rates or when tested together with German CPI and US unemployment rates but rejected only at ten percent in all other cases) the evidence about the direct effects of US monetary policies on Turkish rates is weak. Furthermore, as expected, neither Europe nor US is affected from Turkish rates. To sum, while test results support European asymmetry for Turkey's short term rates, there is no strong evidence for European dominance hypothesis.

Next, the European asymmetry hypothesis is also checked using VAR/VEC-based Granger Causality- Block Exogeneity Wald tests. Table 55 presents the results of VAR/VEC-based Granger Causality- Wald tests. The top panel shows the probability of improving Turkish rates' conditional forecast by adding lagged European and US short rates to the information set in four different cases studied above. The null of European rates do not Granger-cause Turkish rates is rejected at five percent in all four cases studied (first row in the top panel). The null of US rates do not Granger-cause Turkish rates is not rejected at five percent as displayed in the second row in the top panel.

The middle panel shows the probability of improving European rates' conditional forecast by adding lagged Turkish and US's short rates to the information set. The null hypothesis of Turkish short-term rates do not Granger-cause European short-term rates is not rejected at five percent in all four cases studied (first row in the middle panel). The null of US short-term rates do not Granger-cause the European short rates is not rejected when tested with only short-term rates or together with German CPI rates (second row first column and second row second column in the middle panel). However, when short-term rates are tested together with US unemployment rates or together with German CPI and US unemployment rates, the null US short rates do not Granger-cause the European short rates (second row third column and second row fourth column in the middle panel) is rejected at five percent .

The bottom panel shows the probability of improving US rates' conditional forecast by adding lagged Turkish and European short rates to the information set. The null of Turkey's short rates do not Granger-cause US rates (first row in the bottom panel) is not rejected in all four cases studied. Similarly, the null of Europe's short rates do not Granger-cause the US short rates (second row in the bottom panel) is not rejected.

Consequently, results of the tests performed with short-term rates only or performed with short-term rates together with German CPI rates (first rows in the top and middle panel of Table 55) suggest the European asymmetry. There is unidirectional causality from European short-term rates to Turkish rates. The international asymmetry is not supported since European monetary policies are not influenced by the rest of the world (second row first column and second row second column in the middle panel). However, results of the tests performed with US unemployment rates or tests

performed with short-term rates together with German CPI and US unemployment rates suggest International asymmetry. Disturbances originating in the rest of the world (represented by US) affect Turkey only through European financial markets.

In sum, both the block exogeneity Wald test results (Table 54) and VEC Granger causality-block exogeneity Wald tests results (Table 55) are in line. They both show that European short rates are influencing Turkish short rates either in the form of European asymmetry only or in the form of both International asymmetry and European asymmetry, hence supporting European dominance hypothesis.

5.1.2. Long-term Interest Rates

In this section, the validity of EDH is examined using the long-term rates. The ADF test statistics for levels and first differences are displayed in Table 56. Tests are performed including both a constant and a constant and a linear trend. The null hypothesis that the levels of the series contain a unit root can not be rejected at the five percent level for none of the rates analyzed. However, when first difference data are tested, the ADF test results reject the null hypothesis of a unit root in all cases. As a result, ADF test results suggest that all long-term rates studied are I(1).

The tests for cointegration between long-term rates of Turkey, Germany and United States are reported in Appendix D (Tables D.5, D.6, D.7 and D.8). The tests, as the ones in the previous section, are preformed using the methodology developed by Johansen (1991, 1995). When the Johansen cointegration tests are performed using long-term rates together with US unemployment rates or with German CPI and US unemployment rates the hypothesis of a single cointegrating

vector is not rejected at five percent level. In the case where the tests are performed using long-term rates only, tests indicate no cointegration at five percent level.

Table 57 represents the SUR-based Wald (block exogeneity) test results where probabilities estimated indicate both direct and indirect effects of innovations following the methodology discussed in the previous section. The null hypothesis that European long-term rates do not Granger-cause Turkish long rates, is rejected in five percent in the case of long-term rates only or long-term rates together with German CPI rates (first row first column and first row second column in the top panel). In other cases (with US unemployment rates or together with US unemployment and German CPI rates) the null hypothesis that European long-term rates do not Granger-cause Turkish rates is not rejected at five percent level of significance. The null hypothesis that US long rates do not Granger-cause Turkish long rates is not rejected at five percent (second row in the top panel) in all cases studied.

The first row in the middle panel shows that the null hypothesis that Turkish long rates do not Granger cause European rates is not rejected in all cases examined. The null of US's long rates do not Granger-cause the European long rates is rejected at five percent level in the case of long-term rates only (second row first column). In all other cases the null of US long rates do not Granger-cause the European long rates is not rejected at five percent level. This result suggests that the European long rates are only weakly affected by conditions in US money markets.

The first row in the bottom panel shows that the null hypothesis that Turkish long rates do not affect US rates is not rejected in all four cases examined. The second row in the bottom panel

shows that null hypothesis that European long rates do not affect US rates is not rejected in all cases studied.

As a result, the unidirectional causality that existed from European short rates to Turkish short rates is not strong for long rates. In other words, when tests are performed with long-term rates only or with long-term rates together with German CPI rates, the results supports the unidirectional causality from European long rates to Turkish long rates at five percent level of significance. However, in other cases the European asymmetry is not supported by test results.

Next, the European asymmetry hypothesis is also checked using VEC/VAR-based Granger Causality- Wald tests. Table 58 presents the results of VEC/VAR Granger Causality- Wald tests. The top panel shows the probability of improving Turkish rates' conditional forecast by adding lagged European and US long rates to the information set in four different cases studied above. The null of European rates do not Granger-cause Turkish rates is rejected at five percent in the case of interest rates only (first row first column) and rejected at ten percent in the case of interest rates together with German CPI rates (first row second column). In all other cases examined (first row third column and first row fourth column in the top panel) the null of European rates do not Granger-cause Turkish rates is not rejected . The null of US rates do not Granger-cause Turkish rates is not rejected in all cases examined.

The middle panel shows the probability of improving European rates conditional forecast by adding lagged Turkish and US's long rates to the information set. The null of Turkish rates do not Granger-cause European rates is not rejected in all cases examined (first row in the middle panel). The null of US's rates do not Granger-cause European rates is rejected at five percent level

of significance when tests are performed with long-term rates only (second row first column). In all other cases, the null of US rates do not Granger-cause European rates is not rejected (second row second column, second row third column and second row fourth column in the middle panel).

The bottom panel shows the probability of improving US rates conditional forecast by adding lagged Turkish and European long rates to the information set. The null of Turkish rates do not Granger-cause US rates and the null of European rates do not Granger-cause US's rates are not rejected in all cases examined (first and second rows in the bottom panel).

Consequently, according to results of the tests performed with long-term rates only or long-rates together with German CPI rates (first row first column and second row second column in the top panel) suggest the European asymmetry. There is unidirectional causality from European short-term rates to Turkish rates. The International asymmetry is only supported in case where long rates are tested together with German CPI rates since in this case European monetary policies are influenced by the rest of the world (second row first column in the middle panel). Putting these two results together, VAR/VEC Granger Causality- Block Exogeneity Wald tests results for long rates only support European dominance hypothesis for Turkish rates. When tests are performed together with German CPI rates, test results suggest unidirectional causality both from European and US long rates to Turkish rates at ten percent level of significance. In all other cases (testing long-term rates together with US unemployment rates or together with German CPI rates and US unemployement rates) tests results do not support European or International asymmetry.

In sum, the SUR-based block exogeneity Wald test results (Table 57) and VAR/VEC Granger causality- block exogeneity Wald tests results (Table 58) are in line. If the tests are performed

only with long rates, test results support European dominance hypothesis. However, when the tests are performed together with German CPI rates, test results do not support European dominance hypothesis but suggest European asymmetry. Given that the other cases (testing together US unemployment rates or together German CPI and US unemployment rates) do not support neither European asymmetry nor International asymmetry, we can conclude that the European dominance or European asymmetry is only weakly supported by test results.

5.2. Interest Rate linkages between Poland and Europe

5.2.1. Short-term Rates

In order to analyze the linkages between Poland and Europe, first the series are checked for stationarity. Table 53 presents the ADF test statistics for levels and first differences. The null hypothesis that the levels of the series contain a unit root can not be rejected. When first difference data are tested, the ADF test results reject the null hypothesis of a unit root in all cases. These results therefore suggest that all short-term rates analyzed are I(1).

Since the short-term interest rate series are of the same order, the next step is to test for the cointegration between the series. The tests for cointegration between Poland, Europe (presented by Germany) and rest of the world (presented by United States) are reported in the Appendix D (Tables D.9, D.10, D.11 and D.12). Cointegration test results indicate that the hypothesis of a single cointegrating vector is rejected in three of four cases (only short-term rates, short-term rates together with US unemployment rates and short-term rates together with German CPI rates and US

unemployment rates) examined. When the Johansen cointegration test is performed using short-term rates together with German CPI rates, the test results indicate a single cointegrating vector at five percent level of significance.

Next step is to investigate the causality between the short term rates. The validity of European Dominance Hypothesis (EDH) for Poland is evaluated with SUR-based Wald (block exogeneity) tests and VAR/VEC-based Granger Causality- Wald tests (Tables 59 and 60). Following the analysis with Turkish rates, the causality between Polish and European rates are tested again in four cases: only with short-term rates, short-term rates together with German CPI rates, short-term rates together with US unemployment rates and short-term rates together with German CPI rates and US unemployment rates.

Table 59 represents the SUR-based test results where probabilities estimated indicate both direct and indirect effects of innovations. European asymmetry holds if European rates Granger-cause Polish rates while the reverse does not hold. International asymmetry implies that U.S. rates affect Polish rates only through European rates.

The top panel shows the extent to which shocks originated in Europe and in the rest of the world are affecting Polish rates. The null of European rates do not Granger-cause Polish rates is not rejected at five percent level of significance in all of four cases (first row in the top panel) studied. The null of US rates do not Granger-cause Turkish rates is also not rejected in all cases examined (second row in the top panel).

The middle panel shows the extent to which shocks originated in Poland and in US are transmitted into Europe. The null of Poland's short rates do not Granger-cause European rates is rejected

at five percent level of significance in first two cases analyzed (first row first column and first row second column in the middle panel). In other cases (when short term rates are tested together with US unemployment rates or together with German CPI and US unemployment rates) the null of Poland's short rates do not Granger-cause European rates is not rejected (first row third column and first row fourth column in the middle panel). The null of US short rates do not Granger-cause European rates is not rejected in all cases analyzed (second row in the middle panel).

The bottom panel shows the extent to which shocks originated in Poland and in Europe are transmitted into US. While the null of Poland's short rates do not Granger-cause US rates is rejected in first two cases analyzed (first row first column and first row second column in the bottom panel), these seemingly counterintuitive findings are possibly related to the shortness of the period analyzed and the sharp decrease that Polish rates experienced in the last decade. The null of European short rates do not Granger-cause the US short rates (second row in the bottom panel) is rejected in all four cases analyzed.

Next, the European asymmetry hypothesis is also checked using VAR/VEC-based Granger Causality- Block Exogeneity Wald tests. Table 60 presents the results of VAR Granger Causality-Wald tests. The top panel shows the probability of improving Polish rates' conditional forecast by adding lagged European and US short rates to the information set in four different cases examined above. The null of European rates do not Granger-cause Polish rates is not rejected in all four cases studied (first row in the top panel). The null of US rates do not Granger-cause Polish rates is also not rejected as displayed in the second row in the top panel.

The middle panel shows the probability of improving European rates' conditional forecast by adding lagged Polish and US short rates to the information set. The null hypothesis of Polish short-term rates do not Granger-cause European short-term rates is rejected in first two cases analyzed (testing only short rates or testing short rates together with German CPI rates). In all other cases, the null of Polish short-term rates do not Granger-cause European short-term rates is not rejected at the five percent level of significance (first row in the middle panel). The null of US's short-term rates do not Granger-cause the European short rates (second row in the middle panel) is not rejected in all cases examined.

The bottom panel shows the probability of improving US rates' conditional forecast by adding lagged Polish and European short rates to the information set. The null of European short rates do not Granger-cause US rates is not rejected in all four cases examined. The null of Polish short rates do not Granger-cause US rates is not rejected in first two cases analyzed (first row first column and first row second column in the bottom panel). These seemingly counterintuitive findings, again are possibly related to the shortness of the period analyzed and the sharp decrease that Polish rates experienced in the last decade.

In sum, the results displayed in Tables 59 and 60 are in line. However, A word of caution is needed before evaluating the test results. The time period under study is limited with data availability and it may not be long enough to draw meaningful conclusions. Nonetheless, test results indicate that Polish short rates are not affected by European and US short rates. Therefore, our findings do not support European asymmetry or International asymmetry.

5.2.2. Long-term Interest Rates

In this section, the validity of EDH for Polish rates is examined using the long-term rates. The ADF test statistics for levels and first differences are displayed in Table 56. Tests are performed including both a constant and a constant and a linear trend. The null hypothesis that the levels of the series contain a unit root can not be rejected at the five percent level for none of the rates analyzed. However, when first difference data are tested, the ADF test results reject the null hypothesis of a unit root in all cases. As a result, ADF test results suggest that all long-term rates studied are I(1).

The tests for cointegration between long-term rates of Poland, Germany and United States are reported in Appendix D (Tables D.13, D.14, D.15 and D.16). When the Johansen cointegration tests are performed together with US unemployment and German CPI rates the hypothesis of a single cointegrating vector is not rejected at five percent level. In all other cases, the hypothesis of a single cointegrating vector is rejected at five percent level of significance.

Table 61 shows the SUR-based Wald (block exogeneity) tests results of the four cases analyzed. The first row in the top panel shows that the null hypothesis that European long-term rates do not Granger-cause Polish rates is not rejected in all cases examined. Similarly, the null hypothesis that US long rates do not Granger-cause Polish long rates (second row in the top panel) is not rejected in all four cases studied.

The first row in the middle panel shows that the null hypothesis that Polish long rates do not Granger cause European rates is rejected in first three cases analyzed: long-term rates only (first row first column), long-term rates together with German CPI rates (first row second column) and long-term rates together with US unemployment rates (first row third column). Similarly, the null

of US long rates do not Granger-cause the European long rates is rejected at five percent level in the case of long-term rates only (second row first column), long-term rates together with German CPI rates (second row second column) and long-term rates together with US unemployment rates (second row third column). In the case of long-term rates with German CPI and US unemployment rates, the null of Polish long rates do not Granger cause European long rates and the null of US long rates do not Granger-cause the European long rates are not rejected (first row fourth column and second row fourth column).

The first row in the bottom panel shows that the null hypothesis that Polish long rates do not affect US rates is rejected in first three cases examined. These seemingly counterintuitive findings, as explained above, are possibly due to the extreme shortness of the period analyzed (less than seven years). The null hypothesis that European long rates do not Granger cause US rates is rejected in first three cases (second row first column, second row second column and second row third column) studied. When tests are conducted together with US unemployment rates and German CPI rates, the null hypothesis that European long rates do not Granger cause US rates is not rejected.

Next, the European asymmetry hypothesis is also checked using VEC/VAR-based Granger Causality- Block Exogeneity Wald tests. Table 62 presents the results of VEC/VAR Granger Causality- Wald tests. The top panel shows the probability of improving Polish rates' conditional forecast by adding lagged European and US long rates to the information set in four different cases studied above. The null of European rates do not Granger-cause Polish rates is not rejected at five

percent in all cases examined (first row in the top panel). Similarly, the null of US rates do not Granger-cause Polish rates is not rejected in all cases examined (second row in the top panel).

The middle panel shows the probability of improving European rates conditional forecast by adding lagged Polish and US long rates to the information set. The null of Polish rates do not Granger-cause European rates is not rejected in three cases of four cases examined (only long-term rates, long-term rates together with German CPI rates, long-term rates together with US unemployment rates) as displayed in the first row in the middle panel. Also, the null of US rates do not Granger-cause European rates is rejected in these three cases (second row first column, second row second column and second row third column) examined. If causality tests of long-term rates are conducted together with German CPI rates and US unemployment rates, the null hypothesis that Polish long rates do not Granger-cause European rates and the null hypothesis that US long rates do not Granger-cause European rates are not rejected.

The bottom panel shows the probability of improving US rates conditional forecast by adding lagged Polish and European long rates to the information set. The null of Polish rates do not Granger-cause US rates and the null of European rates do not Granger-cause US's rates are rejected in first three cases examined (long-term rates only, long-term rates together with German CPI rates and long-term rates together with US unemployment rates). When causality tests of long-term rates are conducted together with or German CPI rates and US unemployment rates, the null hypotheses that Polish long rates do not Granger-cause US rates and the null hypothesis that European long rates do not Granger-cause US rates are not rejected.

In sum, SUR-based Wald (block exogeneity) tests and VEC/VAR-based Granger Causality-Wald test results are in line. They support neither the European asymmetry nor the international asymmetry. However, given that the time period analyzed is extremely limited, some of the results seem counterintuitive. In order to have robust and meaningful results, tests need to be re-performed with longer time span.

5.3. Discussion of the Results

The results of the interest linkages between Turkey/Poland , Europe and the rest of the world is summarized in Table 63. The summary compiles the SUR-based Block Exogeneity Wald test results in terms of *European Asymmetry* and *International Asymmetry* for both short and long rates. A checkmark placed under *European Asymmetry* implies that there exist a unidirectional causality from European rates to Turkish/Polish rates and that causality is checked for robustness across different additional variables and model specification. Similarly, a checkmark placed under *International Asymmetry* implies that the shocks originating in the rest of the world affect Turkish/Polish monetary policies only through European financial markets and that relation is checked for robustness across different additional variables and model specification. The existence of both kind of asymmetry implies the validity European Dominance Hypothesis (EDH).

The top panel shows that when the analysis is conducted with short rates, the null of no European asymmetry is rejected for Turkish rates (first column). However, since the null of no international asymmetry is not rejected in some of the cases analyzed, we can conclude that the international asymmetry is not strongly supported by our tests results (second column). Putting these two

results together, while the analysis with Turkish short-term rates suggests European asymmetry, it does not provide enough support for EDH. When the analysis is conducted with Turkish long rates, the null of no European asymmetry is not rejected in some of the cases analyzed, so we can conclude that there is no strong support for European asymmetry in the case of Turkish long rates(third column). Furthermore, when the analysis is conducted with Turkish long rates, test results provide no evidence for the existence of international asymmetry (fourth column).

The bottom panel summarizes results for Polish rates. Test results provide no evidence for the existence of European symmetry or international asymmetry neither for Polish short rates nor for Polish long rates. However, it's worth repeating the following caveat. Time span for Poland's rate is highly limited to draw meaningful conclusions and needs to be repeated in time with longer time span.

Chapter 6

Conclusion

This paper investigates the validity of European dominance hypothesis for Turkey and Poland. Both short-term and long-term rates are investigated. The analysis with Turkish rates covers the period 1987-2006. The analysis with Polish short rates covers the period 1992-2006 and the one with long rates covers the period 1999-2006. Four cases are examined: interest rates only, interest rates together with German CPI rates, interest rates together with US unemployment rates, interest rates together with both German CPI rates and US unemployment rates.

Both SUR-based Wald block-exogeneity tests and VEC Granger causality/block exogeneity Wald tests results show that there is unidirectional causality from European short-term rates to Turkish rates either in the form of European asymmetry or in the form of International asymmetry in addition to European asymmetry. The evidence is weaker with long-term rates. The test results with Polish short and long rates do not support European asymmetry or International asymmetry. However, the time period studied in Polish case is highly short (it is limited with data availability)

and therefore test results need to be evaluated with caution . Another word of caution is in order as well. The fact that Turkey went through a highly unstable period in terms of interest rates (also in terms of exchange rates, inflation rates, growth rates, etc.) in the last decades, the analysis needs to be re-performed after having enough data points in a 'crisisless' environment. Keeping these caveats in mind, the tests results suggest that Poland, currently a member of the EU, is not affected as much as Turkey (which is argued that it is not ready for the EU) from European monetary policies. This is a significant finding and need to be tested with longer time periods whenever available.

