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POLITICAL ECONOMY OF ECONOMIC DISCOMFORT: A TIME SERIES ANALYSIS OF TURKEY, 1980-2010

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EKONOMİK HOŞNUTSUZLUĞUN POLİTİK EKONOMİSİ: TÜRKİYE ÜZERİNE ZAMAN SERİLERİ ANALİZİ, 1980-2010

Abstract

The aim of this study is to analyse the impacts of economic and political factors on economic discomfort by using the Turkish annual data for the period of 1980-2010. To measure economic discomfort, we use economic discomfort index (aka "misery index") defined by Arthur M. Okun as the sum of the unemployment rate plus the annual rate of inflation. We apply for the time series analysis of cointegration and error correction model to examine the relationship between economic discomfort and economic and political factors. As far as the existing literature is considered, our estimations yield disputable results. We find the evidence that, in the short run, economic discomfort increases as income inequality and trade openness increase. However, increasing level of democracy and corruption decreases economic discomfort in the short run. On the other hand, in the long run, all political factors under consideration, except for corruption are positively associated with economic discomfort. Economic (control) variables, namely, GDP growth and interest rate affect positively the economic discomfort both in the long run and in the short run except for interest rate having adverse impact on economic discomfort only in the short run.

Key Words*:* Economic Discomfort Index, Democracy, Corruption, Trade Openness, Income Inequality, Cointegration, Error Correction Model

Öz

Bu çalışmanın amacı, Türkiye'nin 1980-2010 dönemi yıllık datasını kullanarak ekonomik ve politik faktörlerin ekonomik hoşnutsuzluk üzerine etkilerini incelemektir. Ekonomik hoşnutsuzluğu ölçmek için, Arthur M Okun tarafından işsizlik oranı ve yıllık enflasyon oran olarak tanımlanan ekonomik ekonomik hoşnutsuzluk endeksi (diğer adıyla sefalet endeksi) kullanılmıştır. Ekonomik ve politik faktörlerle ekonomik hoşnutsuzluk arasındaki ilişkiyi incelemek için zaman serileri analizinin eşbütünleşme ve hata düzeltme modeli uygulanmış ve

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var olan literatür göz önüne alındığında tartışmalı sonuçlar bulunmuştur. Sonuçlara göre, kısa dönemde gelir eşitsizliği ve dışa açıklık artarken ekonomik hoşnutsuzluk da artmaktadır. Ancak democracy ve yolsuzluğun artan düzeyi kısa dönemde ekonomik hoşnutsuzluğu azaltmaktadır. Öte yandan, uzun dönemde incelenen tüm politik faktörler (yolsuzluk hariç) ekonomik hoşnutsuzlukla pozitif yönlü ilişkilidir. Ekonomik (kontrol) değişkenler, GSYİH büyümesi ve faiz oranı, hem kısa hem uzun dönemde (kısa dönemde ters yönlü etkiye sahip olan faiz oranı hariç) ekonomik hoşnutsuzluğu pozitif yönde etkilemektedir.

Anahtar Kelimeler: Ekonomik Hoşnutsuzluk Endeksi, Demokrasi, Yolsuzluk, Dışa Açıklık, Gelir Eşitsizliği, Eşbütünleşme, Hata Düzeltme Modeli

1. Introduction

The goal of this study is to investigate the impacts of economic and political factors on economic discomfort by applying time series analysis. To measure economic discomfort, we use economic discomfort index, in other words, "misery index", which was firstly defined by Arthur M. Okun as the sum of the unemployment rate plus the annual rate of inflation. It is assumed that both a higher rate of unemployment and a worsening of inflation create economic and social costs for a country and hence economic discomfort. In the literature, there exist numerous empirical works considering the individual effect of democracy, corruption, income inequality, trade openness, growth and interest rate on either inflation or unemployment. However, studies regarding the impacts of these variables on misery index that consists of both unemployment rate and inflation rate are very rare. Among the others, see for example, Asher et.al. (1993), Barro (1996, 1999). Di Tella et.al. (2001), Lovell and Tien (2000), Luengas and Ruprah (2009), Welsch (2007).

There is only one work to the best of our knowledge that analyses the economic discomfort for the Turkish economy. In his empirical work, Kibritçioğlu (2007) compares the macroeconomic performances of governments in Turkey during 1987-2007 in the context of various definitions of misery index. The present paper differs from his work in several aspects: Firstly, we do not just focus on macroeconomic performance of the Turkish economy using misery index, but rather concentrates on the effects of some economic and political factors on economic discomfort measured by misery index. Secondly, we use time series analysis of cointegration and error correction models to find out both long-run and short-run dynamics of economic and political variables

under consideration. Finally, our data set covers relatively large sample period, 1980-2010.

The paper is organized as follows. Following the introductory section, definitions of variables and the source of data are given in the second section. The next section introduces the model and discusses the methodology of the present paper. The estimation results are presented and interpreted in the fourth section. The last section draws conclusions.

2. Definitions of Variables and the Data Sources

Economic Discomfort Index (**EDI**) is the sum of the inflation rate and the unemployment rate as originated from Arthur M. Okun. Inflation rate is calculated by using the GDP deflator. It is simply the change in the GDP deflator. Both series are obtained from "Economic and Social Indicators" published by Republic of Turkey, Prime Ministry, the State Planning Organization-SPO and the publication is available on the SPO's website, http://www.dpt.gov.tr/PortalDesign/PortalControls/WebIcerikGosterim.aspx?Enc=83D5A6FF03C7B4FC5A73E5CFAD2D9676, accessed:04.12.2012. From now on, this data source will be referred as SPO (2012).