Table 1
Variables used in the analysis

Variable name	Definition	Source
Law	Law and Order	IRCG index
Cor	Corruption	IRCG index
Inv	Investment Profile	IRCG index
Bur	Bureaucratic Quality	IRCG index
Dem	Democratic Accountability	IRCG index
Intcon	Internal Conflict	IRCG index
Ethn	Ethnic Tensions	IRCG index
Soc	Socioeconomic Conditions	IRCG index
Law-bur	The first principle component of Law and Order and Bureaucratic Quality	IRCG index
Cor-inv	The first principle component of Corruption and Investment Profile	IRCG index
Cor-bur	The first principle component of Corruption and Bureaucratic Quality	IRCG index
Law-cor-bur	The first principle component of Law and Order, Corruption and Bureaucratic Quality	IRCG index
Cor-inv-bur	The first principle component of Corruption, Investment Profile and Bureaucratic Quality	IRCG index
Intcon-ethn	The first principle component of Internal Conflict and Ethnic Tensions	IRCG index
Intcon-dem	The first principle component of Internal Conflict and Democratic Accountability	IRCG index
Dem-soc	The first principle component of Democratic Accountability and Socioeconomic Conditions	IRCG index
Intcon-dem-soc	The first principle component of Internal Conflict, Democratic Accountability and Socioeconomic Conditions	IRCG index
Ethn-dem-soc	The first principle component of Ethnic Tensions, Democratic Accountability and Socioeconomic Conditions	IRCG index
GRGDP	GDP per capita growth rate	TUIK and IFS
Other factors	The first principle component of Current Account over GDP, Government size, Inflation rate and Openness	Own Calculations
$D1992-93$	Dummy variable for the EMU crisis 1992-1993	Own Calculations
$D1996$	Dummy variable for the correction of the growth rate 1996 Q4	Own Calculations
$D1994$	Dummy variable for the 1994 crisis of Turkey	Own Calculations
$D1999$	Dummy variable for the 1999 crisis of Turkey	Own Calculations
$D2001$	Dummy variable for the 2001 crisis of Turkey	Own Calculations

Table 2
Summary Statistics, Turkey

Variable	Observations	Mean	Standard Deviation	Min	Max
Law	72	3.6597	0.7983	2.0000	5.0000
Cor	72	2.6898	0.7743	2.0000	4.0000
Inv	72	6.3287	1.7735	3.3333	11.0000
Bur	72	2.3101	0.4624	2.0000	3.0000
Law-bur	72	4.2213	0.7704	2.8284	5.6568
Cor-inv	72	2.5731	1.4563	0.2357	5.6569
Law-cor-bur	72	4.8677	0.89727	3.4442	6.7374
Cor-inv-bur	72	0.1623	1.2125	-2.1552	2.0043
Intcon	72	7.1527	1.5192	4.0000	9.8333
Ethn	72	2.2337	0.5744	2.0000	4.0000
Dem	72	4.3125	1.3318	2.0000	6.0000
Doc	72	4.0856	1.7001	2.0000	7.0000
Intcon-ethn	72	6.6373	1.2141	4.2426	9.1923
Dem-soc	72	5.9383	1.9119	2.8284	9.1923
Intcon-dem-soc	72	8.6997	2.1159	4.4504	12.3179
Ethn-dem-soc	72	6.2651	1.7822	3.4475	9.7797
GRGDP	72	0.0059	0.0300	-0.0966	0.0577
Other factors	72	-0.0656	0.1712	-0.5591	0.3242

Table 3
Summary Statistics, Poland

Variable	Observations	Mean	Standard Deviation	Min	Max
Law	40	4.5250	0.6173	4.0000	6.0000
Cor	40	3.5416	1.3342	2.0000	5.0000
Inv	40	9.7666	1.7933	6.0000	11.5000
Bur	40	3.0833	0.1770	3.0000	3.5000
Law-bur	40	5.3800	0.5052	4.9500	6.4820
Cor-inv	40	4.4018	1.9923	0.7070	6.7180
Law-cor-bur	40	6.4752	1.2345	5.144	8.291
Cor-inv-bur	40	-2.1174	1.71134	-4.064	0.907
Dem	40	5.7425	0.4367	5.0000	6.0000
Intcon	40	10.8708	1.2027	9.0000	12.0000
Ethn	40	5.9833	0.1054	5.3333	6.0000
Soc	40	5.3666	0.6753	5.0000	7.0000
Dem-intcon	40	3.6239	1.0604	2.1213	4.9497
Intcon-soc	40	11.4787	1.1503	9.8994	13.4350
Intcon-dem-soc	40	5.2535	1.0968	3.9062	7.2626
GRGDP	40	0.0114	0.0164	-0.0361	0.0584
Other factors	40	-0.2856	0.0727	-0.4390	-0.1523

Table 4
Summary Statistics, Spain

Variable	Observations	Mean	Standard Deviation	Min	Max
Law	84	4.6071	0.8606	4.0000	6.0000
Cor	84	4.1547	0.5949	3.0000	5.0000
Inv	84	8.9246	2.3899	5.0000	12.0000
Bur	84	3.2202	0.3890	3.0000	4.0000
Cor-bur	84	0.6608	0.58082	-0.3535	1.4142
Cor-inv	84	-3.3727	1.8355	0.0000	-6.0104
Law-cor-bur	84	2.3556	0.6576	1.2025	3.5433
Cor-inv-bur	84	4.9961	1.6108	2.1648	7.5948
Dem	84	5.4087	0.4891	5.0000	6.0000
Intcon	84	8.1646	1.4941	6.0000	10.000
Ethn	84	3.7857	0.9894	2.0000	5.0000
Soc	84	7.2559	1.5669	5.0000	10.000
Dem-soc	84	1.3061	1.1870	-0.7071	3.5355
Intcon-soc	84	-0.6425	1.8771	-3.5355	2.8228
intcon-dem-soc	84	5.1307	1.1080	3.5355	7.0710
Eth-soc-intcon	84	3.4769	2.0224	0.1906	6.4748
GRGDP	84	0.0072	0.0097	-0.0201	0.0369
Other factors	84	-0.2063	0.0366	-0.2691	-0.1217

Table 5
Correlation Coefficients, Turkey

	Law	Cor	Inv	Bur	Dem	Intcon	Ethn	Soc	GRGDP	Other factors
Law	1	0.2502	0.4570	0.4552	0.0679	0.4989	-0.0160	0.3740	0.0187	0.4405
Cor	0.2502	1	-0.1808	0.6002	0.6639	0.2533	0.4899	0.6457	-0.0360	-0.3998
Inv	0.4570	-0.1808	1	-0.3702	-0.4661	0.2154	-0.2147	-0.1616	0.0083	0.6475
Bur	0.4552	0.6002	-0.3702	1	0.5899	0.1721	0.3947	0.4553	0.0534	-0.3326
Dem	0.0679	0.6639	-0.4661	0.5899	1	0.1647	0.3987	0.5844	0.0133	-0.3541
Intcon	0.4989	0.2533	0.2154	0.1721	0.1647	1	0.1777	0.5251	0.1438	0.4346
Ethn	-0.0160	0.4899	-0.2147	0.3947	0.3987	0.1777	1	0.3025	-0.0440	-0.2041
Soc	0.3740	0.6457	-0.1616	0.4553	0.5844	0.5251	0.3025	1	0.1393	-0.0693
GRGDP	0.0187	-0.0360	0.0083	0.0534	0.0133	0.1438	-0.0440	0.1393	1	-0.0584
Other factors	0.1871	-0.4292	0.4917	-0.4820	-0.2659	0.3724	-0.1418	-0.0663	-0.0305	1

Table 6
Correlation Coefficients, Poland

	Law	Cor	Inv	Bur	Dem	Intcon	Ethn	Soc	GRGDP	Other factors
Law	1	0.8910	-0.6662	0.4496	-0.7189	0.7996	0.1379	0.5924	0.2774	-0.8049
Cor	0.8910	1	-0.6146	0.5276	-0.6609	0.7675	0.1873	0.4505	0.1719	-0.8354
Inv	-0.6662	-0.6146	1	-0.6640	0.9362	-0.4373	-0.1567	-0.7514	-0.1900	0.7949
Bur	0.4496	0.5276	-0.6640	1	-0.7821	0.4532	0.0763	0.3336	0.1723	-0.5456
Dem	-0.7189	-0.6609	0.9362	-0.7821	1	-0.5677	-0.0956	-0.7438	-0.2437	0.7627
Intcon	0.7996	0.7675	-0.4532	0.4532	-0.5677	1	0.1835	0.4493	0.1217	-0.8019
Ethn	0.1379	0.1873	-0.1567	0.0763	-0.0956	0.1835	1	0.0880	-0.0658	-0.2639
Soc	0.5924	0.4505	-0.7514	0.3336	-0.7438	0.4493	0.0880	1	0.1747	-0.6483
GRGDP	0.2774	0.1719	-0.1900	0.1723	-0.2437	0.1217	-0.0658	0.1747	1	-0.1779
Other factors	0.7953	0.8226	-0.7951	0.5431	-0.7612	0.7155	0.2606	0.6527	0.1741	1

Table 7
Correlation Coefficients, Spain

	Law	Cor	Inv	Bur	Dem	Intcon	Ethn	Soc	GRGDP	Other factors
Law	1	0.1685	-0.6784	-0.0303	-0.0575	0.7504	0.7834	-0.6193	-0.1804	0.1280
Cor	0.1685	1	-0.2364	-0.3659	0.007	-0.0527	0.1070	-0.5039	-0.1581	-0.1188
Inv	-0.6784	-0.2364	1	0.4456	0.5420	-0.3681	-0.5724	0.6345	0.1727	0.4057
Bur	-0.0303	-0.3659	0.4456	1	0.5377	0.3133	0.1501	0.2621	-0.0125	0.6040
Dem	-0.0575	0.0077	0.5420	0.5377	1	0.1320	0.0005	-0.0805	0.1001	0.7789
Intcon	0.7504	-0.0527	-0.3681	0.3133	0.1320	1	0.8689	-0.5037	-0.1530	0.4885
Ethn	0.7834	0.1070	-0.5724	0.1501	0.0005	0.8689	1	-0.6290	-0.1339	0.2660
Soc	-0.6193	-0.5039	0.6345	0.2621	-0.0805	-0.5037	-0.6290	1	0.1264	-0.1763
GRGDP	-0.1804	-0.1581	0.1727	-0.0125	0.1001	-0.1530	-0.1339	0.1264	1	0.0681
Other factors	-0.0147	0.0808	-0.4309	-0.5486	-0.7628	-0.3817	-0.1585	0.1539	-0.0857	1

Table 8
The Change in Trend in Institutional Quality
Entries report the time trend coefficients regressed on individual and composite institutional quality indices where the cut-off date is the start of the membership process for Turkey and Poland and the membership period for Spain (Equation 3.5). The samples cover the period of 1984Q1 to 2004Q4, a total of 84 observations for each countries. The corresponding p values are given in parenthesis. The variables abbreviated in accordance with Table 1.

A. Turkey

Trend coefficient	Law	Cor	Inv	Bur	Law-bur	Cor-inv	Law-cor-bur	Cor-inv-bur
Before the Membership Process			-0.045		0.041	-0.048	0.046	0.053
(1984Q1-1995Q4)			(0.00)		(0.00)	(0.00)	(0.00)	(0.00)
After the Membership Process			0.057		-0.012	0.029	-0.004	-0.033
(1996Q1-2004Q4)			(0.01)		(0.06)	(0.06)	(0.54)	(0.01)

B. Poland

Trend coefficient	Law	Cor	Inv	Bur	Law-bur	Cor-inv	Law-cor-bur	Cor-inv-bur
Before the Membership Process	0.037	0.033			0.067	0.004	0.071	0.0325
(1984Q1-1997Q4)	(0.00)	(0.00)			(0.00)	(0.61)	(0.00)	(0.00)
After the Membership Process	-0.037	-0.119			-0.026	0.100	-0.093	0.084
(1998Q1-2004Q4)	(0.00)	(0.00)			(0.00)	(0.00)	(0.00)	(0.00)

C. SPAIN

Trend coefficient	Law	Cor	Inv	Bur	Cor-bur	Cor-inv	Law-cor-bur	Cor-inv-bur
Before the Membership Process		-0.143			-0.101	-0.118	-0.099	0.088
(1984Q1-1985Q4)		(0.03)			(0.03)	(0.04)	(0.03)	(0.04)
After the Membership Process		-0.004			-0.011	-0.043	-0.009	0.043
(1986Q1-2004Q4)		(0.21)			(0.00)	(0.00)	(0.00)	(0.00)

Table 9
Andrews-Quandt Endogenous Breakpoint Test for Structural Change
Institutional Quality Variables tested for structural change are the individual indices and the composite indices constructed using principal components analysis. Probabilities calculated using Hansen (1997) method. The samples cover the period of 1984Q1 to 2004Q4, a total of 84 observations for each countries. The variables abbreviated in accordance with Table 1.

Institutional Quality Variable	Break Time	P values (Max F)	P values (Exp F)
A. Turkey			
Inv	1997Q3	0.003	0.007
Law-bur	1992Q1	0.197	0.372
Cor-inv	1997Q3	0.015	0.0415
Law-cor-bur	1995Q4	0.871	0.933
Cor-inv-bur	1997Q3	0.000	0.001
B. Poland			
Law	NA	NA	NA
Corr	1999Q2	0.010	0.030
Law-bur	NA	NA	NA
Cor-inv	1997Q2	0.716	0.735
Law-cor-bur	1999Q2	0.283	0.645
Cor-inv-bur	1997Q2	0.795	0.733
C. Spain			
Corr	1991Q4	0.855	0.621
Cor-bur	1999Q3	0.772	0.785
Cor-inv	1997Q3	0.30	0.66
Law-cor-bur	1991Q4	0.993	0.918
Cor-inv-bur	1997Q3	0.084	0.172

Table 10

F-Tests, for the LR Relationship between Institutional Quality and Growth: Turkey

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Inv	F(2,57)=19.226****
Inv	GRGDP	F(2,57)=.521
GRGDP	Law-bur	F(2,57)=18.372***
Law-bur	GRGDP	F(2,57)=2.044
GRGDP	Cor-inv	F(2,57)=20.335***
Cor-inv	GRGDP	F(2,57)=.463
GRGDP	Law-cor-bur	F(2,57)=18.147***
Law-cor-bur	GRGDP	F(2,57)=2.650
GRGDP	Cor-inv-bur	F(2,57)=18.923***
Cor-inv-bur	GRGDP	F(2,57)=0.573

***, **, * are significance levels at 1, 5, 10%

Table 11

F-Tests for the LR Relationship between Institutional Quality, Growth and *'Other Factors'*: Turkey

F tests for the long-run relationship between Institutional Quality Indices, Growth and '*Other Factors*' are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Inv	F(3,49)=14.018***
Inv	GRGDP	F(3,49)=0.832
GRGDP	Law-bur	F(3,49)=16.714***
Law-bur	GRGDP	F(3,49)=1.084
GRGDP	Cor-inv	F(3,49)=15.442***
Cor-inv	GRGDP	F(3,49)=0.121
GRGDP	Law-cor-bur	F(3,49)=16.801***
Law-cor-bur	GRGDP	F(3,49)=1.456
GRGDP	Cor-inv-bur	F(3,49)=16.064***
Cor-inv-bur	GRGDP	F(3,49)=0.264

***, **, * are significance levels at 1, 5, 10%

Table 12
Growth Effects of Institutional Quality Variables I: Turkey
Estimates are long-run coefficients of individual indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,2)	ARDL(0,0)
Inv (AIC)	-.000	
	[.936]	
Inv (SBC)		.001
		[.407]
D2001	-.045	-.084
	[.003]	[.000]
D1999	-.029	-.048
	[.014]	[.005]
D1994	-.040	-.065
	[.002]	[.000]
C	.008	.001
	[.272]	[.897]
R2	.57	.42
F-stat	7.60	11.8
	[.000]	[.000]
Serial Correlation, F	1.01	2.00
	[.388]	[.106]
Normality, CHSQ	0.45	2.25
	[.796]	[.324]
Heteroscedasticity, F	0.01	0.01
	[.899]	[.901]

Table 13
Growth Effects of Institutional Quality Variables II: Turkey
Estimates are long-run coefficients of composite indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,0)	ARDL(0,0)	ARDL(4,2)	ARDL(0,0)	ARDL(4,2)	ARDL(0,0)	ARDL(4,2)	ARDL(0,0)
Law-bur	.004							
(AIC)	[.058]							
Law-bur		.006						
(SBC)		[.083]						
Cor-inv			0.000					
(AIC)			[.856]					
Cor-inv				.001				
(SBC)				[.576]				
Law-cor-bur					.003			
(AIC)					[.133]			
Law-cor-bur						.004		
(SBC)						[.172]		
Cor-inv-bur							.005	
(AIC)							[.185]	
Cor-inv-bur								-.000
(SBC)								[.918]
D2001	-.055	-.083	-.045	-.083	-.057	-.083	-.045	-.083
	[.000]	[.000]	[.002]	[.000]	[.000]	[.000]	[.001]	[.000]
D1999	-.031	-.046	-.029	-.047	-.031	-.044	-.028	-.046
	[.009]	[.006]	[.013]	[.006]	[.012]	[.009]	[.015]	[.008]
D1994	-.047	-.071	-.041	-.065	-.050	-.073	-.043	-.066
	[.001]	[.000]	[.001]	[.000]	[.001]	[.000]	[.001]	[.000]
C	-.012	-.017	.008	.006	-.008	-.011	.007	.009
	[.259]	[.270]	[.038]	[.251]	[.000]	[.465]	[.000]	[.002]
R2	.56	.44	.59	.42	.58	.43	.60	.42
F-stat	9.43	12.86	8.24	11.66	7.90	12.34	8.58	11.52
	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]
Serial Correlation, F	1.52	2.45	0.70	1.99	0.68	2.29	.509	2.02
	[.207]	[.055]	[.592]	[.107]	[.607]	[.070]	[.729]	[.102]
Normality,	1.73	1.84	0.17	2.27	2.09	2.00	0.31	2.37
CHSQ	[.420]	[.397]	[.915]	[.321]	[.352]	[.367]	[.853]	[.306]
Heteroscedasticity, F	0.08	0.02	0.04	0.01	0.04	0.01	0.14	0.01
	[.774]	[.885]	[.832]	[.902]	[.831]	[.912]	[.703]	[.896]

Table 14
Growth Effects of Institutional Quality Variables III: Turkey
Estimates are long-run coefficients of indices obtained from two step ARDL methodology (Equation 3.8 in the text). The individual and composite indices with significant long-run coefficients in above estimations are estimated once more together with *'other factors'* (that might affect growth) in order to check their robustness. Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,0,0)	ARDL(0,0,0)
Law-bur(AIC)	.005	
	[.055]	
Law-bur (SBC)		.006
		[.085]
Other Factors	.005	002
	[.685]	[.914]
D2001	-.055	-.083
	[.000]	[.000]
D1999	-.031	-.046
	[.008]	[.007]
D1994	-.045	-.071
	[.001]	[.000]
C	-.0119	-.083
	[.260]	[.000]
R-squared	.56	.45
F-stat	8.31	10.19
	[.000]	[.000]
Serial Correlation	1.59	2.43
	[.189]	[.057]
Normality	1.74	1.99
	[.417]	[.369]
Heteroscedasticity	.021	.011
	[.883]	[.915]

Table 15

F-Tests for the LR Relationship between Conflict Governance and Growth: Turkey

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Intcon	F(2,57)=20.855***
Intcon	GRGDP	F(2,57)=1.841
GRGDP	Dem	F(2,57)=19.213***
Dem	GRGDP	F(2,57)=3.894
GRGDP	Intcon-ethn	F(2,57)=20.977***
Intcon-ethn	GRGDP	F(2,57)=1.330
GRGDP	Dem-soc	F(2,57)=18.514***
Dem-soc	GRGDP	F(2,57)=3.285
GRGDP	Intcon-dem-soc	F(2,57)=19.675***
Intcon-dem-soc	GRGDP	F(2,57)=2.697
GRGDP	Eth-soc-dem	F(2,57)=18.814***
Eth-soc-dem	GRGDP	F(2,57)=2.825

***, **, * are significance levels at 1, 5, 10%

Table 16

F-Tests for the LR Relationship between Conflict Governance, Growth and *'Other Factors'*: Turkey

F tests for the long-run relationship between Conflict Governance Indices, Growth and '*Other Factors*' are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Intcon	F(3,49)=16.186***
Intcon	GRGDP	F(3,49)= 2.966
GRGDP	Dem	F(3,49)=16.574***
Dem	GRGDP	F(3,49)= 1.786
GRGDP	Intcon-ethn	F(3,49)=17.012***
Intcon-ethn	GRGDP	F(3,49)= 2.164
GRGDP	Dem-soc	F(3,49)=15.553***
Dem-soc	GRGDP	F(3,49)= 2.531
GRGDP	Intcon-dem-soc	F(3,49)= 15.968***
Intcon-dem-soc	GRGDP	F(3,49)= 2.746
GRGDP	Eth-soc-dem	F(3,49)= 16.507***
Eth-soc-dem	GRGDP	F(3,49)= 1.891

***, **, * are significance levels at 1, 5, 10%

Table 17
Growth Effects of Conflict Governance Variables I: Turkey
Estimates are long-run coefficients of individual indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,0)	ARDL(0,0)	ARDL(4,0)	ARDL(0,0)
Dem (AIC)	.000			
	[.932]			
Dem (SBC)		-.001		
		[.816]		
Intcon (AIC)			.003	
			[.023]	
Intcon (SBC)				.003
				[.071]
D2001	-.056	-.083	-.056	-.086
	[.000]	[.000]	[.000]	[.000]
D1999	-.031	-.047	-.021	-.034
	[.016]	[.008]	[.069]	[.049]
D1994	-.045	-.066	-.045	-.069
	[.002]	[.000]	[.000]	[.000]
C	.007	.012	-.013	-.015
	[.275]	[.234]	[.165]	[.271]
R-squared	.53	.42	.57	.45
F-stat	8.42	11.54	9.82	12.98
	[.000]	[.000]	[.000]	[.000]
Serial Correlation, F	1.20	2.02	1.92	2.58
	[.318]	[.103]	[.119]	[.046]
Normality, CHSQ	1.42	2.31	0.59	1.99
	[.490]	[.315]	[.743]	[.368]
Heteroscedasticity, F	0.00	0.02	0.01	0.04
	[.969]	[.900]	[.900]	[.829]

Table 18
Growth Effects of Conflict Governance Variables II: Turkey
Estimates are long-run coefficients of composite indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,0)	ARDL(0,0)	ARDL(4,0)	ARDL(0,0)	ARDL(4,0)	ARDL(0,0)	ARDL(4,2)	ARDL(0,0)
Intcon-ethn	.003							
(AIC)	[.037]							
Intcon-ethn		.004						
(SBC)		[.098]						
Dem-soc			.000					
(AIC)			[.782]					
Dem-soc				.417				
(SBC)				[.979]				
Intcon-dem-soc					.001			
(AIC)					[.302]			
Intcon-dem-soc						.001		
(SBC)						[.482]		
Ethn-dem-soc							.001	
(AIC)							[.444]	
Ethn-dem-soc								.000
(SBC)								[.964]
D2001	-.056	-.085	-.055	-.083	-.055	-.082	-.053	-.082
	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]
D1999	-.022	-.036	-.030	-.046	-.027	-.041	-.028	-.045
	[.057]	[.040]	[.018]	[.010]	[.034]	[.020]	[.022]	[.010]
D1994	-.046	-.071	-.045	-.067	-.046	-.069	-.045	-.067
	[.000]	[.000]	[.001]	[.000]	[.001]	[.000]	[.001]	[.000]
C	-.014	-.017	.006	.009	-.001	.001	.002	.009
	[.183]	[.295]	[.348]	[.337]	[.944]	[.942]	[.738]	[.402]
R-squared	.56	.44	.53	.42	.54	.42	.56	.42
F-stat	9.60	12.74	8.44	11.52	8.70	11.74	7.31	11.52
	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]
Serial Correlation, F	1.72	2.43	1.22	2.04	1.39	2.20	1.42	2.04
	[.158]	[.057]	[.311]	[.100]	[.249]	[.080]	[.237]	[.100]
Normality,	0.65	1.91	1.50	2.37	1.41	2.38	1.09	2.37
CHSQ	[.719]	[.384]	[.471]	[.305]	[.492]	[.303]	[.578]	[.305]
Heteroscedas	0.03	0.03	0.00	.01 [.895]	0.01	0.02	0.00	0.01
ticity, F	[.853]	[.863]	[.993]		[.918]	[.867]	[.987]	[.895]

Table 19

Growth Effects of Conflict Governance Variables III: Turkey

Estimates are long-run coefficients of indices obtained from two step ARDL methodology (Equation 3.8 in the text). The individual and composite indices with significant long-run coefficients in above estimations are estimated once more together with *'other factors'* (that might affect growth) in order to check their robustness. Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,0,0)	ARDL(0,0,0)	ARDL(4,0,0)	ARDL(0,0,0)
Intcon (AIC)	.003			
	[.021]			
Intcon (SBC)		.004		
		[.044]		
Intcon-ethn(AIC)			.004	
			[.039]	
Intcon-ethn (SBC))				.005
				[.078]
Other Factors	-.010	-.017	-.006	-.012
	[.428]	[.358]	[.614]	[.515]
D2001	-.057	-.085	-.056	-.084
	[.000]	[.000]	[.000]	[.000]
D1999	-.019	-.031	-.022	-.034
	[.109]	[.087]	[.075]	[.058]
D1994	-.049	-.074	-.049	-.074
	[.001]	[.000]	[.001]	[.000]
C	-.017	-.023	-.017	-.022
	[.119]	[.160]	[.166]	[.225]
R-squared	.57	.46	.57	.45
F-stat	8.76	10.54	8.45	10.18
	[.000]	[.000]	[.000]	[.000]
Serial Correlation	2.12	2.90	1.77	2.56
	[.090]	[.029]	[.148]	[.048]
Normality	0.16	1.39	0.34	1.51
	[.922]	[.499]	[.840]	[.470]
Heteroscedas ticity	0.03	0.19	0.00	0.11
	[.850]	[.661]	[.992]	[.735]

Table 20

F-Tests for the LR Relationship between Institutional Quality and Growth: Poland

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Law	F(2,25)=3.328
Law	GRGDP	F(2,25)=2.151
GRGDP	Cor	F(2,25)=2.437
Cor	GRGDP	F(2,25)=2.921
GRGDP	Law-bur	F(2,25)=3.295
Law-bur	GRGDP	F(2,25)=1.655
GRGDP	Cor-inv	F(2,25)=3.248
Cor-inv	GRGDP	F(2,25)=3.565
GRGDP	Law-cor-bur	F(2,25)=3.228
Law-cor-bur	GRGDP	F(2,25)=3.955
GRGDP	Cor-inv-bur	F(2,25)=3.179
Cor-inv-bur	GRGDP	F(2,25)=3.054

***, **, * are significance levels at 1, 5, 10%

Table 21

F-Tests for the LR Relationship between Conflict Governance and Growth: Poland

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Intcon	F(2,25)=5.898**
Intcon	GRGDP	F(2,25)=2.590
GRGDP	Intcon-dem	F(2,25)=6.030**
Intcon-dem	GRGDP	F(2,25)=2.376
GRGDP	Intcon-soc	F(2,25)=6.495**
Intcon-soc	GRGDP	F(2,25)=2.102
GRGDP	Intcon-soc-dem	F(2,25)=6.493**
Intcon-soc-dem	GRGDP	F(2,25)= 2.102

***, **, * are significance levels at 1, 5, 10%

Table 22

F-Tests for the LR Relationship between Governance Ability, Growth and *'Other Factors'*: Poland

F tests for the long-run relationship between Conflict Governance Indices, Growth and '*Other Factors*' are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Intcon	F(3,19)=2.802
Intcon	GRGDP	F(3,19)=4.593*
GRGDP	Intcon-dem	F(3,19)=3.526
Intcon-dem	GRGDP	F(3,19)=4.424*
GRGDP	Intcon-soc	F(3,19)=4.678*
Intcon-soc	GRGDP	F(3,19)=3.368
GRGDP	Intcon-soc-dem	F(3,19)=5.761**
Intcon-soc-dem	GRGDP	F(3,19)=2.626

***, **, * are significance levels at 1, 5, 10%

Table 23
Growth Effects of Conflict Governance Variables I: Poland
Estimates are long-run coefficients of individual and composite indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(4,1)	ARDL(1,1)	ARDL(4,2)	ARDL(1,1)	ARDL(2,4)	ARDL(1,1)	ARDL(2,4)	ARDL(1,1)
Intcon (AIC)	.002							
	[.183]							
Intcon (SBC)		.002						
		[.093]						
Intcon-dem			.003					
(AIC)			[.046]					
Intcon-dem				.004				
(SBC)				[.035]				
Intcon-soc					.003			
(AIC)					[.019]			
Intcon-soc						.002		
(SBC)						[.154]		
Intcon-dem-soc							.003	
(AIC)							[.014]	
Intcon-dem-soc								.003
(SBC)								[.088]
D1996	-.046	-.037	-.034	-.039	-.033	-.042	-.031	-.044
	[.039]	[.001]	[.021]	[.001]	[.001]	[.000]	[.000]	[.000]
C	-.017	-.015	-.003	-.002	-.027	-.016	-.007	-.005
	[.393]	[.319]	[.676]	[.751]	[.078]	[.382]	[.276]	[.561]
R-squared	.57	.48	.64	.52	.63	.51	.67	.53
F-stat	5.39	7.34	6.13	8.35	5.80	8.01	6.89	8.72
	[.001]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]
Serial Correlation, F	0.83	0.87	0.95	0.52	0.48	0.56	0.42	0.31
	[.517]	[.495]	[.451]	[.724]	[.753]	[.696]	[.793]	[.867]
Normality, CHSQ	4.11	4.13	8.21	3.74	1.98	2.90	4.43	2.79
	[.128]	[.126]	[.016]	[.154]	[.372]	[.234]	[.109]	[.248]
Heteroscedasticity, F	0.30	0.28	0.00	0.41	0.03	0.40	0.10	0.36
	[.586]	[.595]	[.995]	[.525]	[.863]	[.531]	[.747]	[.553]

Table 24
Growth Effects of Conflict Governance Variables II: Poland
Estimates are long-run coefficients of indices obtained from two step ARDL methodology (Equation 3.8 in the text). The individual and composite indices with significant long-run coefficients in above estimations are estimated once more together with *'other factors'* (that might affect growth) in order to check their robustness. Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(2,4,3)	ARDL(1,1,1)	ARDL(2,4,4)	ARDL(2,2,1)
Intcon-soc (AIC)	.002			
	[.379]			
Intcon-soc (SBC)		.001		
		[.696]		
Intcon-dem-soc (AIC)			.004	
			[.089]	
Intcon-dem-soc (SBC))				.003
				[.125]
Other Factors	.025	.035	-.018	-.002
	[.453]	[.304]	[.622]	[.953]
D1996	-.028	-.041	-.028	-.029
	[.004]	[.000]	[.002]	[.001]
C	-.006	.010	-.018	-.007
	[.846]	[.757]	[.411]	[.696]
R-squared	0.74	0.58	0.77	0.67
F-stat	5.39	6.79	5.56	6.90
	[.000]	[.000]	[.000]	[.000]
Serial Correlation	1.51	0.69	1.02	1.44
	[.240]	[.603]	[.419]	[.251]
Normality	0.33	1.26	0.34	0.97
	[.848]	[.531]	[.843]	[.617]
Heteroscedas ticity	1.51	1.28	0.27	0.85
	[.226]	[.267]	[.605]	[.362]

Table 25

F-Tests for the LR Relationship between Institutional Quality and Growth: Spain

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Cor	F(2,69)=5.718*
Cor	GRGDP	F(2,69)=5.383
GRGDP	Cor-bur	F(2,69)=5.834**
Cor-bur	GRGDP	F(2,69)=5.269*
GRGDP	Cor-inv	F(2,69)=6.328**
Cor-inv	GRGDP	F(2,69)=.393
GRGDP	Law-cor-bur	F(2,69)=6.581**
Law-cor-bur	GRGDP	F(2,69)=3.448
GRGDP	Cor-inv-bur	F(2,69)=6.009**
Cor-inv-bur	GRGDP	F(2,69)=.723

***, **, * are significance levels at 1, 5, 10%

Table 26

F-Tests for the LR Relationship between Institutional Quality, Growth and *'Other Factors'*: Spain

F tests for the long-run relationship between Institutional Quality Indices, Growth and '*Other Factors*' are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Cor	F(3,63)=7.780***
Cor	GRGDP	F(3,63)=3.394
GRGDP	Cor-bur	F(3,63)=7.779***
Cor-bur	GRGDP	F(3,63)=4.083
GRGDP	Cor-inv	F(3,63)=7.506***
Cor-inv	GRGDP	F(3,63)=.825
GRGDP	Law-cor-bur	F(3,63)=7.848***
Law-cor-bur	GRGDP	F(3,63)=2.510
GRGDP	Cor-inv-bur	F(3,63)=7.337***
Cor-inv-bur	GRGDP	F(3,63)=.968

***, **, * are significance levels at 1, 5, 10%

Table 27
Growth Effects of Institutional Quality Variables I: Spain
Estimates are long-run coefficients of individual indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(1,1)	ARDL(1,0)
Cor (AIC)	-.000	
	[.968]	
Cor (SBC)		-.001
		[.678]
D1992-93	-.013	-.013
	[.001]	[.001]
C	.008	.011
	[.160]	[.073]
R-squared	.18	.16
F-stat	4.27	4.81
	[.004]	[.004]
Serial Correlation, F	0.87	0.92
	[.487]	[.454]
Normality, CHSQ	8.32	13.37
	[.016]	[.001]
Heteroscedasticity, F	0.09	0.27
	[.760]	[.601]

Table 28
Growth Effects of Institutional Quality Variables II: Spain
Estimates are long-run coefficients of composite indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)	ARDL(1,0)
Cor-bur (AIC)	.000							
	[.859]							
Cor-bur (SBC)		.000						
		[.859]						
Cor-inv (AIC)			-.001					
			[.254]					
Cor-inv (SBC)				-.001				
				[.254]				
Law-cor-bur					-.001			
(AIC)					[.645]			
Law-cor-bur						-.001		
(SBC)						[.645]		
Cor-inv-bur							.000	
(AIC)							[.377]	
Cor-inv-bur								.000
(SBC)								[.377]
D1992-93	-.014	-.014	-.012	-.012	-.013	-.013	-.012	-.012
	[.001]	[.001]	[.003]	[.003]	[.002]	[.002]	[.002]	[.002]
C	.008	.008	.006	.006	.009	.009	.006	.006
	[.000]	[.000]	[.001]	[.001]	[.003]	[.003]	[.034]	[.034]
R-squared	.15	.15	.17	.17	.16	.16	.16	.16
F-stat	4.76	4.76	5.26	5.26	4.83	4.83	5.06	5.06
	[.004]	[.004]	[.002]	[.002]	[.004]	[.004]	[.003]	[.003]
Serial Correla-	0.92	0.92	1.01	1.01	0.95	0.95	0.96	0.96
tion, F	[.453]	[.453]	[.409]	[.409]	[.438]	[.438]	[.431]	[.431]
Normality,	13.36	13.36	16.89	16.89	14.13	14.13	16.39	16.39
CHSQ	[.001]	[.001]	[.000]	[.000]	[.001]	[.001]	[.000]	[.000]
Heteroscedas	0.10	0.10	0.41	0.41	0.41	0.41	0.51	0.51
ticity, F	[.747]	[.747]	[.526]	[.526]	[.525]	[.525]	[.477]	[.477]

Table 29

F-Tests for the LR Relationship between Conflict Governance and Growth: Spain

F tests for the long-run relationship are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Ethn	F(2,69)=7.276**
Ethn	GRGDP	F(2,69)=4.367
GRGDP	Soc	F(2,69)=6.480**
Soc	GRGDP	F(2,69)=2.169
GRGDP	Dem-soc	F(2,69)=6.113**
Dem-soc	GRGDP	F(2,69)=1.869
GRGDP	Intcon-soc	F(2,69)=7.647**
Intcon-soc	GRGDP	F(2,69)=1.405
GRGDP	Intcon-soc-dem	F(2,69)=6.480**
Intcon-soc-dem	GRGDP	F(2,69)=2.169
GRGDP	Ethn-dem-soc	F(2,69)=7.636**
Ethn-dem-soc	GRGDP	F(2,69)=2.019

***, **, * are significance levels at 1, 5, 10%

Table 30

F-Tests for the LR Relationship between Conflict Governance Ability, Growth and *'Other Factors'*:Spain

F tests for the long-run relationship Conflict Governance Indices, Growth and '*Other Factors*'are based on first stage of two step ARDL methodology: testing the existence of the long-run relation between the variables under investigation (Equation 3.6 in the text). Critical values are from Pesaran et al. (1996). See Table 1 for definition of variables.

Dependent Variable	Independent Variables	F-statistic
GRGDP	Ethn	F(3,63)= 8.746***
Ethn	GRGDP	F(3,63)= 2.294
GRGDP	Soc	F(3,63)= 7.815***
Soc	GRGDP	F(3,63)= 2.928
GRGDP	Dem-soc	F(3,63)=8.419***
Dem-soc	GRGDP	F(3,63)=2.136
GRGDP	Intcon-soc	F(3,63)=7.661**
Intcon-soc	GRGDP	F(3,63)=1.480
GRGDP	Intcon-soc-dem	F(3,63)=8.746***
Intcon-soc-dem	GRGDP	F(3,63)=2.294
GRGDP	Ethn-dem-soc	F(3,63)=7.323**
Ethn-dem-soc	GRGDP	F(3,63)=1.735

***, **, * are significance levels at 1, 5, 10%

Table 31
Growth Effects of Conflict Governance Variables I: Spain
Estimates are long-run coefficients of individual indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(1,2)	ARDL(1,0)	ARDL(1,1)	ARDL(1,0)
Soc (AIC)	.000			
	[.396]			
Soc (SBC)		.001		
		[.287]		
Eth (AIC)			-.001	
			[.146]	
Eth (SBC)				-.001
				[.216]
D1992-93	-.014	-.0127	-.0119	.0121
	[.000]	[.001]	[.002]	[.000]
C	.005	.004	.012	-.012
	[.187]	[.255]	[.000]	[.001]
R-squared	.21	.17	.21	.17
F-stat	4.12	5.20	5.07	5.35
	[.002]	[.003]	[.001]	[.002]
Serial Correlation, F	0.42	0.93	1.23	1.32
	[.794]	[.447]	[.304]	[.268]
Normality, CHSQ	10.28	18.34	19.13	15.00
	[.006]	[.000]	[.000]	[.001]
Heteroscedasticity, F	1.38	0.66	0.02	0.01
	[.244]	[.417]	[.885]	[.920]

Table 32
Growth Effects of Conflict Governance Variables II: Spain
Estimates are long-run coefficients of composite indices obtained from two step ARDL methodology (Equation 3.8 in the text). Figures in brackets are the corresponding *p* values . Optimal number of lags are reported in parenthesis in the first row for ARDL(p,q) and are based on Equation 3.7 in the text. See Table 1 for definition of variables.

	ARDL(1,0)	ARDL(1,0)	ARDL(1,1)	ARDL(1,0)	ARDL(1,2)	ARDL(1,0)	ARDL(1,1)	ARDL(1,0)
Dem-soc (AIC)	.001							
	[.351]							
Dem-soc (SBC)		.001						
		[.351]						
Intcon-soc			.001					
(AIC)			[.127]					
Intcon-soc				.001				
(SBC)				[.167]				
Intcon-dem-soc					.001			
(AIC)					[.396]			
Intcon-dem-soc						.001		
(SBC)						[.287]		
Eth-intcon-soc							-.001	
(AIC)							[.120]	
Eth-intcon-soc								-.001
(SBC)								[.165]
D1992-93	-.013	-.013	-.012	-.012	-.013	-.013	-.012	-.012
	[.001]	[.001]	[.001]	[.002]	[.000]	[.001]	[.001]	[.002]
C	.007	.007	.008	.008	.005	.004	.010	.010
	[.000]	[.000]	[.000]	[.000]	[.187]	[.255]	[.000]	[.000]
R-squared	.16	.16	.20	.17	.21	.17	.22	.18
F-stat	5.09	5.09	4.87	5.51	4.12	5.20	5.26	5.51
	[.003]	[.003]	[.002]	[.002]	[.002]	[.003]	[.001]	[.002]
Serial Correlation, F	0.91	0.91	0.64	1.18	0.42	0.93	0.68	1.26
	[.458]	[.458]	[.632]	[.326]	[.794]	[.447]	[.603]	[.293]
Normality,	16.91	16.91	18.97	19.24	10.28	18.34	19.97	17.96
CHSQ	[.000]	[.000]	[.000]	[.000]	[.006]	[.000]	[.000]	[.000]
Heteroscedasticity,	0.46	0.46	0.11	0.21	1.38	0.66	0.10	0.10
F	[.497]	[.497]	[.738]	[.641]	[.244]	[.417]	[.751]	[.750]

Table 33
Poll tax and principal tax farms in 1475 (in thousands of gold ducats)

Entries were drawn from an Italian source which was a copy of an original Ottoman document. The Table shows that, the Ottoman Rumeli, in Inalcik words 'was the center of the Empire'. The total of revenues were 1,769,000 gold ducats, excluding the benefices distributed in Rumeli and Anatolia to the central treasury (timar revenues), if included then is estimated to be around 3,000,000 gold ducats.

Rumeli (Balkans)		Anatolia	
Poll-tax	850.0	Tolls and revenue from salt works, western Anatolia	32
Tolls at Gallipoli and Istanbul	50.0	Tolls and tithes, Alaiye	12
Customs dues, Istanbul	70.0	Old and new Phocaea Poll-tax and alum revenue	20
Customs dues, Gallipoli	9.0	Tolls and customs dues from silk, Bursa	50
Salt works	92.0	Revenue of Kastamonu, in particular copper mines	150
Mints (silver coins)	120.0	Trabzon, Amasra and Samsun custom dues	10
Mints (gold coins)	3.0	Revenue, Caffa	10
Mines	120.0	Revenue, Karaman	35
Poll-tax and salt works, Enez	11.0	Salt works	12
Salt works, Salonica	2.5		
Revenue, Euboea	12.5		
Revenue, Morea	31.5		
Revenue, Avlona	1.5		
Grain tax	20.0		
Revenue, Sofia	1.0		
Revenue, Edirne	12.0		
Gypsies	9.0		
Bathhouses	8.0		
Rice cultivation	15.0		
Total	1,438.0	Total	331

Source: Inalcik (1996 p56) from Babinger (1957)

Table 34
Total revenue of the Empire in the fiscal year 1527-28

Entries represent the earliest official Ottoman balance-sheet available. They demonstrate the financial picture of the Empire as of 20 March 1528.

Revenue Sources	In millions of akca	In millions of gold ducats
Home Provinces, Syria and Egypt, including the imperial hass	277	5
Timars and hass distributed	200	3.7
Vakfs and freehold properties	60	1
Total	537	9.7

Source: Inalcik (1996 p81) from Barkan (1943-54)

Table 35
Estimated Annual Revenues of European States (in thousands of gold ducats)

Entries report the budgets of the some European and neighboring states around sixteenth century. The Table enables to compare state revenues of the Ottoman Empire with those of contemporaneous states.

Italian States and Iran, 1492		Other European States c. 1600	
Naples	1,600	Spain (Castile)	9,000
Venice	1,000	France	5,000
Milan	600	Venice	3,900
Florence	300		
Genoa	100		
Iran	3,000		
Byzantium, early middle ages	7,000-8,000		
Byzantium, early 14 th century	1,000		

Source:Inalcik (1996 p82) from Gregorovious (1891) and Braudel (1972).

Table 36
Exchange rates of European coins expressed in akches, 1584-1731

Entries report akche versus European coins exchange rates during a very unstable period for akche. The exchange rates presented include both the official rates which were applied in many parts of the empire and market rates in Istanbul.

Year	Venetian Ducat	Spanish 8-Real	Dutch Rixdale
1584	60		
1588	120	80	70
1600	125	78	68
1625	120	80	70
1650	175	90	80
1659	190	88	78
1683	300	130	120
1725	375	181	144
1731	385	181	144

Source: Pamuk 1996 (p964)

Table 37
Ottoman Foreign Trade, 1830-1913

Entries report the annual average import and export figures in millions of current pound sterling.

Period	f.o.b exports	c.i.f. imports
1830s	4.2	5.1
1840s	6.0	6.9
1850s	9.8	12.3
1860s	15.4	18.3
1870s	18.6	20.8
1880s	15.5	16.0
1890s	17.7	18.6
1900s	23.0	26.0
1910-13	27.3	38.6

Source:Quataert (1996 p829) from Pamuk (1987)

Table 38
A Summary of the Industrial Count of 1913

Entries report the results of 1913 Industrial Count conducted on business units employing 10 workers or more. Accordingly, 80% of the employment in manufacturing sector was concentrated on textile, food-tobacco, and paper-printing sectors. Out of 239 business units, 22 were owned by state (Tezel 2002).

Subsectors in Manufacturing Industry	Number of the business units	Number of the workers employed in thousands	Distribution of the workers in %	Average number of workers per business units
Textile-clothing	61	7.8	46	132
Food-Tobacco	71	4.3	25	63
Paper-Printing	51	1.9	11	42
Cement-Brick-Earthen products	16	1.0	6	70
Leather processing and Leather products	11	0.9	6	85
Wood processing and wood products	19	0.7	4	37
Chemistry	10	0.4	2	42
Total	239	17.0	100	75

Source:Tezel (2002 p105)

Table 39
Cash Flows resulting from Ottoman Borrowings, 1854-1914

Entries report the yearly averages of cash flows resulting from Ottoman borrowings in terms of pound sterling.

Periods	Net Capital Inflow (1)	Payments of the Principal (2)	Interest Payments (3)	Total Payments (4=2+3)	Net Cash Inflow/Outflow (1-4)
1854-1868	2,049	300	1,027	1,327	722
1869-1875	10,256	1,482	5,442	6,924	3,332
1876-1881	433	61	608	669	(236)
1882-1901	844	662	2,455	3,117	(2,273)
1902-1913	3,347	1,178	3,623	4,801	(1,454)

Source:Pamuk(1994 p65)

Table 40

The composition of the exports and imports, 1911-1913

Entries report the foreign trade composition of Ottoman State. The figures are obtained from statistics of Ottoman Empire's trade partners.

Exported Goods	Share in Total Exports (%)	Imported Goods	Share in Total Imports (%)
Foodstuff	33-35	Foodstuff	31-38
Raw Materials	56-58	Raw Materials and Intermediate Goods	6-10
Intermediate Goods	2-3	Textile products (cotton, woolen, silken)	36-38
Finished Goods	6-7	Capital goods	7-8
		Others	12-10

Source:Pamuk(1994 p168-169)

Table 41
Refugees entering the Ottoman Empire, 1876-1896

Entries report refugees entered the Ottoman Empire according to the official statistics compiled by the Refugee Commission. Accordingly, between 1875-1895 over one million refugees migrated to Ottoman Empire.

	Year	Total People	Total Households
	1876	276,389	69,000
	1877	198,000	49,000
	1878	76,000	19,100
	1879	20,763	5,324
	1880	13,898	3,460
	1881	23,098	3,780
	1882	33941	6,389
	1883	13,748	2,690
	1884	13,522	2,816
	1885	13,365	2,807
	1886	12,084	2,614
	1887	10,107	2,092
	1888	11,753	2,506
	1889	28,451	6,135
	1890	23,220	4,835
	1891	13,778	3,024
	1892	18,437	3,901
	1893	18,778	3,715
	1894	14,040	2,888
	1895	6,643	1,237
	1896	5,846	1,224

Source:Shaw and Shaw (1977 p117)

Table 42
The composition of the Ottoman Population

Entries report the composition of the Ottoman population together with the rate of the Armenian population within the Empire.

Year	Gregorians	Catholics	Protestans	Total Armenians	Total Population	Armenian %
1882	988,887	100,160	36,339	1,125,386	17,375,225	6.47
1895	1,042,374	80,334	44,360	1,167,068	19,050,307	6.12
1906	1,140,563	90,050	53,880	1,280,493	20,947,617	6.10
1914	N/A	N/A	N/A	1,294,831	18,520,016	6.11

Source:Shaw and Shaw (1977 p205)

Table 43
A summary of the Industrial Count of 1921

Entries report the results of Industrial Count performed by the Ankara Government. Given that the period coincided with occupation by Ottoman Empire in line with the Sevres Treaty, the count includes regions controlled by the Ankara government.

Subsectors in Manufacturing Industry	Number of the business units	Distribution of Business Units in %	Workers employed in thousands	Distribution of the workers in %	Average number of workers per business units %
Textile-clothing	20.057	61	35.3	46	2
Leather processing and Leather products	5.347	16	18.0	24	3
Metallic products	3.273	10	8.0	10	2
Wood processing and wood products	2.067	6	6.0	8	3
Food-Tobacco	1.273	4	4.5	6	4
Brick-Earthen products	704	2	3.6	5	5
Chemistry	337	1	0.8	1	2
Total	33.058	100	76.2	100	2

Source:Tezel (2002 p106)

Table 44
The composition of the workforce in the economy, 1923

Entries report the sectoral distribution of the workforce comparatively with some European countries. Data is drawn from Cross National Time Series Data Archive.

	Share of the workforce in		
	Agriculture	Industry	Other Sectors
Turkey	82%	5%	13%
United Kingdom	7%	46%	47%
France	40%	30%	30%
Spain	55%	21%	23%
Portugal	51%	19%	30%
Poland	74%	11%	15%

Table 45
The use of Transportation, Communication and Energy resources, 1923

Entries report the use of transportation, communication means and energy sources comparatively with some European countries. Data is drawn from Cross National Time Series Data Archive.

	Railroad mileage per square miles (scaling:1/10.000)	Energy consumption in kilograms per capita	Telegrams per capita (scaling:1/1.000)	Telephone per capita (scaling:1/100.000)
Turkey	61	51	564	69
United Kingdom	2.163	3.980	1.569	2.463
France	1.222	1.713	1.347	1.451
Spain	497	354	1.028	420
Portugal	566	116	407	299
Poland	687	614	187	244

Table 46
Economic Growth, 1923-1990

Entries report annual average growth rates.

	1923-29	1930-39	1940-45	1946-53	1954-61	1962-76	1977-79	1980-90
GNP	10.3	6.0	-7.2	8.4	4.7	6.3	0.4	5.2
GNP per capita	8.5	3.8	-8.2	6.0	1.8	3.7	-1.7	2.8
Agricultural Output	13	5.1	-9.8	7.0	3.9	3.5	1.2	1.1
Industrial Output including Construction	10.7	9.1	-5.9	9.1	5.9	7.6	-2.6	7.3
Manufacturing Industry	7.7	11.6	-7.0	4.2	7.9	8.3	-1.6	7.3
Service	7.2	5.8	-5.1	9.8	4.7	7.3	1.6	5.7

Source: State Institute of Statistics and Owen and Pamuk (1998, p250)

Table 47
Growth in Infrastructural Investments, 1923-1990

Entries report annual average growth of infrastructural investments.

	1923-29	1930-39	1940-45	1946-53	1954-61	1962-76	1977-79	1980-90
Length of Railways (km)	5.3	3.0	0.5	0.2	0.3	0.2	0.0	0.3
Installed Capacity of electric power plants	14.0	12	2.1	16.5	12.5	8.0	2.7	11.1
Coal Production	8.5	4.2	3.5	3.0	1.4	1.5	-2.1	-1.4
Iron Production	NA	NA	-0.8	20.4	3.4	10.5	-17.4	6.1

Source:State Institute of Statistics

Table 48
Foreign Trade Ratios

Entries report shares of exports and imports within GNP.

	1923	1929	1939	1945	1953	1961	1976	1979	1990
Share of Exports in GNP (%)	8.9	7.2	6.3	4.0	7.1	6.3	3.7	2.8	8.6
Share of Imports in GNP (%)	15.2	11.8	5.9	2.3	9.6	9.3	9.6	6.2	14.8
Exports/imports	58.5	60.6	107.7	173.5	74.4	68.4	38.2	44.6	58.1

Source:State Institute of Statistics

Table 49
Composition of the Exports

Entries report the share of different sectors in exports.

	1963	1976	1979	1990
Agriculture	77.2	63.5	58.1	17.4
Mining	3.0	5.6	5.9	2.5
Industry	19.8	30.9	38.0	80.1

Source: State Institute of Statistics
Note:Starting year is in line with data availability.

Table 50
Composition of the Imports

Entries report the share of different sectors in imports.

	1938	1947	1953	1961	1976	1979	1990
Investment	40.8	32.2	52.1	44.9	22.4	14.9	18.1
Consumption	25.8	29.0	19.7	9.9	8.1	6.5	9.4
Raw Material	33.3	38.8	28.2	45.3	69.5	78.6	72.4

Source:State Institute of Statistics
Note:Starting year is in line with data availability.

Table 51
The Sectoral Distribution of the Investments 1933-1940

Entries report the composition of fixed investments between the years 1993 and 1940. As the Table makes evident, despite the legislation for the encouragement of the industry (1927-1929), private sector was not interested in industrial investments (Altiparmak 2002).

Sectors	State Investments (million TL)	State Investments %	Private Sector Investments (million TL)	Private Sector Investments %	Total Investments (million TL)	Total Investments %
Industrial Inv.	154.4	29.2	58.4	11.2	212.8	20.2
Railway Investments	147.5	27.9	-	-	147.5	14
Highways and other Infrastr. Inv.	132.4	25.0	-	-	132.4	12.6
Local Gov. Inv.	94.4	17.9	-	-	94.4	9.0
Agricultural Inv.	-	-	104	19.9	104	9.9
Residence Inv.	-	-	240	45.9	240	22.8
Inv. on Services.	-	-	120	23	120	11.4
Total	528.7	100	522.4	100	1051.1	100

Source: Altiparmak (2002) from Sahin(1997)

Table 52
GDP per capita, Turkey vs Other Mediterranean Countries

Entries report annual average GDP per capita of Turkey comparatively with those of other Mediterranean countries.

	1900-9	1910-22	1923-29	1930-39	1940-45	1946-53	1954-61	1962-76	1977-79	1980-89
Turkey	NA	NA	974	1,454	1,432	1,690	2,164	3,076	4,199	4,541
France	2,927	3,174	4,235	4,323	3,031	4,950	6,914	11,099	14,589	16,072
Italy	2,030	2,738	2,903	3,098	2,955	3,406	5,301	9,178	12,151	14,174
Spain	1,862	2,073	2,487	2,283	2,133	2,297	3,026	6,136	8,975	9,960
Greece	1,351	1,824	2,166	2,451	1,509	1,894	2,872	5,852	8,618	9,270
Portugal	1,253	1,245	1,495	1,681	1,762	2,102	2,704	5,213	7,413	8,715
Egypt	NA	NA	NA	NA	NA	902	943	1,248	1,847	2,351

Source:www.ggdc.net/maddison/Historical_Statistics/horizontal-file_03-2007.xls

Table 53
ADF Unit Roots Tests with S-Term Rates

Entries report the results of Augmented Dickey-Fuller (ADF) tests. ADF tests are based on Equation 4.3 (as discussed in the Section 4.2 Data and Methodology). The null hypothesis is that series examined are non-stationary. The reported values are the relevant t statistics. MacKinnon (1996) critical values for the rejection of the null hypothesis at 1 percent, 5 percent and 10 percent are -3.45, -2.87 and -2.57 respectively when tests are performed with a constant. MacKinnon critical values for the rejection of the null hypothesis at 1 percent, 5 percent and 10 percent are -3.99, -3.42 and -3.13 respectively when tests are performed with a constant and linear trend.

	Truncation lags			
	1	2	3	4
With Constant				
Levels				
Turkey	-2.52	-2.23	-2.48	-2.15
Poland	-2.52	-2.65	-2.63	-2.13
Europe	-1.00	-1.11	-1.22	-1.33
United States	-1.42	-1.53	-2.01	-1.96
First Differences				
Turkey	-12.49	-8.88	-8.75	-8.76
Poland	-7.83	-5.49	-4.33	-3.94
Europe	-8.78	-7.23	-5.98	-5.02
United States	-7.05	-4.86	-4.72	-4.46
With Constant and Trend				
Levels				
Turkey	-2.91	-2.65	-2.89	-2.60
Poland	-2.27	-2.81	-3.43	-3.37
Europe	-1.98	-2.11	-2.40	-2.56
United States	-1.46	-1.68	-2.36	-2.33
First Differences				
Turkey	-12.52	-8.92	-8.80	-8.84
Poland	-8.11	-5.78	-4.51	-4.13
Europe	-8.80	-7.28	-6.03	-5.07
United States	-7.05	-4.87	-4.73	-4.47

Table 54
SUR-based Block Exogeneity Wald Tests, Turkey, S-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. TR, Euro and US stand for short term rates of Turkey , Europe and United States respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR short-term rates				
Europe	0.06	0.05	0.04	0.04
United States	0.09	0.09	0.02	0.03
Dependent variable: Euro short-term rates				
Turkey	0.50	0.44	0.52	0.42
United States	0.20	0.28	0.02	0.03
Dependent variable: US short-term rates				
Turkey	0.57	0.43	0.46	0.39
Europe	0.52	0.40	0.28	0.24

Table 55
VEC based Granger Causality/Block Exogeneity Wald Tests, Turkey S-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. TR, Euro and US stand for short term rates of Turkey, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The test statistics is obtained as (T - C)(log $|\Sigma_r|$ - log $|\Sigma_u|$) where T refers to the sample, C is the maximum number of regressors in the model, Σ_r and Σ_u are the residual variance/covariance matrix of restricted and unrestricted models. The test statistics has χ^2 distribution with degrees of freedom $2p$ with p being the number of parameters restricted to be zero.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR short-term rates				
Europe	0.03(8.62)	0.04(8.40)	0.04(8.16)	0.05(7.98)
United States	0.14(5.51)	0.08(6.58)	0.18(4.92)	0.17(4.97)
Dependent variable: Euro short-term rates				
Turkey	0.52(2.22)	0.51(2.28)	0.56(2.04)	0.56(2.03)
United States	0.18(4.86)	0.27(3.87)	0.01(11.03)	0.02(9.57)
Dependent variable: US short-term rates				
Turkey	0.59(1.93)	0.45(2.61)	0.49(2.93)	0.43(2.76)
Europe	0.49(2.42)	0.42(2.80)	0.26(4.04)	0.24(4.18)

Table 56
ADF Unit Roots Tests with L-Term Rates

Entries report the results of Augmented Dickey-Fuller (ADF) tests. ADF tests are based on Equation 4.3 (as discussed in the Section 4.2 Data and Methodology). The null hypothesis is that series examined are non-stationary. The reported values are the relevant t statistics. MacKinnon (1996) critical values for the rejection of the null hypothesis at 1 percent, 5 percent and 10 percent are -3.45, -2.87 and -2.57 respectively when tests are performed with a constant. MacKinnon critical values for the rejection of the null hypothesis at 1 percent, 5 percent and 10 percent are -3.99, -3.42 and -3.13 respectively when tests are performed with a constant and linear trend.

	Truncation lags			
	1	2	3	4
With Constant				
Levels				
Turkey	-1.38	-1.42	-1.38	-1.14
Poland	-0.19	-0.22	-0.51	-0.31
Europe	-1.01	-0.96	-1.17	-1.12
United States	-1.69	-1.43	-1.77	-1.71
First Differences				
Turkey	-9.04	-7.93	-7.89	-7.02
Poland	-6.07	-3.96	-4.71	-4.40
Europe	-9.39	-6.98	-6.51	-6.69
United States	-10.06	-7.56	-7.57	-7.03
With Constant and Trend				
Levels				
Turkey	-2.15	-2.19	-2.17	-1.99
Poland	-2.43	-2.41	-2.94	-2.39
Europe	-2.74	-2.79	-3.14	-3.21
United States	-2.82	-2.45	-2.56	-2.24
First Differences				
Turkey	-9.09	-8.00	-7.99	-7.13
Poland	-6.06	-3.94	-4.69	-4.38
Europe	-9.42	-7.01	-6.55	-6.72
United States	-10.03	-7.55	-7.56	-7.02

Table 57
SUR-based Block Exogeneity Wald Tests, Turkey, L-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. TR, Euro and US stand for long-term rates of Turkey, Europe and United States respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR long-term rates				
Europe	0.03	0.03	0.09	0.28
United States	0.08	0.15	0.22	0.26
Dependent variable: Euro long-term rates				
Turkey	0.50	0.40	0.38	0.49
United States	0.02	0.15	0.26	0.29
Dependent variable: US long-term rates				
Turkey	0.61	0.76	0.78	0.86
Europe	0.52	0.74	0.71	0.69

Table 58
VAR/VEC based Granger Causality/Block Exogeneity Wald Tests, Turkey, L-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. TR, Euro and US long-term rates stand for long-term rates of Turkey, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)[$(\tilde{u}'\tilde{u} - u'u)/q$] /[$(u'u)/(T-k)$] where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR long-term rates				
Europe	0.03(8.50)	0.06(7.43)	0.11(4.39)	0.25(4.13)
United States	0.18(4.85)	0.22(4.36)	0.22(3.02)	0.26(4.03)
Dependent variable: Euro long-term rates				
Turkey	0.39(2.96)	0.28(3.77)	0.30(2.34)	0.45(2.64)
United States	0.01(10.74)	0.16(5.15)	0.26(2.67)	0.29(3.74)
Dependent variable: US long-term rates				
Turkey	0.68(1.49)	0.93(0.43)	0.97(0.05)	0.99(0.07)
Europe	0.35(3.28)	0.94(0.36)	0.77(0.54)	0.81(0.98)

Table 59
SUR-based Block Exogeneity Wald Tests, Poland, S-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. Pol, Euro and US stand for short term rates of Poland, Europe and United States respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol short-term rates				
Europe	0.31	0.21	0.11	0.09
United States	0.45	0.29	0.11	0.11
Dependent variable: Euro short-term rates				
Poland	0.04	0.02	0.64	0.67
United States	0.51	0.38	0.18	0.17
Dependent variable: US short-term rates				
Poland	0.01	0.00	0.78	0.78
Europe	0.00	0.00	0.00	0.00

Table 60
VAR/VEC based Granger Causality, Poland S-term

Entries report the results of Granger causality tests. The null hypothesis is that X does not Granger cause Y. Pol, Euro and US stand for short-term rates of Poland, Europe and United States respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)$[(\tilde{u}'\tilde{u} - u'u)/q]$ /$[(u'u)/(T-k)]$ where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol short-term rates				
Europe	0.58(3.18)	0.49(3.44)	0.44(1.64)	0.41(1.76)
United States	0.49(4.40)	0.29(4.95)	0.10(4.60)	0.11(4.48)
Dependent variable: Euro short-term rates				
Poland	0.05(10.85)	0.01(11.82)	0.60(0.99)	0.68(0.76)
United States	0.51(4.28)	0.47(3.51)	0.17(3.49)	0.18(3.47)
Dependent variable: US short-term rates				
Poland	0.00(18.15)	0.04(10.18)	0.71(0.67)	0.60(1.01)
Europe	0.00(18.97)	0.00(17.56)	0.00(9.95)	0.00(11.72)

Table 61
SUR-based Block Exogeneity Wald Tests, Poland, L-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. Pol, Euro and US stand for long-term rates of Poland, Europe and United States respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol long-term rates				
Europe	0.33	0.25	0.28	0.39
United States	0.29	0.22	0.27	0.58
Dependent variable: Euro long-term rates				
Poland	0.01	0.02	0.00	0.22
United States	0.03	0.02	0.00	0.68
Dependent variable: US long-term rates				
Poland	0.01	0.02	0.00	0.38
Europe	0.00	0.00	0.00	0.24

Table 62
VAR/VEC based Granger Causality/Block Exogeneity Wald Tests, Poland L-term

Entries report the results of Granger causality tests. The null hypothesis is that X does not Granger cause Y. Pol, Euro and US stand for long-term rates of Poland, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)$[(\tilde{u}'\tilde{u} - u'u)/q]$ /$[(u'u)/(T-k)]$ where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol long-term rates				
Europe	0.60(0.28)	0.75(0.10)	0.37(0.82)	0.25(1.30)
United States	0.15(2.05)	0.11(2.60)	0.12(2.35)	0.51(0.42)
Dependent variable: Euro long-term rates				
Poland	0.00(8.85)	0.01(6.38)	0.00 (13.84)	0.21(1.54)
United States	0.01(6.27)	0.01(6.90)	0.00(9.92)	0.93(0.00)
Dependent variable: US long-term rates				
Poland	0.00(7.17)	0.01(5.75)	0.00(8.84)	0.38(0.77)
Europe	0.00(20.22)	0.00(18.99)	0.00(21.62)	0.17(1.82)

Table 63
Summary of the Test Results

Entries report the summary of SUR-based Block Exogeneity Wald test results in terms of European Asymmetry and International Asymmetry. The summary of test results include both short-term and long-term interest rates. Checkmarks placed under European Asymmetry imply that there exist a unidirectional causality from European rates to Turkish/Polish rates and that causality is checked for robustness. Checkmarks placed under International Asymmetry imply that the shocks originating in the rest of the world affect Turkish/Polish monetary policies only through European financial markets and that causality is checked for robustness. The existence of both kind of asymmetries implies the validity European Dominance Hypothesis.

	Eur-Asym in S-Rates	Int-Asym in S-Rates	Eur-Asym in L-Rates	Int-Asym in L-Rates
Turkish Rates	✓	X	X	X
Polish Rates	X	X	X	X

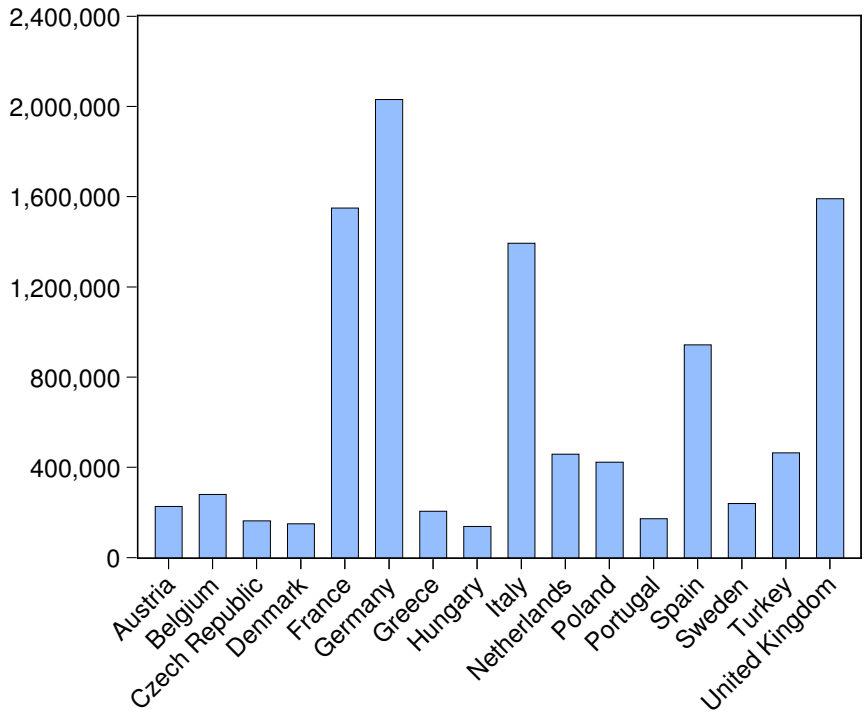

Figure 1: PPP adjusted GDPs, Turkey vs EU's biggest 15 economies, 2004

The graph plots the Purchasing Power Parity adjusted GDP euro amounts for the year 2004. Figures were obtained from Eurostat database.

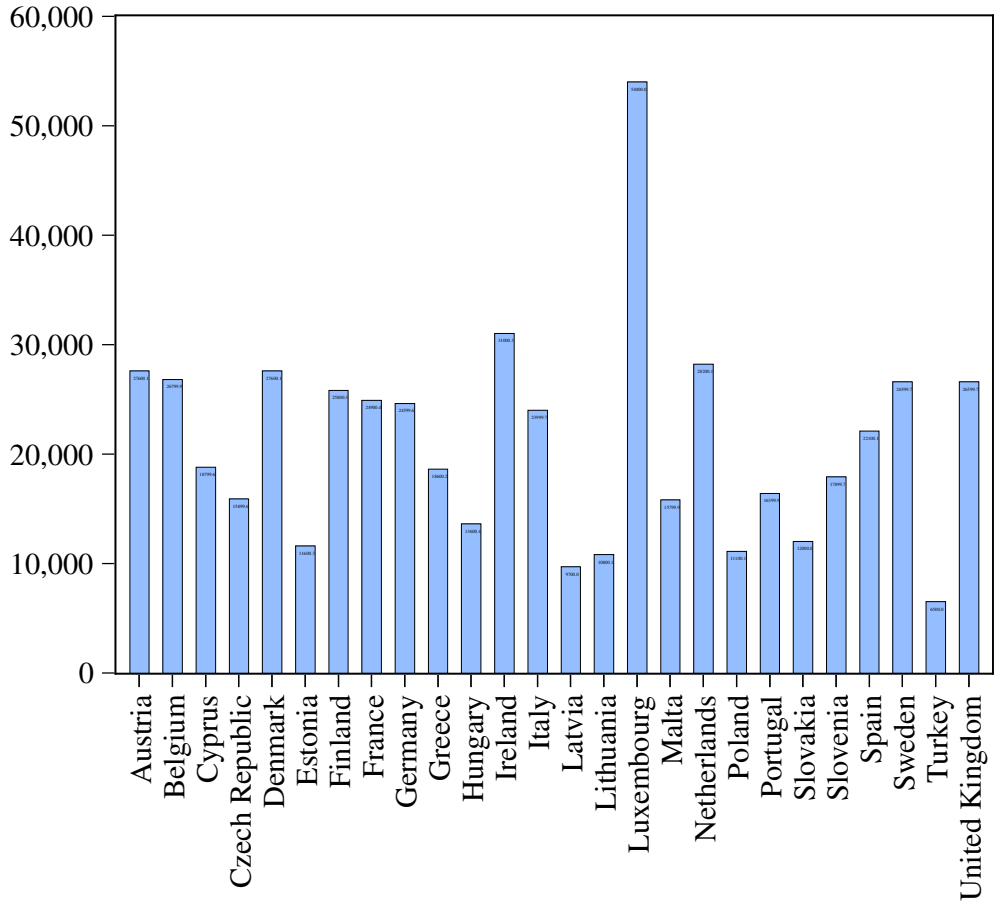

Figure 2: Income per Capita, EU 25 vs Turkey, 2004.

The graph plots the Purchasing Power Parity adjusted GDP per capita euro amounts for the year 2004. Figures were obtained from Eurostat database.

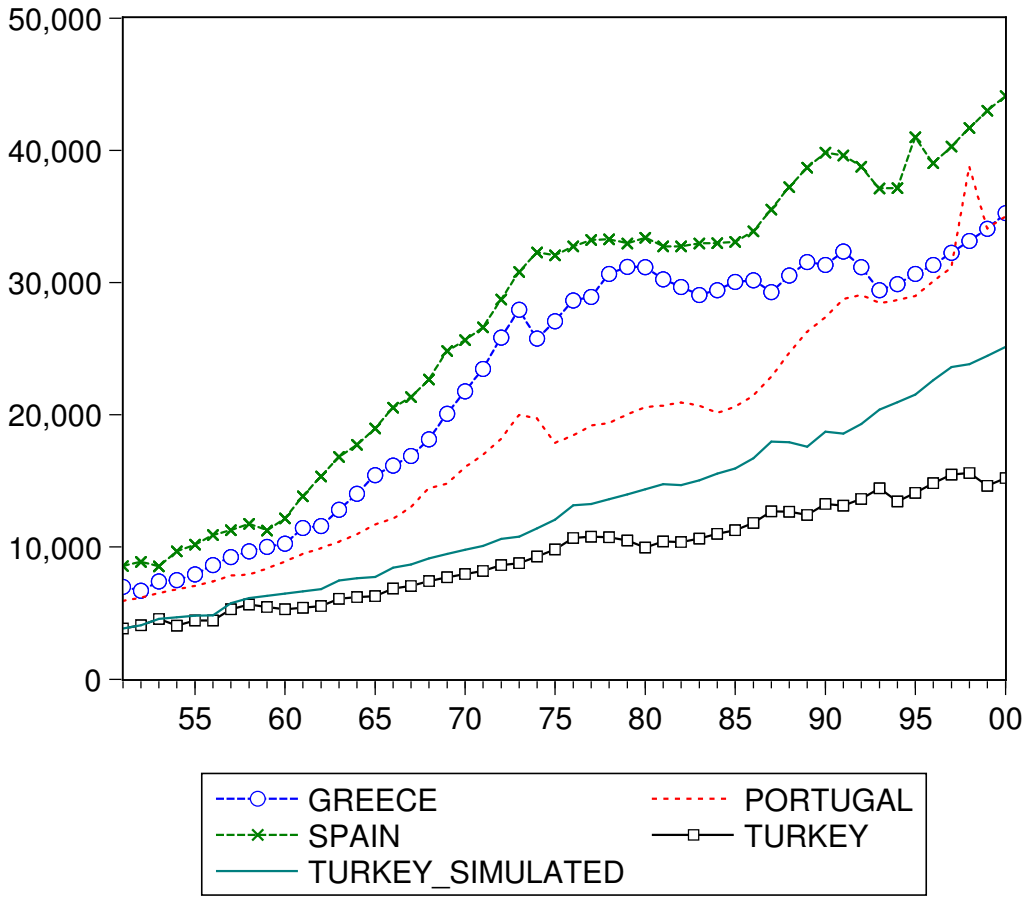

Figure 3: 'The Divergence, Big Time', The Comparative Growth Rates of GDP per worker

The graph plots workers per capita figures in US dollars chained in 1996 constant prices. In order to calculate the simulated line, first, the five crises (1952, 1958, 1978-79, 1994 and 1999) are considered to be absent. For those crisis years, negative growth rate is replaced with the average growth rate of the last 50 years. Then, the compensatory growth rate of the year after the crisis (the growth rate of the year following the crisis), is replaced with the average growth rate since the year following the crisis the growth rates were usually higher than average growth rates.

Given that the data span and units are limited with the data availability; GDP per worker series are used in the above graph since they are the oldest available data series for the countries under analysis. Source: Penn world tables

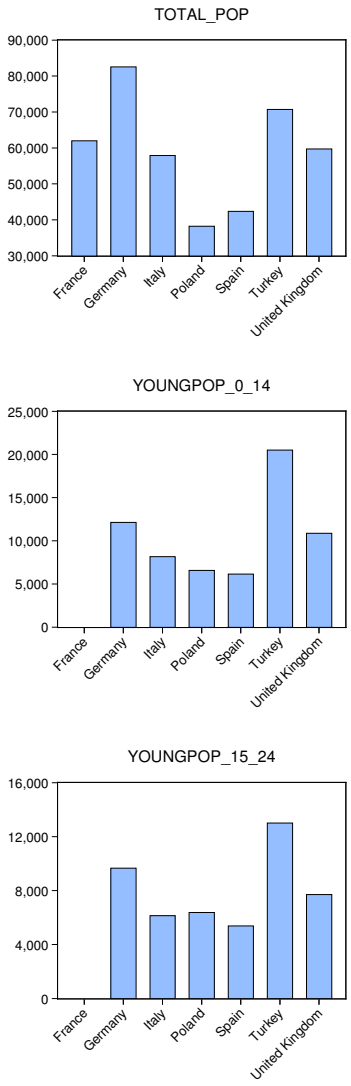

Figure 4: The Size and Youth Share of the Population, 2004

The graph compares the population size and structure of EU's most populated 5 countries with that of Turkey. The top panel plots total populations. The middle panel plots the size of the population aged between 0-14. The bottom panel plots the size of population aged between 15-24. Figures were obtained from Eurostat database.

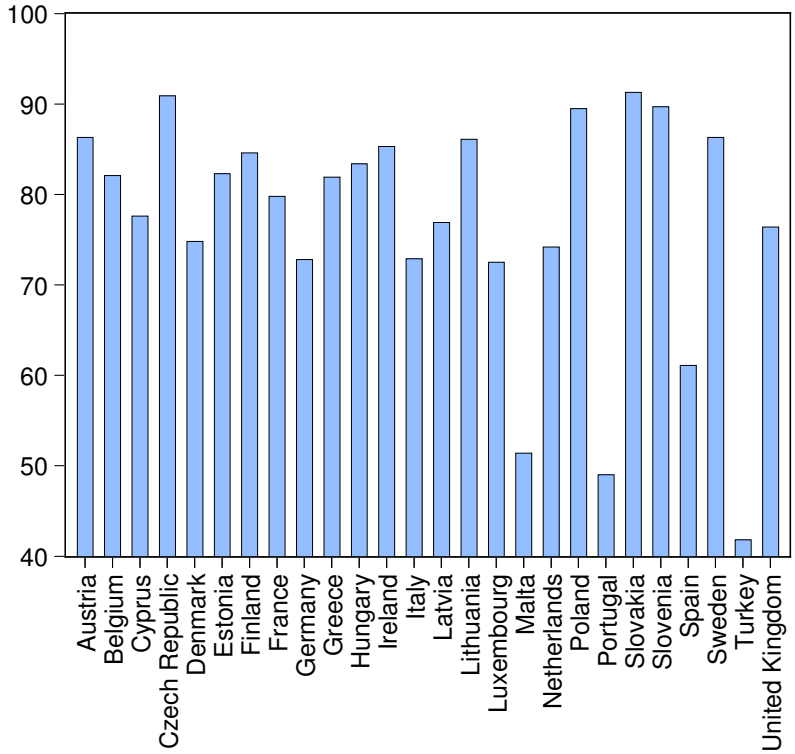

Figure 5: Youth education attainment level, 2004

The graph plots the 'youth education attainment level' defined as percentage of the population aged 20 to 24 having completed at least upper secondary education. The denominator consists of the total population of the same age group, excluding no answers to the questions "highest level of education or training attained". Both the numerators and the denominators come from the EU Labour Force Survey (LFS). The figures and relevant explanations were obtained from Eurostat database.

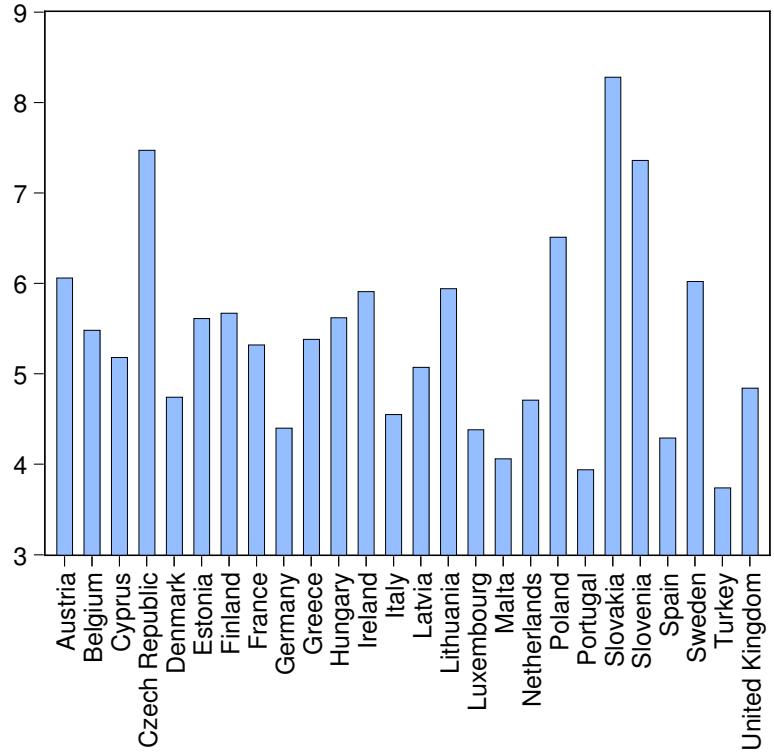

Figure 6: Spending on Human Resources, 2003

The graph plots the share of the total public expenditure on education as a percentage of GDP. Generally the public sector funds the education either by bearing directly the current and capital expenses of educational institutions (direct expenditure for educational institutions) or by supporting students and their families with scholarships and public loans as well as by transferring public subsidies for educational activities to private firms or non-profit organisations (transfers to private households and firms). Both types of transaction together are reported as total public expenditure on education. The figures and relevant explanations were obtained from Eurostat database.

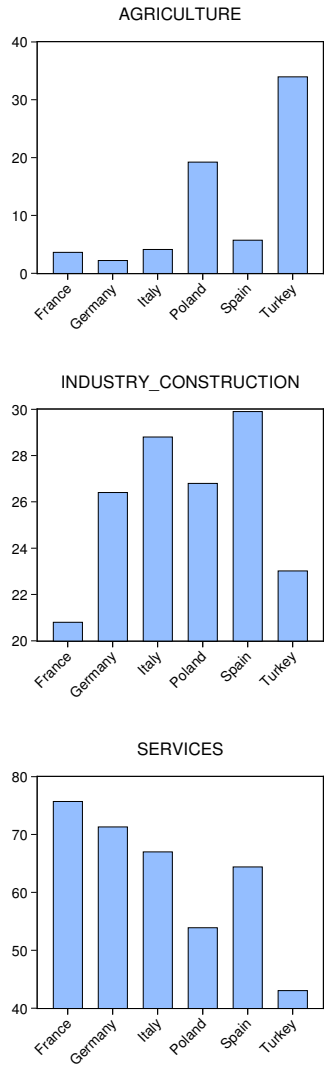

Figure 7: Employment by Branches, 2004

The graph plots the percentages of employment by branches of EU's most populated 5 countries and of those of Turkey. Top panel plots the share of the employment in the agriculture sector within the total employment. The middle panel plots the total share share of employment in industry and construction sector within the total employment. The bottom panel plots the share of the employment in services within the total employement. The employment in the service sector includes the employment in trade, transportation, financial services, business activities, defence and public administration. Figures were obtained from Eurostat database.

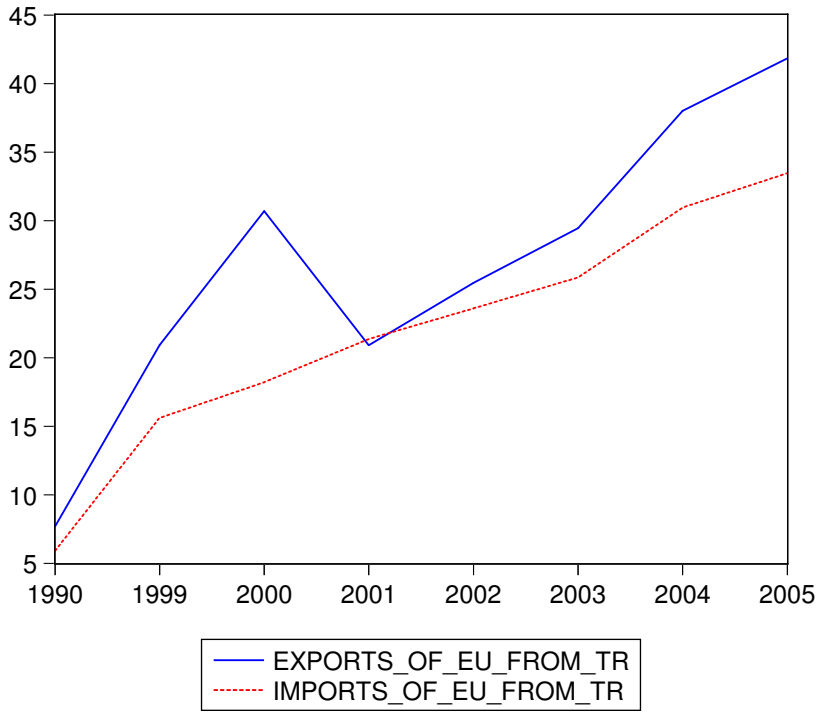

Figure 8: Trade between EU and Turkey

The graph plots the exports and imports from Turkey in millions of euros for the year 2004. Figures were obtained from External and intra-European Union trade, Statistical yearbook, 2004 Edition and Eurostat database.

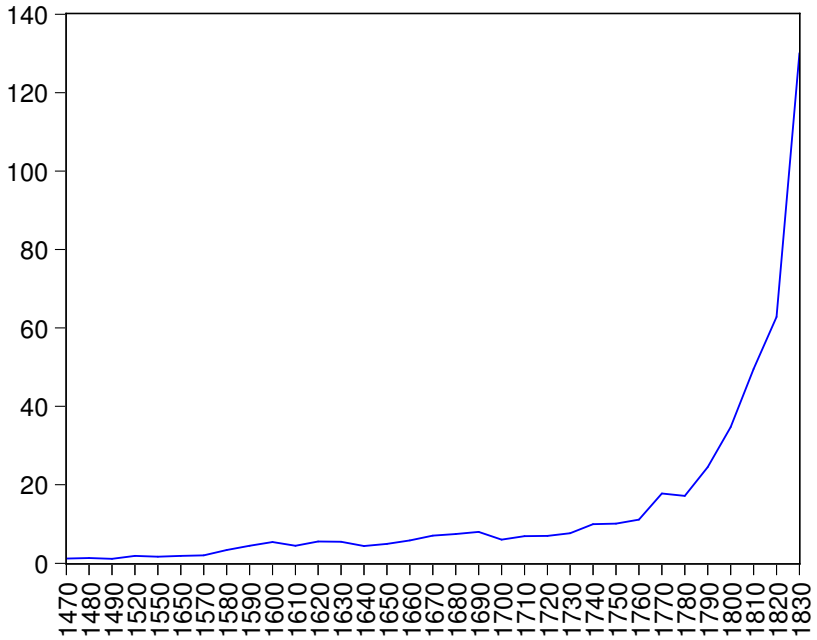

Figure 9: Consumer Price Index, 1600-1800

The graph plots consumer price index series during the seventeenth and eighteenth centuries. The data consists of standard commodities (food and non-food items) collected form more than 6,000 account books and price lists for Istanbul and, to a lesser extent, for other leading cities of the Ottoman Empire from the fifteenth to the twentieth century. Souce: Pamuk 2004b.

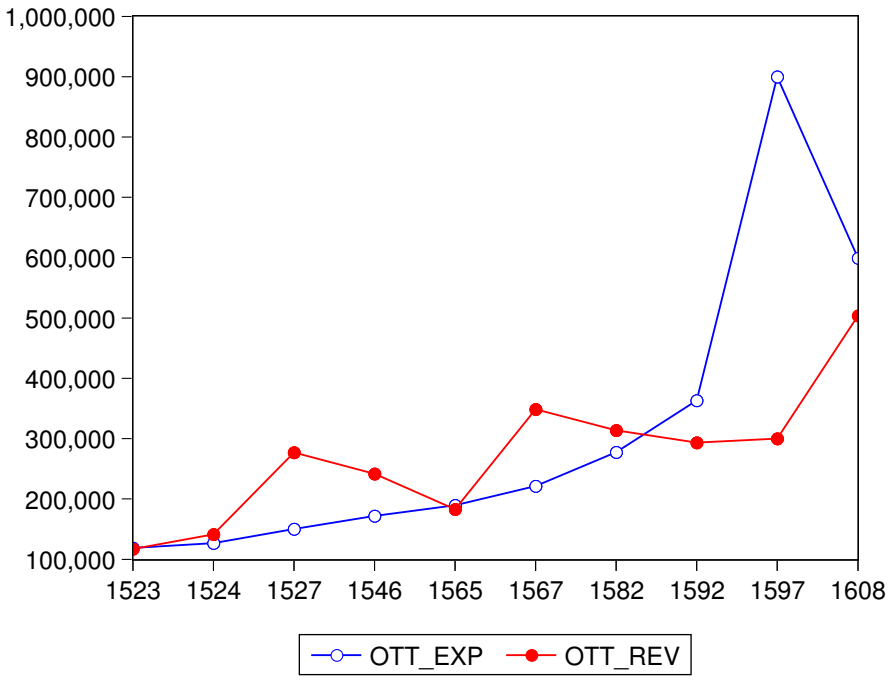

Figure 10: Deficits in the Ottoman Budget during 1523-1608

The graph plots the revenues and expenses in Ottoman Budgets in terms of thousands of akches during long and costly wars. Specifically, the war with Iran occurred during the years 1578-90 and 1603-1639 and war with Habsburgs took place during the years 1593-1606. The graph does not include Timar revenues. Source: Tabakoglu (1985) in Inalcik (1996 p99).

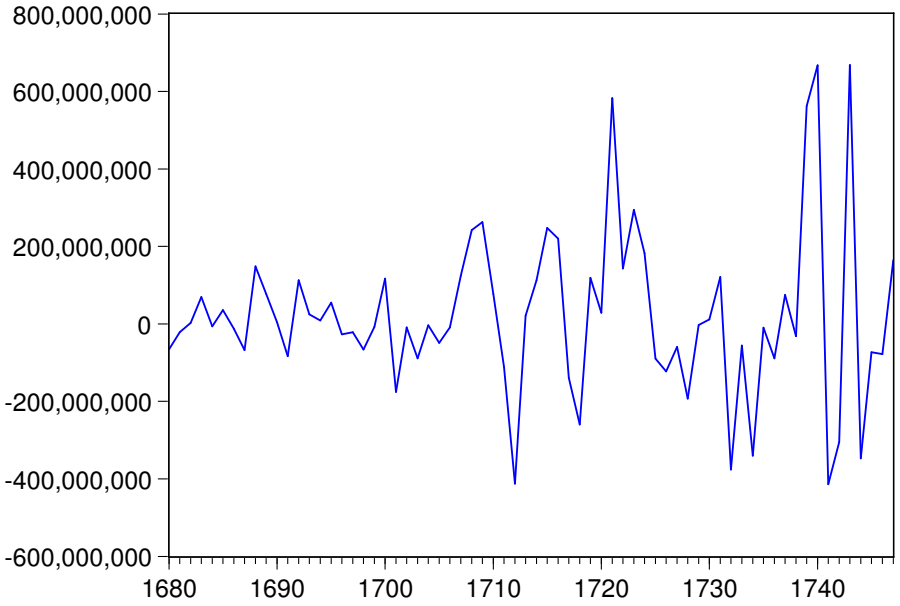

Figure 11: Deficits in the Ottoman Budget during 1680-1747

The graph plots the Ottoman deficits in terms of akches. The basic sources are Ottoman budget documents, *ruzname*s. The original data is gathered from Tabakoglu (1985). Deficits increase during wars with Habsburgs (1683-1699), wars with Russia (1711-1713),wars with Austria (1716-1718), wars with Iran (1723-46), wars with Russia and Austria (1736-1739). Source: Berument and Oguz (2004).

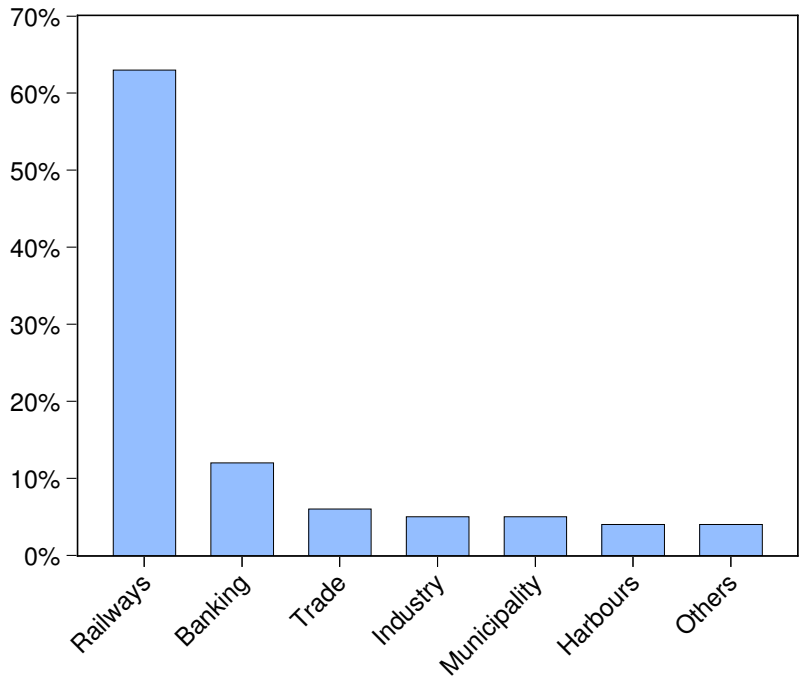

Figure 12: Sectoral Composition of the Foreign Capital, 1914

The graph plots the distribution of the foreign capital in terms of the main sectors in the economy. The amounts reflect the total of paid-in-capitals and bonds. Source: Pamuk(1994 p75)

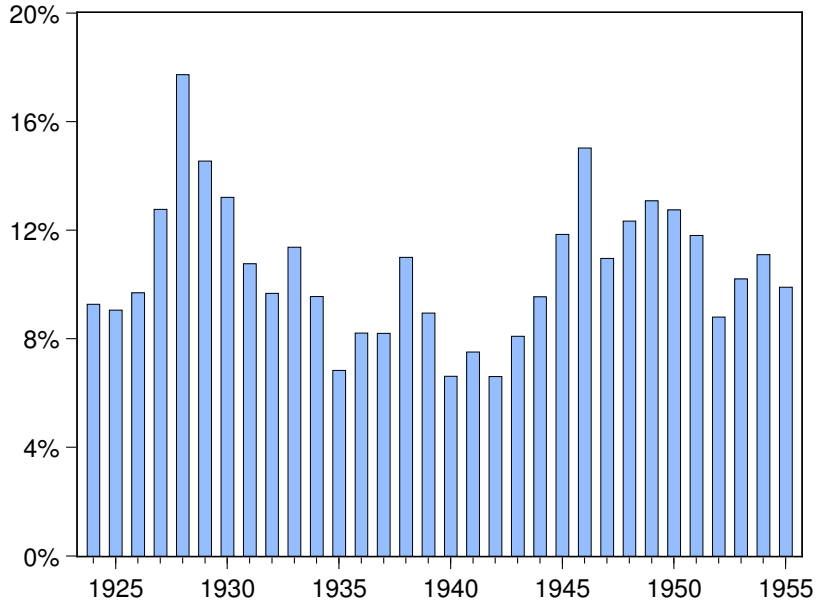

Figure 13: The Rate of Education Expenditures to State Budget

The graph plots the rate of education expenditures within the state budget. The education expenditures until early 1950s were met from two different sources: the State budget and the budgets of provincial administrations. Therefore, the rate of education expenditures to state budget until 1950s includes both the related state expenditures and the expenditures made by local provincial administrations. The relevant data is drawn from Karakutuk (2001). $http://yayim.meb.gov.tr/dergiler/149/karakutuk.htm$

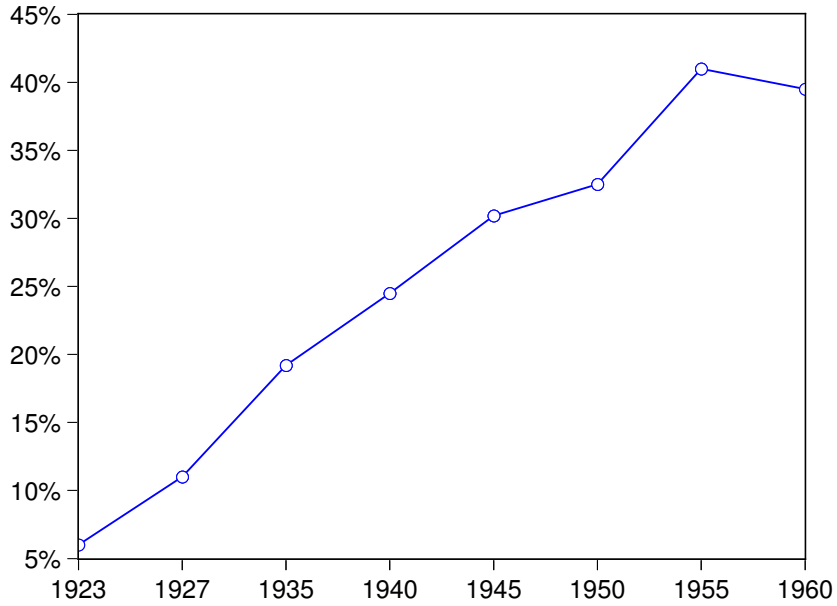

Figure 14: The Literacy Rate, 1923-55

The graph plots the total literacy rate of population over 6 years of age. The data is drawn from the State Institute of Statistics ($http://www.die.gov.tr/tkba/English\_TKBA/istatistikler3.htm$).

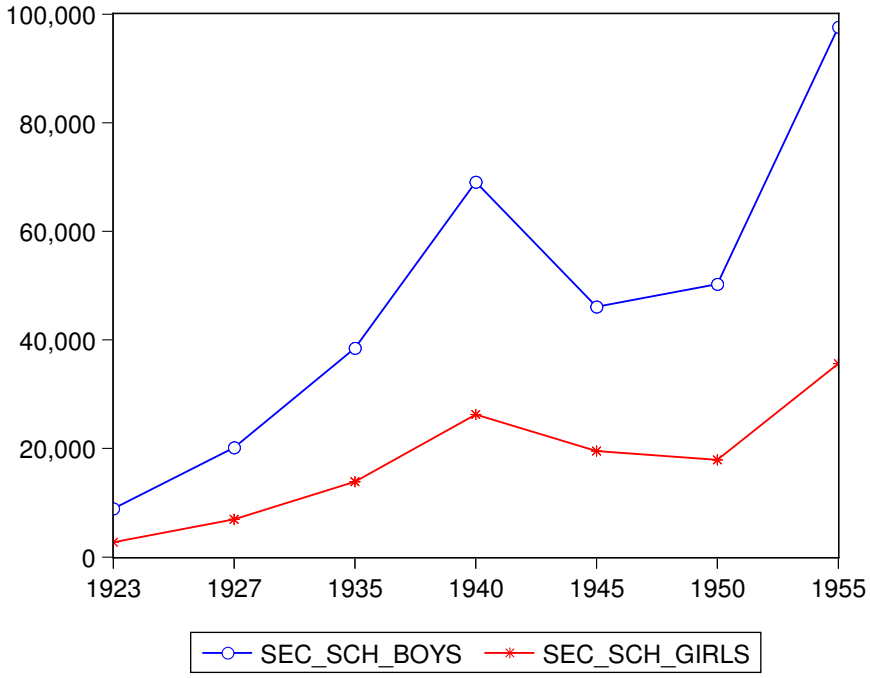

Figure 15: The number of secondary enrollment, 1923-1956

The graph plots the number of enrollments in secondary enrollment for boys and girls separately. The data is drawn from the State Institute of Statistics. (*http* : *//www.die.gov.tr/tkba/English_TKBA/istatistikler*3.*htm*).

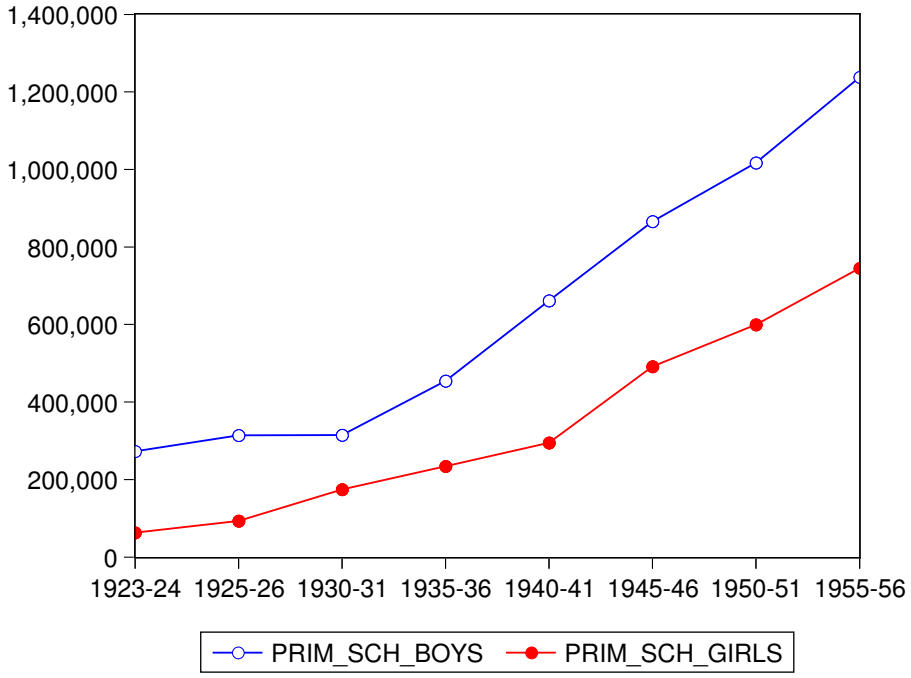

Figure 16: The number of primary enrollment, 1923-1956

The graph plots the number of enrollments in primary enrollment for boys and girls separately. The data is drawn from the State Institute of Statistics. (*http* : *//www.die.gov.tr/tkba/English_TKBA/istatistikler3.htm*).

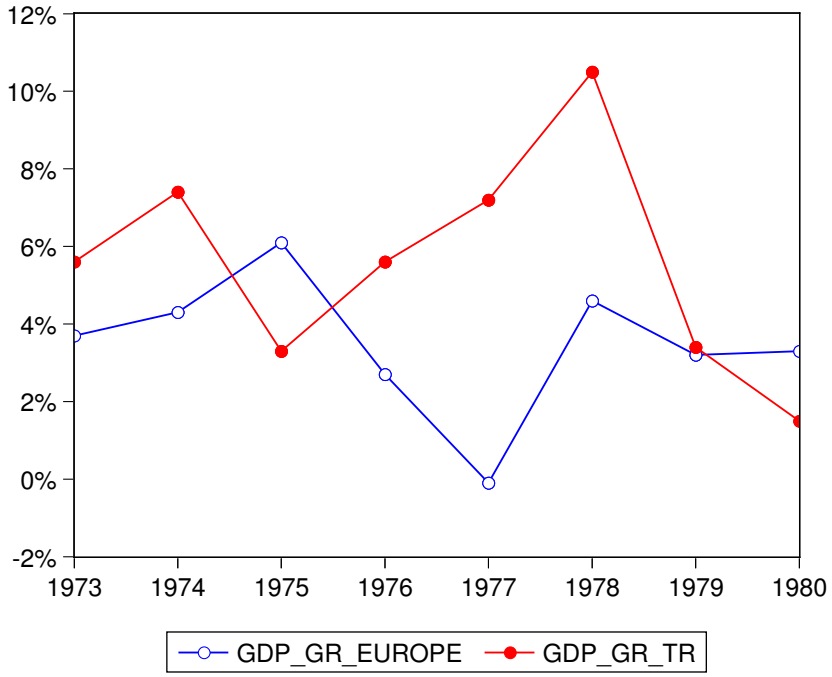

Figure 17: Economic Growth in Turkey versus Europe

The graph plots the GDP growth rates of Turkey comparatively with that of Europe during the oil crisis. Data is drawn from UN database. $http://data.un.org/Data.aspx?d=SNAAMA\&f=grID:102;currID:USD;itID:15\#SNAAMA$

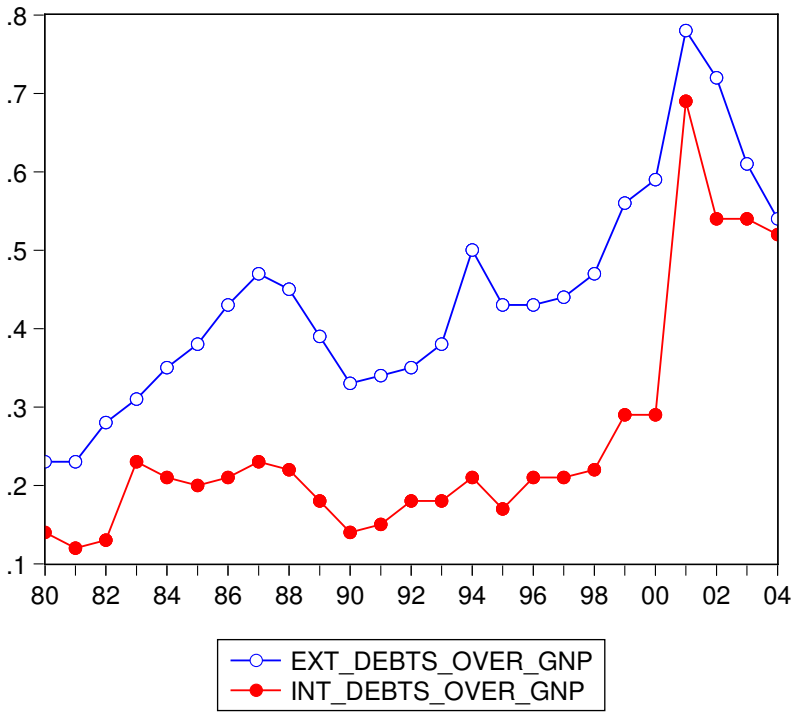

Figure 18: Total Debt stock over GNP

The graph plots the internal debt stock and total external debt stock over GNP. Figures are drawn from State Institute of Statistics.

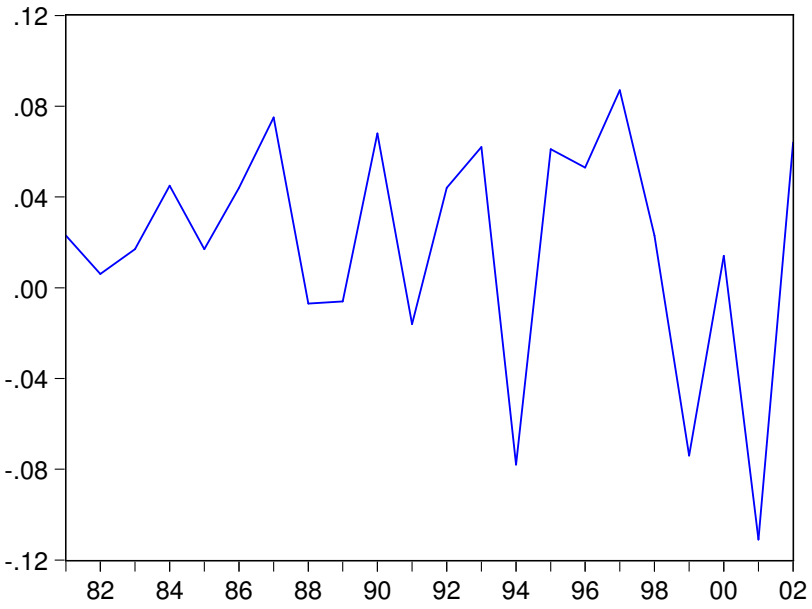

Figure 19: GNP per capita Growth Rates,1981-2004

The graph plots the GNP per capita growth rates before and after capital account liberalization. Figures are drawn from the State Institute of Statistics.

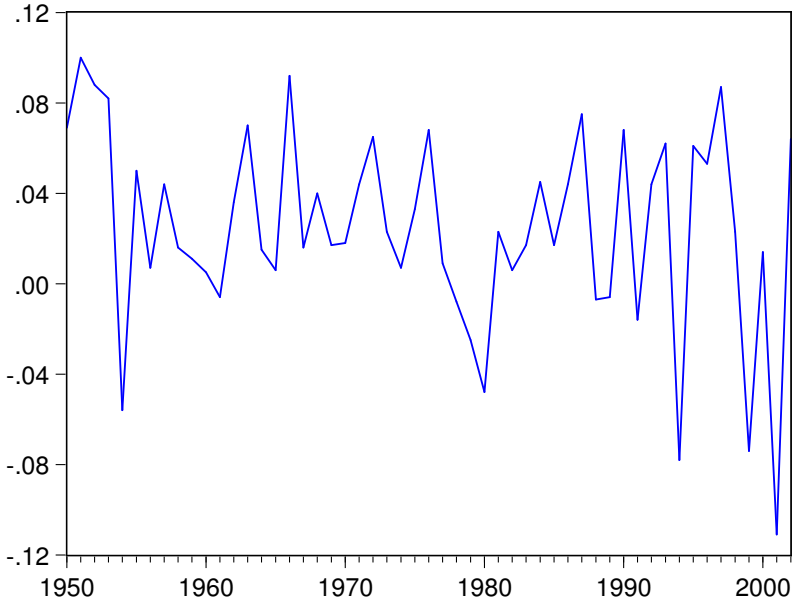

Figure 20: GNP per capita growth rates (After the WWII)

The graph plots the GNP per capita growth after WWII. The erratic pattern of growth rates are especially salient after late 1980s. Figures are drawn from the State Institute of Statistics.

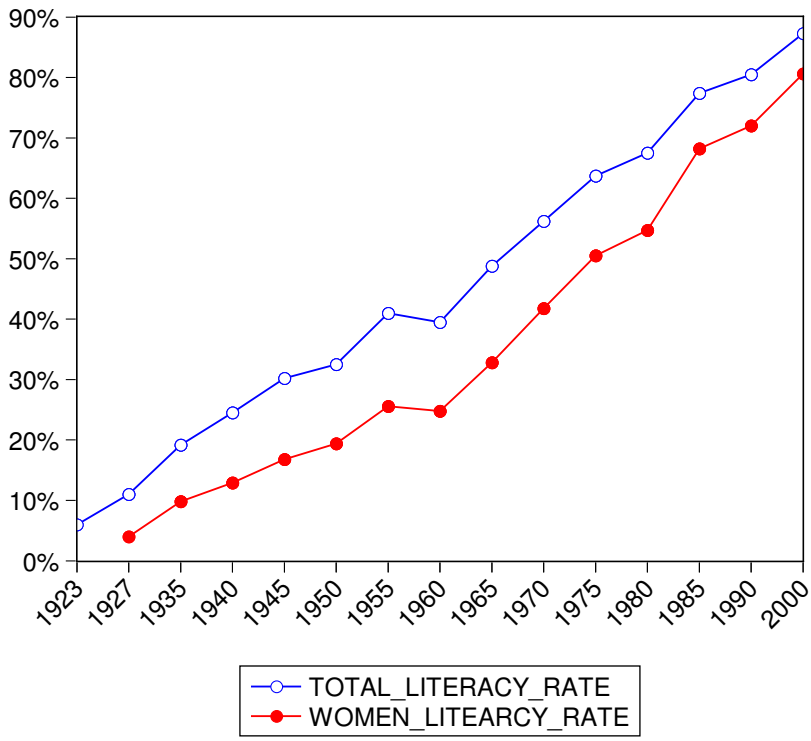

Figure 21: Literacy Rates, Total and Women only, 1923-2000

The graph plots the total literacy rates and the literacy rates for women. The data for 1935-2000 is drawn from $http://www.die.gov.tr/tkba/English\_TKBA/istatistikler3.htm.$, the data for 1923 and 1927 are drawn from Aydogan(2005 p100) and $http://yayim.meb.gov.tr/dergiler/159/sami.htm$ respectively.

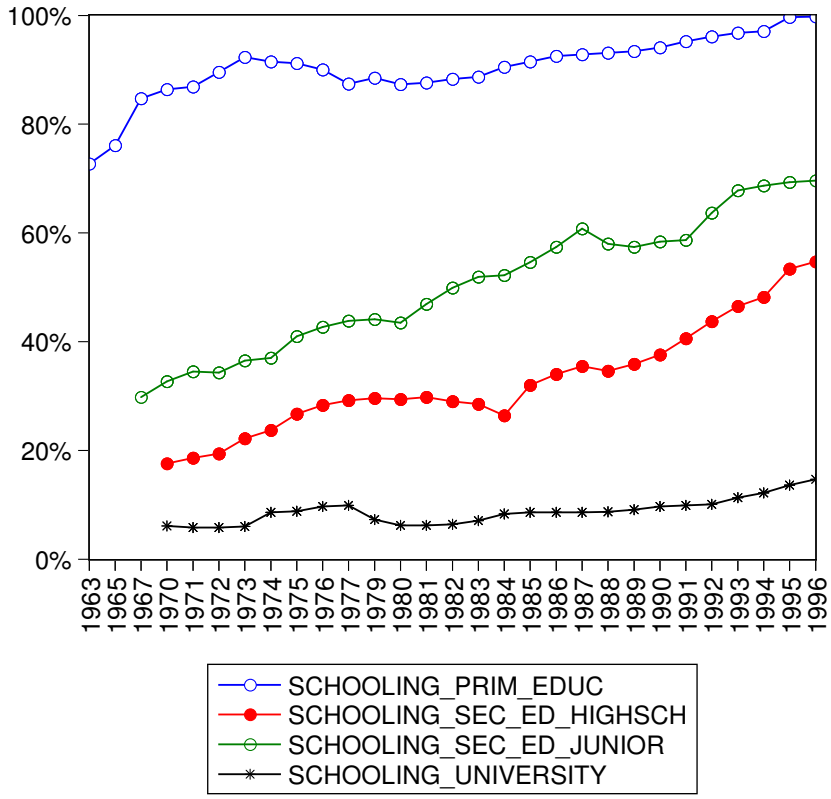

Figure 22: Schooling Rates, 1963-1996

The graph plots the schooling in primary education, secondary education(junior high school and high school separately) and schooling in university education. Data is drawn from Ministry of Education, from $http://www.meb.gov.tr/Stats/ist97/MYHTML13.htm$ and from Bircan (1979) $http://ekutup.dpt.gov.tr/egitim/bircani/temel.pdf$

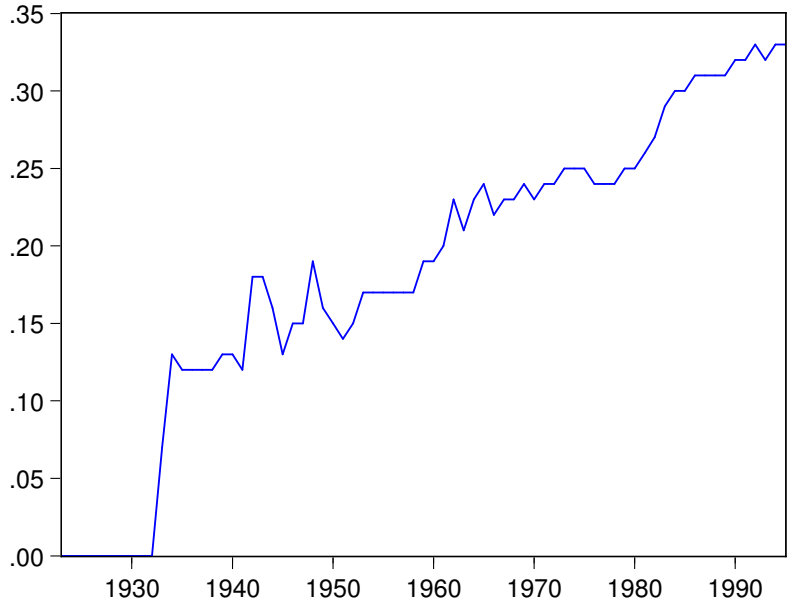

Figure 23: The Rate of Women Instructors in Universities, 1923-1995

The graph plots the percentage of women instructors in universities and higher educational institutions. Data is drawn from from the State Institute of Statistics.

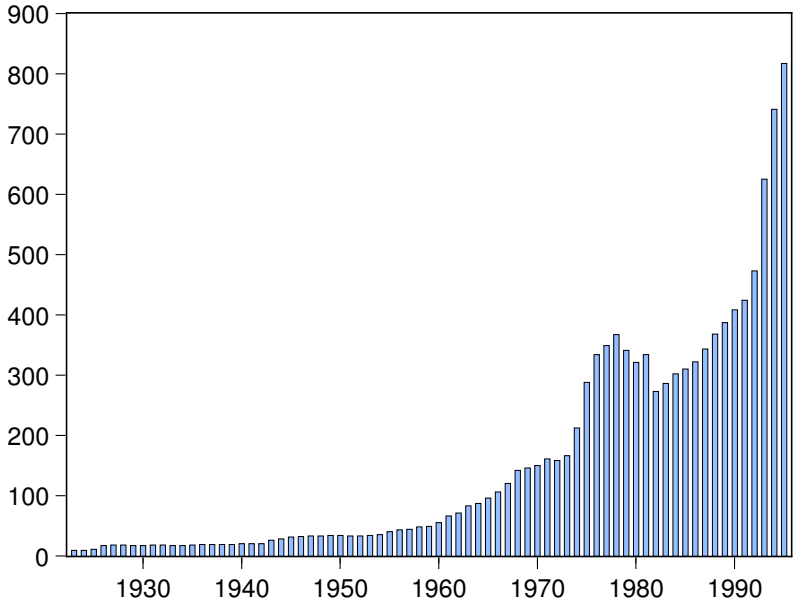

Figure 24: The number of Higher Educational Institutions, 1933-1995

The graph plots the number of universities and other higher educational institutions. Data is drawn from the State Institute of Statistics.

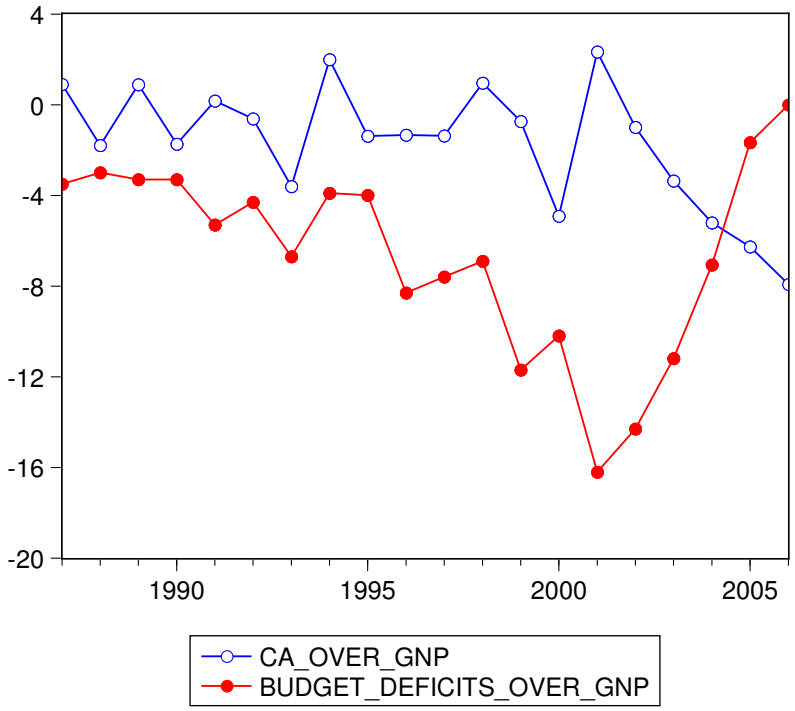

Figure 25: The Current Account Balance and Budget Balance

The graph plots the current account and budget balance over GNP. Data is drawn from State Institute of Statistics and *www.treasury.gov.tr*

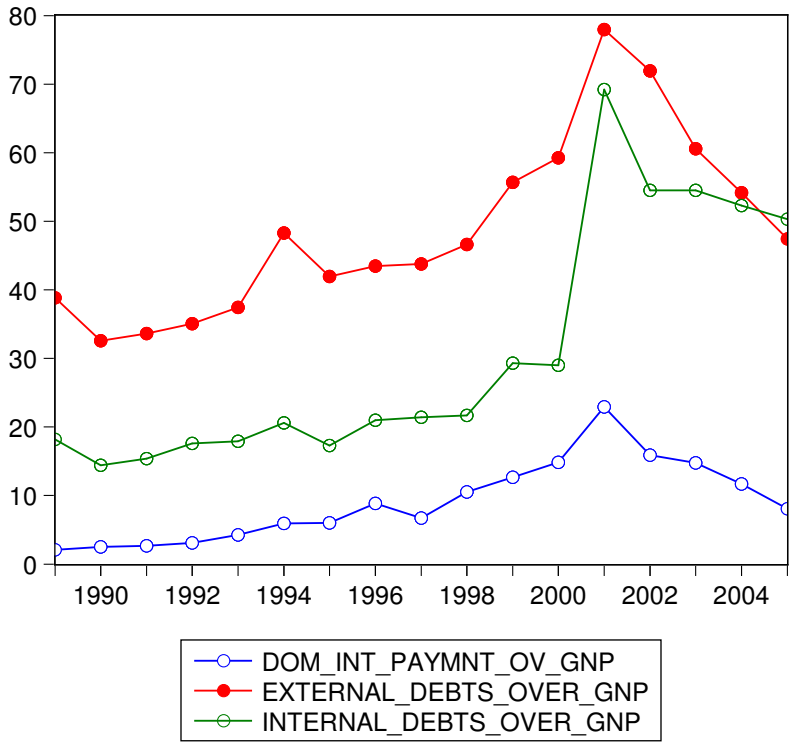

Figure 26: Debts over GNP

The graph plots the internal debts, external debts and domestic interest payments over GNP. Data is drawn from State Institute of Statistics

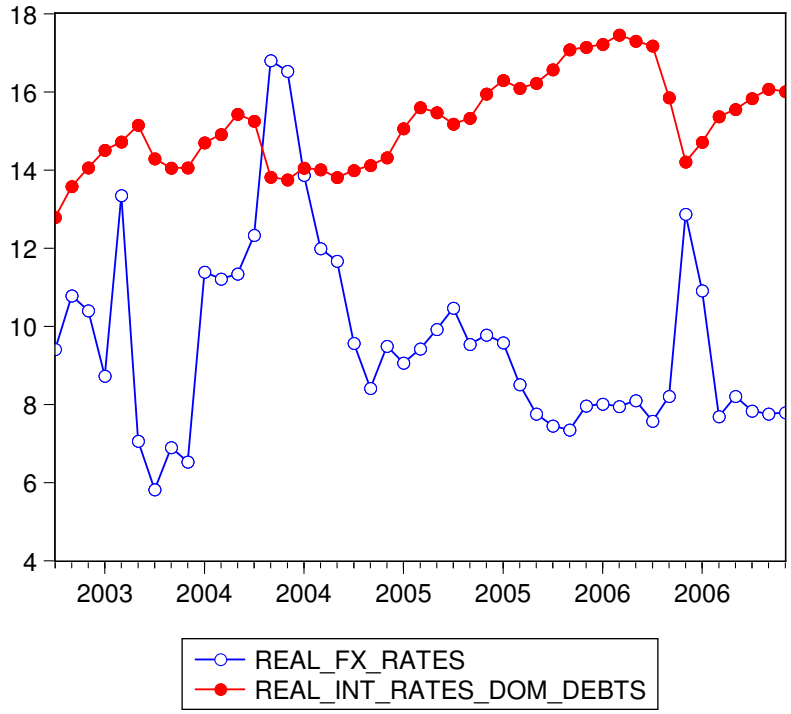

Figure 27: Real FX rates and Real Interest of Internal Debts

The graph plots the real fx rates and real interest rates between 2003:04 and 2006:12. The real fx rate is calculated by TCMB with an index including currencies of 19 countries and adjusted with CPI, where 1995=10. Data is drawn from The Central Bank of Turkey (TCMB) and The Undersecretary of Treasury.

Appendix A

Economy of Turkey

'Turkey is at a crossroads' states in one of OECD's recent economic surveys[1]. The argument is based on the 'recovery' performance of Turkey after the last severe crisis of 2001. In fact, Turkish economy was hit by a major economic crisis in 2001, but that was just one of the three major crises that it went through throughout the last decade (1994, 1999, and finally 2001). Nevertheless, as of 2004, it was able to bring down the inflation around 10% annually from 70s% (last decade average), while achieving one of the highest growth rates within EU domain[2]. The structural reforms -shaping the economic institutional framework undertook in recent years is said to create 'an environment of stability and trust'. On the other side of the coin however, the 'recovery' process is not yet completed. With 2004 figures, the share of total public debts (external and domestic) mounted to over 85%, and the current deficit over GNP rose over 5% (highest in history) and continues to increase at an increasing rate; the current deficit is about 6.4% in 2005 and estimated

[1]The executive summary of economic survey of Turkey 2004 by OECD economics department.

[2]The average of the last three years of GDP growth at constant prices is 7.8% and the average annual increase in the productivity of manufacturing industry 2001-2004 is 9%.

to be around 10% in 2006[3]. Meanwhile, the unemployment, the chief problem remained unsolved, continues to increase over 10% (unofficial unemployment rate is estimated to be much higher) despite 'strong growth' performance.

However, it is worth noting that the economic results attained are in line with the last (eighteenth) stand-by agreement with IMF. In fact, while the current panorama of the Turkish economy inspires an IMF director to conclude 'prospects for Turkey's economy remain to be bright', one should take these kinds of comments with caution, especially if one remembers the statement of another IMF director's as 'Turkey's IMF-supported economic program is on track' in November 2000, just two months before the biggest crisis that Turkish economy ever experienced[4].

In order to be able to assess the meaning of Turkey's membership for the EU economy, the analysis of the current Turkish economy is conducted on a comparative base with member states (of similar size) and candidate countries. While doing so, to ensure a better understanding, important features of the Turkish economy and their evolution in time are evaluated and incorporated to the analysis, whenever needed. The study focuses on the following captions: the analysis of the Turkish economy in terms of its size and per capita income, the profile of the population and the workforce.

[3]To compare them, take a year before the decade of crises, say 1991, total public debts over GNP was about 40%, and there was no current account deficit.

[4]The first statement belongs to A. Krueger, 'Statement to the press by IMF First Deputy Managing Director Anne O. Krueger on Turkey',Press Release No. 06/147, June 29, 2006 and the second statement belongs to S. Fischer, IMF News Brief No.00/107, November 26, 2000

A.1. A Relatively Big Size Economy with Definitely Poor People

Turkish economy is the sixth largest economy of the EU domain, following Germany, United Kingdom, France, Italy and Spain Figure 1. Put differently, its size equals the half of GDP totals of ten newly joined members at 2004. However, comparison of per capita incomes Figure 2 shows that Turkey is by far the poorest. However, today's huge differential in per capita income levels (relative to member states) is not surprising at all, once the economic history of Turkey is reviewed; Turkish economic growth lacks persistence and was halted frequently with crises. On one hand uncertainty fed by the crisis environment discouraged new economic activities and on the other hand divertive efforts replaced productive activities with redistributive activities. Necessary adjustments to cope with exogenous shocks were often insufficient and implemented with delay with populist concerns (Rodrik 1999). Onis (2003) argues that 'populist cycles' and periodic fiscal crisis emerged as persistent features of the Turkish economy since 1950s.

Unfortunate consequences of the short sighted and/or populist policies that ended in major crises are illustrated with a hypothetical example. Figure 3 shows what would be if the five major crises between the years 1950 and 2000 did not occur (and the economy was to continue to grow in its average growth rate of 3% during those crises). Figure 3 makes evident that while GDP per worker of Turkey was at roughly comparable levels with that of Portugal and Greece in the late 1940's, a 'Big Divergence' started in the late 50's, and there were no definite and lasting efforts to catch-up afterwards.

A.2. A Dynamic but uneducated Labor force

Turkey is also a large country in population terms. It has a young and dynamic population as displayed in Figure 4. If Turkey's population is compared to EU member states, it ranks the second after Germany. By 2025, Turkey is estimated to be the largest member state (if ever it would be a member) even before Germany with a population around 87 million . However, the education level of the population is behind the all member states. The rate of the young population (20-24 years) having attained the upper secondary education is 44%, while the EU 25 average is 77% (Figure 5).

Leave aside the 'quantity' of the education, the 'quality' of the education, measured by the pupil teacher ratio, is also behind all member states. Turkey's pupil teacher ratio in primary education is 26.5 in 2004, while the average ratio of EU 25 is around 14, almost half of Turkey's rate. Unsurprisingly, Turkey's share of the public expenditure on education within GDP is the lowest one when compared to EU 25. Turkey spared 3.7% (in 2003) of its GDP for the public spending on education; ranging behind Greece, the state with the lowest share within EU 25 (Figure 6).

Meanwhile, the employment rate in Turkey is highly low; around 46% (2004). The rate is the lowest when compared the member states (the average employment rate in EU 25 is 64%). This is mainly due to the dramatically low labor force participation of women; 24% .The EU 25 average rate of labor participation of women is 56%, more than double of Turkey's rate. Unfortunately, the woman unwillingness to participate into the workforce has some cultural roots and needs to be relieved with special policies. On the other hand, the composition of the employment of Turkey's workforce is somewhat peculiar when compared to that of the most populated member states (Figure 7).

Agricultural production, making about 11% of the GDP, employs approximately one third of the workforce. In this respect it resembles to that of Poland to some extent. The composition of the service sector is also dissimilar to that of the related member states. While the major share of the service sector employment belongs to Public administration and defense in Germany, France, Italy and Poland with a share more than 40%, it is around 35% in Turkey. The main difference in the composition lies in the share of the financial and business activities . The employment in the financial business activities makes more than 20% of all the employment in service sector in Germany, France and Italy and it is around 17-16% in Spain and Poland, it is only 8% in Turkey.

Putting the pieces together; the profile of the Turkish economy provide some clues why EU was willing to form a custom union with Turkey (applying to a practice never attempted with any other candidate before), while it is reluctant to accept her as a full member . More precisely, Turkey's EU membership daunted many Europeans about its possible beneficiary status vis--vis EU's structural funds and the mass migration of cheap labors, in addition to its possible role in decision making mechanisms, with 'no significant further benefits' . The lack of political support for Turkey's accession on the other hand is based on the argument that the membership has mainly 'no additional benefits'. Adam and Moutos (2005) argue that 'the main beneficiaries from the EU-Turkey CU (i.e., mainly -but not exclusively- the owners of firms in the North of the EU) have already reaped most of the benefits due to the preferential access to the Turkish market that the CU has afforded to their products'. While the discussion on the costs and benefits of the CU (for Turkey vs for EU) is wide enough to be studied in a separate paper, Figure 8; highlights some basic trends in external trade for the parties. Thus ironically, the CU agreement which was considered to be an important step towards full membership by Turkey (or marketed as such by those who were

representing her at that time) turns out to be a significant obstacle on the way of accession. In this respect, this one sided agreement (The CU), in which Turkey is not in the decision making process, makes also more apparent the costs of Turkey's accession.

In turn, EU put forward some measures to deal with the possible costs of the Turkey's membership, as it did in the Negotiation Frame Document (December 2004). These measures includes putting permanent derogations on Turkey's beneficiary role from structural funds to relieve concerns on the implications of Turkish accession for EU structural and regional policies and on free movement of labor from Turkey to EU member states to deal with 'a substantial and uncontrolled increase in immigration'.

Consequently, as EU member states are taking unprecedented measures to cope with the Turkey's membership, they are in fact defining 'something' other than membership. In this respect, the critical question is the one asked back in the introduction; why Turkey (or those representing her) is then willing to take part in a process where EU is promising something else than full membership, especially if one considers that the current status of relationship between Turkey and EU can be perfectly defined as something else than full membership?

Appendix B

ARDL Estimation in the Presence of Endogeneity

Consider the following ARDL *(p,q)* model[1]:

$$\phi(L)y_t = \alpha + \beta' x_t + u_t \tag{B.1}$$

where $\phi(L) = 1 - \sum_{j=1}^{p} \phi_j L^j$ and $\beta(L) = \sum_{j=0}^{q} \beta_j L^j$. Pesaran and Shin (1998) assume that the scalar disturbance of u_t in the ARDL(p,q) model in (B.1) is *iid* $(0,\sigma^2)$.

Using the decomposition $\beta(L) = \beta(1) + (1-L)\beta^*(L)$ where $\beta(1) = \sum_{j=0}^{q} \beta_j$, $\beta^*(L) = \sum_{j=0}^{q-1} \beta_j^* L^j$ and $\beta_j^* = -\sum_{i=j+1}^{q} \beta_i$. Then (B.1) can be rewritten as:

[1]This section closely follows Pesaran and Shin(1998 p381-385)

$$\phi(L)y_t = \alpha + \beta^{'} x_t + \sum_{j=0}^{q-1} \beta_j^{*'} \Delta x_{t-j} + u_t, \tag{B.2}$$

While Pesaran and Shin (1998) allow for the possibility of endogenous regressors, they confine their attention to the case where Δx_t can be represented by a finite-order vector AR(s) process:

$$P(L)\Delta x_t = \varepsilon_t, \tag{B.3}$$

where $P(L) = I_k - \Sigma_{i=1}^{s} iP_i$ and $P_i, i = 1, ..., s$ are the *kxk* coefficient matrices such that the vector autoregressive process in Δx_t is stable. Here, ε_t are assumed to be serially uncorrelated, but possibly contemporaneously correlated with u_t; namely it is assumed that $\xi_t = (u_t, \varepsilon_t^{'})'$ follows the multivariate *iid* process, with mean zero and the covariance matrix[2]:

$$\Sigma_{\xi\xi} = \begin{pmatrix} \sigma_u^2 & \Sigma_{u\varepsilon} \\ \Sigma_{\varepsilon u} & \Sigma_{\varepsilon\varepsilon} \end{pmatrix} \tag{B.4}$$

When the possibility of endogenous regressors is allowed, in order to correct the endogeneity, Peseran and Shin (1998) model the contemporaneous correlation between u_t and ε_t by the linear regression of u_t on ε_t as follows:

$$u_t = d\text{'}\varepsilon_t + \eta_t, \tag{B.5}$$

[2]Pesaran and Shin (1998) continue to assume that $cov(u_{t-j}, \varepsilon_{t-j}) = 0$ for $i \neq j$

where, using (B.4), we have $d = \Sigma_{\varepsilon\varepsilon}^{-1}\Sigma_{u\varepsilon}^{'}$ and ε_t is strictly exogenous with respect to η_t. Substituting (B.3) in (B.5) we obtain

$$u_t = d'P(L)\Delta x_t + \eta_t, \tag{B.6}$$

where $\Delta x_{t-i}, i = 0, ..., s$, are also strictly exogenous with respect to η_t. The parametric correction for the endogenous regressors is then equivalent to extending the ARDL *(p,q)* model (B.2) to the more general ARDL *(p,m)* specification,

$$\phi(L)y_t = \alpha + \beta^{'}x_t + \sum_{j=0}^{m-1}\Pi_j^{'}\Delta x_{t-j} + \eta_t, \tag{B.7}$$

where $m = max(q, s+1)$, $\Pi_i = \beta_i^* - P_i^{'}d$, $i = 0, 1, 2, ..., m-1$, $P_0 = I_k$, $\beta_i^* = 0$ for $i \geq q$, and $P_i = 0$ for $i \geq s$.

The scalar disturbance η_t in (B.7) is *iid* $(0, \sigma_\eta^2)$ and Δx_t follows the general stationary process given by (B.3). Furthermore, η_t and ε_t are uncorrelated such that x_t and $\Delta x_{t-j}, j = 0, ..., m-1$ are strictly exogenous with respect to η_t in the ARDL*(p,m)* model (B.7).

Appendix C

PCA of Institution Indices and *'Other Factors'*

Principal component analysis is a method that is widely used in data analysis and compression. The analysis is used for identifying hidden patterns in the data as well as reducing the number of variables in a given data set while retaining the variability in the data (i.e. reduce the dimensionality of the data set). Principal component analysis models the variance structure of a set of observed variables using linear combinations of the variables. Calculated principal components are a set of variables, which are obtained by computing the eigenvalue decomposition of the observed variance matrix. The first principal components retain the most information of the original data set. In this study only the first principle components are included into the estimations.

C.1. Turkey, PCA Results of Institution Indices

Law-bur= 0.7071 Law + 0.7071 Bur

Cor-inv= -0.7071 Cor + 0.7071 Inv

Law-cor-bur= 0.4961 Law + 0.5787 Cor + 0.6472 Bur

Cor-inv-bur= 0.5837 Cor -0.4653 Inv + 0.6654 Bur

Intcon-eth= 0.7071 Intcon + 0.7071 Ethn

Dem-soc= 0.7071 Dem + 0.7071 Soc

Intcon-dem-soc= 0.5059 Intcon + 0.5441 Dem + 0.6693 Soc

Ethn-dem-soc= 0.4970 Ethn + 0.6298 Dem + 0.5969 Soc

C.2. Turkey, PCA Result of *'Other Factors'*

'Other Factors'= 0.4977 Gov. Cons over GDP+ 0.5028 Openness -0.5173 Inflation - 0.4814 CA over GDP

C.3. Poland, PCA Results of Institution Indices

Law-bur= 0.7071 Law + 0.7071 Bur

Cor-inv= -0.7071 Cor + 0.7071 Inv

Law-cor-bur= 0.6120 Law + 0.6293 Cor + 0.4789 Bur

Cor-inv-bur= 0.5570 Cor -0.6000 Inv + 0.5741 Bur

Intcon-dem= 0.7071 Intcon - 0.7071 Dem

Intcon-soc= 0.7071 Intcon + 0.7071 Soc

Intcon-soc-dem= 0.5206 Intcon + 0.5875 Soc - 0.6194 Dem

C.4. Poland, PCA Result of *'Other Factors'*

'Other Factors'[1] = 0.4053 Gov. Cons over GDP -0.6451 Openness + 0.6476 Inflation

C.5. Spain, PCA Results of Institution Indices

Corr-bur= 0.7071 Cor - 0.7071 Bur

Cor-inv= 0.7071 Cor - 0.7071 Inv

Law-cor-bur= 0.3293 Law + 0.6961 Cor - 0.6378 Bur

Cor-inv-bur= -0.5203 Cor + 0.5738 Inv + 0.6323 Bur

Intcon-soc= -0.7071 Intcon - 0.7071 Soc

[1]CA over GDP series of Poland is incomplete, and therefore is not included in PCA

Intcon-dem-soc= 0.6880 Intcon + 0.2663 Dem - 0.6750 Soc

Ethn-intcon-soc= 0.6216 Ethn + 0.5927 Intcon -0.5120 Soc

C.6. Spain, PCA Result of *'Other Factors'*

'Other Factors'= -0.5522 Gov. Cons - 0.3441 Openness + 0.5829 Inflation + 0.4866 CA over GDP

Appendix D

Cointegration Tests

D.1. Cointegration Tests with Turkey's Interest Rates

Table D.1
Johansen Cointegration Tests with TR S-term Rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 4 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	37.99	22.29	50.34	54.07
$r \leq 1$	7.07	15.89	12.35	35.19
$r \leq 2$	5.28	9.16	5.28	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	37.63	21.13	48.68	29.79
$r \leq 1$	5.84	14.26	11.05	15.49
$r \leq 2$	5.21	3.84	5.21	3.84
Trend in VAR, Trend in Coint. Eq				
r = 0	37.72	25.82	58.15	42.91
$r \leq 1$	14.59	19.38	20.43	25.87
$r \leq 2$	5.84	12.51	5.841	12.51

Table D.2
Johansen Cointegration Tests with TR S-term Rates and German cpi rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 4 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	40.85	28.58	72.00	54.07
$r \leq 1$	18.76	22.29	31.14	35.19
$r \leq 2$	7.19	15.89	12.38	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	40.37	27.58	70.40	47.85
$r \leq 1$	18.73	21.13	30.02	29.79
$r \leq 2$	6.24	14.26	11.28	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	40.40	32.11	83.55	63.87
$r \leq 1$	21.67	25.82	43.15	42.91
$r \leq 2$	15.85	19.38	21.48	25.87

Table D.3
Johansen Cointegration Tests with TR S-term Rates and US unemployment rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 4 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	41.31	28.58	70.80	54.07
$r \leq 1$	16.66	22.29	29.48	35.19
$r \leq 2$	9.60	15.89	12.81	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	41.07	27.58	67.44	47.85
$r \leq 1$	16.26	21.13	26.36	29.79
$r \leq 2$	7.12	14.26	10.10	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	41.16	32.11	72.15	63.87
$r \leq 1$	16.37	25.82	30.98	42.91
$r \leq 2$	9.64	19.38	14.61	25.87

Table D.4
Johansen Cointegration Test, with TR S-term Rates, European Inflation and US unemployment

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 4 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	40.51	34.80	99.26	76.97
$r \leq 1$	27.15	28.58	58.74	54.07
$r \leq 2$	18.36	22.29	31.59	35.19
Trend in VAR, No Trend in Coint. Eq				
r = 0	40.00	33.87	95.06	69.81
$r \leq 1$	27.03	27.58	55.06	47.85
$r \leq 2$	17.70	21.13	28.02	29.79
Trend in VAR, Trend in Coint. Eq				
r = 0	41.56	38.33	100.39	88.80
$r \leq 1$	27.12	32.11	58.83	63.87
$r \leq 2$	18.23	25.82	31.70	42.91

Table D.5
Johansen Cointegration Tests with TR L-term Rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 3 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	16.47	22.29	24.14	35.19
$r \leq 1$	5.94	15.89	7.66	20.26
$r \leq 2$	1.72	9.16	1.72	9.16
Trend in VAR, No Trend in Coint. Eq				
r = 0	16.36	21.13	23.11	29.79
$r \leq 1$	5.94	14.26	6.75	15.49
$r \leq 2$	0.81	3.84	0.81	3.84
Trend in VAR, Trend in Coint. Eq				
r = 0	19.06	25.82	36.86	42.91
$r \leq 1$	12.62	19.38	17.80	25.87
$r \leq 2$	5.18	12.51	5.18	12.51

Table D.6
Johansen Cointegration Tests with TR L-term Rates and German cpi rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 4 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	28.83	28.58	50.03	54.07
$r \leq 1$	12.94	22.29	21.20	35.19
$r \leq 2$	6.73	15.89	8.25	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	28.82	27.58	48.83	47.85
$r \leq 1$	12.39	21.13	20.00	29.79
$r \leq 2$	6.73	14.26	7.60	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	29.62	32.11	64.12	63.87
$r \leq 1$	19.16	25.82	34.50	42.91
$r \leq 2$	9.52	19.38	15.33	25.87

Table D.7
Johansen Cointegration Tests with TR L-term Rates and US unemployment rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 3 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	32.93	28.58	58.76	54.07
$r \leq 1$	16.77	22.29	25.82	35.19
$r \leq 2$	6.72	15.89	9.04	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	32.54	27.58	56.47	47.85
$r \leq 1$	16.76	21.13	23.92	29.79
$r \leq 2$	6.24	14.26	7.15	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	32.78	32.11	67.35	63.87
$r \leq 1$	17.23	25.82	34.56	42.91
$r \leq 2$	11.08	19.38	17.33	25.87

Table D.8
Johansen Cointegration Tests with TR L-term Rates,US unemployment and European Inflation

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 3 lags. The test includes a crises dummy for Turkish major financial crises of 1994 and 2001.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	36.44	34.80	84.65	76.97
$r \leq 1$	24.96	28.58	48.21	54.07
$r \leq 2$	13.23	22.29	23.24	35.19
Trend in VAR, No Trend in Coint. Eq				
r = 0	36.21	33.87	82.15	69.81
$r \leq 1$	24.93	27.58	45.94	47.85
$r \leq 2$	12.98	21.13	21.00	29.79
Trend in VAR, Trend in Coint. Eq				
r = 0	36.21	38.33	93.85	88.80
$r \leq 1$	24.93	32.11	57.63	63.87
$r \leq 2$	14.16	25.82	32.69	42.91

D.2. Cointegration Tests with Poland's Interest Rates

Table D.9
Johansen Cointegration Tests with Poland's S-term Rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 5 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	17.83	22.29	31.98	35.19
$r \leq 1$	10.39	15.89	14.14	20.26
$r \leq 2$	3.74	9.16	3.74	9.16
Trend in VAR, No Trend in Coint. Eq				
r = 0	17.01	21.13	27.48	29.79
$r \leq 1$	10.05	14.26	10.46	15.49
$r \leq 2$	0.41	3.84	0.41	3.84
Trend in VAR, Trend in Coint. Eq				
r = 0	20.42	25.82	46.51	42.91
$r \leq 1$	17.00	19.38	26.08	25.87
$r \leq 2$	9.07	12.51	9.07	12.51

Table D.10
Johansen Cointegration Tests with Poland's S-term Rates and European Inflation

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 5 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	29.98	28.58	53.91	54.07
$r \leq 1$	11.82	22.29	23.92	35.19
$r \leq 2$	8.24	15.89	12.09	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	29.38	27.58	49.23	47.85
$r \leq 1$	11.64	21.13	19.84	29.79
$r \leq 2$	8.13	14.26	8.19	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	40.49	32.11	79.98	63.87
$r \leq 1$	21.34	25.82	39.49	42.91
$r \leq 2$	10.74	19.38	18.15	25.87

Table D.11
Johansen Cointegration Tests with Poland's S-term Rates and US unemployment

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 2 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	32.58	28.58	53.65	54.07
$r \leq 1$	11.87	22.29	21.07	35.19
$r \leq 2$	5.78	15.89	9.20	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	21.59	27.58	39.52	47.85
$r \leq 1$	11.70	21.13	17.93	29.79
$r \leq 2$	5.15	14.26	6.23	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	23.05	32.11	53.15	63.87
$r \leq 1$	14.07	25.82	30.10	42.91
$r \leq 2$	11.61	19.38	16.02	25.87

Table D.12
Johansen Cointegration Tests with Poland's S-term Rates,US unemployment and European Inflation

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. All three cases suggest a single cointegrating equation. The related VAR is estimated with 2 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	38.76	34.80	78.91	76.97
$r \leq 1$	18.11	28.58	40.14	54.07
$r \leq 2$	11.49	22.29	22.02	35.19
Trend in VAR, No Trend in Coint. Eq				
r = 0	30.42	33.87	64.85	69.81
$r \leq 1$	16.09	27.58	34.42	47.85
$r \leq 2$	11.34	21.13	18.32	29.79
Trend in VAR, Trend in Coint. Eq				
r = 0	36.75	38.33	88.41	88.80
$r \leq 1$	21.10	32.11	51.66	63.87
$r \leq 2$	14.82	25.82	30.55	42.91

Table D.13
Johansen Cointegration Tests with Poland's L-term Rates

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 1 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	19.90	22.29	36.92	35.19
$r \leq 1$	9.98	15.89	17.02	20.26
$r \leq 2$	7.03	9.16	7.03	9.16
Trend in VAR, No Trend in Coint. Eq				
r = 0	18.46	21.13	28.25	29.79
$r \leq 1$	9.14	14.26	9.79	15.49
$r \leq 2$	0.64	3.84	0.64	3.84
Trend in VAR, Trend in Coint. Eq				
r = 0	19.92	25.82	35.83	42.91
$r \leq 1$	10.63	19.38	15.91	25.87
$r \leq 2$	5.27	12.51	5.27	12.51

Table D.14
Johansen Cointegration Tests with Poland's L-term Rates and European Inflation

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 1 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	23.06	28.58	50.65	54.07
$r \leq 1$	12.41	22.29	27.59	35.19
$r \leq 2$	11.53	15.89	15.17	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	21.69	27.58	40.71	47.85
$r \leq 1$	11.76	21.13	19.02	29.79
$r \leq 2$	5.04	14.26	7.26	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	21.70	32.11	49.35	63.87
$r \leq 1$	12.43	25.82	27.64	42.91
$r \leq 2$	10.19	19.38	15.20	25.87

Table D.15
Johansen Cointegration Tests with Poland's L-term Rates and US unemployment

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 1 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	26.52	28.58	61.18	54.07
$r \leq 1$	17.25	22.29	34.66	35.19
$r \leq 2$	10.14	15.89	17.40	20.26
Trend in VAR, No Trend in Coint. Eq				
r = 0	25.04	27.58	52.12	47.85
$r \leq 1$	16.91	21.13	27.07	29.79
$r \leq 2$	9.47	14.26	10.15	15.49
Trend in VAR, Trend in Coint. Eq				
r = 0	25.04	32.11	60.98	63.87
$r \leq 1$	18.11	25.82	35.93	42.91
$r \leq 2$	10.49	19.38	17.82	25.87

Table D.16
Johansen Cointegration Tests with Poland's L-term Rates, European Inflation and US unemployment

Entries report the Johansen cointegration test results. Tests are performed for three cases: The most restrictive model with no deterministic components, the less restrictive model with trend in the level data but no trend in the cointegration equation, and the least restrictive model with no trend in VAR and no trend in cointegration equation. The related VAR is estimated with 1 lags.

	Max Eigenvalue		Trace	
Number of Vectors	$\lambda - max$	$95\%_{\lambda-max}$	Trace	$95\%_{Trace}$
No Trend in VAR, No Trend in Coint. Eq.				
r = 0	35.05	34.80	89.97	76.97
$r \leq 1$	23.50	28.58	54.92	54.07
$r \leq 2$	15.22	22.29	31.41	35.19
Trend in VAR, No Trend in Coint. Eq				
r = 0	35.05	33.87	79.71	69.81
$r \leq 1$	22.41	27.58	44.66	47.85
$r \leq 2$	13.31	21.13	22.24	29.79
Trend in VAR, Trend in Coint. Eq				
r = 0	36.69	38.33	90.33	88.80
$r \leq 1$	22.43	32.11	53.64	63.87
$r \leq 2$	13.99	25.82	31.20	42.91

Appendix E

Causality Tests with a cointegration specification including both an intercept and time trend

E.1. Causality Tests with Turkey's Interest Rates

Table E.1
SUR-based Block Exogeneity Wald Tests, Turkey, S-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. TR, Euro and US stand for short term rates of Turkey, Europe and United States, respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR short-term rates				
Europe	0.05	0.05	0.04	0.04
United States	0.08	0.09	0.02	0.03
Dependent variable: Eur short-term rates				
Turkey	0.50	0.44	0.52	0.42
United States	0.18	0.28	0.01	0.02
Dependent variable: US short-term rates				
Turkey	0.55	0.43	0.47	0.40
Europe	0.49	0.40	0.31	0.25

Table E.2
VEC Granger Causality/Block Exogeneity Wald Tests, Turkey S-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. TR, Euro and US stand for short term rates of Turkey, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The test statistics is obtained as (T - C)(log $|\Sigma_r|$ - log $|\Sigma_u|$) where T refers to the sample, C is the maximum number of regressors in the model, Σ_r and Σ_u are the residual variance/covariance matrix of restricted and unrestricted models. The test statistics has χ^2 distribution with degrees of freedom $2p$ with p being the number of parameters restricted to be zero.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR short-term rates				
Europe	0.03(8.68)	0.04(8.31)	0.04(8.17)	0.04(8.02)
United States	0.14(5.34)	0.08(6.65)	0.18(4.90)	0.18(4.90)
Dependent variable: Euro short-term rates				
Turkey	0.52(2.24)	0.51(2.28)	0.56(2.03)	0.56(2.03)
United States	0.16(5.17)	0.28(3.82)	0.01(11.12)	0.02(9.86)
Dependent variable: US short-term rates				
Turkey	0.58(1.95)	0.45(2.60)	0.49(2.39)	0.43(2.76)
Europe	0.45(2.67)	0.42(2.78)	0.26(4.01)	0.25(4.04)

Table E.3
SUR based-Block Exogeneity Wald Tests, Turkey, L-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. TR, Euro and US stand for short term rates of Turkey, Europe and United States, respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR long-term rates				
Europe	0.03	0.11	0.09	0.06
United States	0.08	0.09	0.22	0.06
Dependent variable: Euro long-term rates				
Turkey	0.50	0.59	0.38	0.61
United States	0.02	0.07	0.26	0.00
Dependent variable: US long-term rates				
Turkey	0.61	0.72	0.79	0.61
Europe	0.52	0.73	0.71	0.49

Table E.4
VAR/VEC Granger Causality/Block Exogeneity Wald Tests, Turkey, L-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. TR, Euro and US l-term rates stand for long-term rates of Turkey, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)[$(\tilde{u}'\tilde{u} - u'u)/q$] /[$(u'u)/(T-k)$] where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: TR long-term rates				
Europe	0.03(8.50)	0.09(8.05)	0.11(4.41)	0.06(7.29)
United States	0.18(4.85)	0.08(8.30)	0.22(3.03)	0.04(8.28)
Dependent variable: Euro long-term rates				
Turkey	0.39(2.96)	0.50(3.32)	0.31(2.35)	0.44(2.65)
United States	0.01(10.74)	0.06(8.85)	0.26(2.65)	0.00(14.00)
Dependent variable: US long-term rates				
Turkey	0.68(1.49)	0.69(2.19)	0.97(0.06)	0.65(1.60)
Europe	0.35(3.28)	0.86(1.28)	0.78(0.50)	0.38(3.05)

E.2. Causality Tests with Poland's Interest Rates

Table E.5
SUR-based Block Exogeneity Wald Tests, Poland, S-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. Pol, Euro and US stand for short term rates of Poland, Europe and United States, respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol short-term rates				
Europe	0.31	0.05	0.11	0.09
United States	0.45	0.50	0.11	0.11
Dependent variable: Euro short-term rates				
Poland	0.04	0.03	0.64	0.67
United States	0.51	0.49	0.18	0.17
Dependent variable: US short-term rates				
Poland	0.01	0.00	0.78	0.78
Europe	0.00	0.00	0.00	0.00

Table E.6
VAR/VEC Granger Causality/Block Exogeneity Wald Tests, Poland, S-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. Pol, Euro and US short-term rates stand for short-term rates of Poland, Europe and United States respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)[$(\tilde{u}'\tilde{u} - u'u)/q$] /[$(u'u)/(T-k)$] where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol short-term rates				
Europe	0.58(3.18)	0.07(8.37)	0.44(1.64)	0.41(1.76)
United States	0.49(4.40)	0.54(3.11)	0.10(4.60)	0.11(4.48)
Dependent variable: Eur short-term rates				
Poland	0.05(10.85)	0.04(9.94)	0.60(0.99)	0.68(0.76)
United States	0.51(4.28)	0.41(3.97)	0.17(3.49)	0.18(3.47)
Dependent variable: US short-term rates				
Poland	0.00(18.15)	0.04(10.18)	0.03(10.41)	0.60(1.01)
Europe	0.00(18.97)	0.00(17.56)	0.00(17.95)	0.00(11.72)

Table E.7
SUR-based Block Exogeneity Wald Tests, Poland, L-term

Entries report the results of Block exogeneity Wald tests. The null hypothesis is the probability that *X Granger-causes Y* is zero. Pol, Euro and US stand for long term rates of Poland, Europe and United States, respectively. P values are calculated by estimating for each interest rate a multi-equation system with Seemingly Unrelated Regression (SUR). The critical values are calculated using the sufficient condition that is derived from the third axiom probability (Equation 4.11 in the text.).

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol long-term rates				
Europe	0.33	0.25	0.28	0.39
United States	0.29	0.22	0.27	0.38
Dependent variable: Euro long-term rates				
Poland	0.01	0.02	0.00	0.00
United States	0.03	0.02	0.00	0.01
Dependent variable: US long-term rates				
Poland	0.01	0.02	0.00	0.38
Europe	0.00	0.00	0.00	0.00

Table E.8
Var/Vec Granger Causality/Block Exogeneity Wald Tests, Poland, L-term

Entries report the results of Granger causality tests. The null hypothesis is that *X* does not Granger cause *Y*. Pol, Euro and US long-term rates stand for long-term rates of Poland, Europe and United States, respectively. The block exogeneity test is to determine whether to incorporate a variable into the vector error correction specification; hence it restricts the coefficients of lagged values of one variable in all the equations. The Wald (χ^2)test statistics is obtained as (T -C)[$(\tilde{u}'\tilde{u} - u'u)/q$] /[$(u'u)/(T-k)$] where T refers to the sample, q stand for the restrictions to be imposed, $\tilde{u}$ is the vector of restricted residuals from restricted regression, u is the vector of unrestricted residuals, s^2 is the estimator of the unrestricted residual variance and k is the vector of parameters to be estimated.

Exclude		with German-cpi	with US-unemp	with German-cpi and US-unemp
Dependent variable: Pol long-term rates				
Europe	0.60(0.28)	0.75(0.10)	0.37(0.82)	0.53(0.38)
United States	0.15(2.05)	0.11(2.60)	0.12(2.35)	0.18(1.73)
Dependent variable: Euro long-term rates				
Poland	0.00(8.85)	0.01(6.38)	0.00 (13.84)	0.00(10.60)
United States	0.01(6.27)	0.01(6.90)	0.00(9.92)	0.00(8.99)
Dependent variable: US long-term rates				
Poland	0.00(7.17)	0.01(5.75)	0.00(8.85)	0.00(7.19)
Europe	0.00(20.22)	0.00(18.99)	0.00(21.62)	0.00(19.85)

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