GROWTH data is the growth rate of GDP at current prices. Trade openness (**OPEN**) is measured by the foreign trade volume as a share of GDP, that is, (X+M)/GDP where X and M are export and import respectively. Interest rate (**R**) is the interest rates on Central Bank of the Republic of Turkey (CBRT) discount. GROWTH, OPENNESS and R series are obtained from SPO (2012).

In order to measure democracy (**DEMOC**), we use Freedom in The World data which is comparative assessment of global political rights and civil liberties. Political Rights and Civil Liberties are measured on a one-to-seven scale, with one representing the highest degree of Freedom and seven the lowest. These scores have been published annually since 1972 by the Freedom House and are available on the Freedom House's website, http://www.freedomhouse.org/sites/default/files/inline_images/FIWAllScoreRatingsByRegion1973-2011.xls, accessed: 04.12.2012. In the original of the DEMOC data, the scores range from 1 (most democratic) to 7 (least democratic). For the ease of interpretation of the regression results, the original scores are rescaled by subtracting them from 7 so that higher

values of the scores indicate higher level of democracy, i.e., the rescaled scores range from 1 (least democratic) to 7 (most democratic).

Gini coeffcients (**GINI**), ranging from zero (representing no inequality) to one (representing the maximum possible degree of inequality), are obtained from the Turkish Statistical Institute (TSI) and Dumlu and Aydın (2008). Gini coefficients for Turkey have regularly been published by the TSI since 2002. Before 2002, however, gini coefficients of only five years (1983, 1987, 1994 and 2000) are available by TSI. In our study, we used the TSI's gini coefficients where available. For the remaining years, for the period under consideration, we used gini coefficients calculated by Dumlu and Aydın (2008) (table 3, pp.387). Dumlu and Aydın (2008) using econometric models calculated gini coefficients for Turkey for the period of 1980-2005. As they explained and demonstrated in their study, they obtained gini coefficients which were quite similar to those released by the TSI. This makes it convenient to use the combined data of gini coefficients provided by both the TSI (available on the TSI's website: http://www.tuik.gov.tr/PreHaberBultenleri.do?id=8661) and by Dumlu and Aydın (2008).

Corruption Perception Index (**CPI**) data as a measure of corruption are obtained from Transparency International (available on: http://www.transparency.org/research/cpi/overview). As Bağdigen and Beşkaya (2005:36) pointed in their study, the data are drawn from multiple surveys and ranked according to countries' perceived level of corruption. The data of CPI has been updated annually since 1995. However, for the period 1980-94, the indices of corruption data are not available annually, but surveyed average data are available for the period 1980-85 and 1988-92 compiled by Transparency International. The missing data are for the years 1986, 1987, 1993, and 1994.

As we use time series analysis, it is necessary to apply time series data as many years as possible. To overcome such a problem, Wang (2001:112-3), Bağdigen and Beşkaya (2005:36) and Beşkaya and Bağdigen (2008: 74) apply average index of CPI. To do so, they calculate missing years by applying previous and following two years average data.

Similar to the methods of calculation suggested by these studies, we also preferred to calculate CPI for missing years 1986, 1987, 1993, and 1994 by applying previous and following two years' available CPI data[1].

In the original of the CPI data, the indexes range from 0 (most corrupt) to 10 (least corrupt). For the ease of interpretation of the regression results, the original indexes are rescaled by subtracting them from 10 so that higher values of the index indicate higher corruption, i.e. the rescaled index range from 0 (least corrupt) to 10 (most corrupt).

3. The Model and Methodology

3.1. Model

In order to investigate the impacts of economic and political factors on economic discomfort, we use the following econometric model:

$$EDI_t = c_0 + c_1DEMOC_t + c_2CPI_t + c_3GINI_t + c_4OPEN_t + c_5GROWTH_t + c_6R_t + u_t \quad (1)$$

where EDI, DEMOC, CPI, GINI, OPEN, GROWTH and R stand for economic discomfort index, democracy scores, corruption perception index, gini coefficient, trade openness, GDP growth rate and interest rate respectively. Respective coefficients are denoted by c_1, c_2, c_3, c_4, c_5, and c_6. Constant term and error term are represented by c_0 and u_t respectively.

EDI, also known as "misery index", is simply the sum of the inflation rate and the unemployment rate. It is defined by Okun (1970). In the presidential campaign of 1980, Ronald Reagan renamed it the "misery index," and that name has stuck, though economists sometimes refer to it as Okun's Index. Since then, various attempts to improve upon the misery index have been made. The most widely noticed was by Barro (1996, 1999), who added factors for GDP and interest rates. The origin of the index is sometimes wrongly attributed to him. It should be noted that we

[1] By doing so, we calculate for year 1986 as average value of CPI of the years 1984, 1985, 1988, and 1989; for year 1987 as average value of CPI of the 1985, 1986, 1988, and 1989; for year 1993 as average value of CPI of 1991, 1992, 1995, and 1996; and for year 1994 as average value of CPI of 1992, 1993, 1995, and 1996.

use Okun's definition of economic discomfort in our study. Nevertheless, to take Barro's concern into account, we also use growth and R in our model as control variables. To the best of our knowledge, this is the first attempt to study the impacts of political and economic factors on economic discomfort using the Turkish time series data.

3.2. Methodology

The conventional tests of models using single equation ordinary least squares method (OLS) do not perform well in the sense of sign, size, and significance of coefficients.

As is well known, "spurious regressions" caused by stochastic or deterministic trends may bring about uninterruptible Student-t values, high "goodness of fit" measures ($\overline{R}^2$), and hence, make regression results, which ignore the stationarity properties of time series, rather unreliable to evaluate. To test the model, we employ time series techniques, namely, cointegration analysis and error correction model (ECM).

3.2.1. Tests for Stationarity

To test for stationarity, we use augmented Dickey-Fuller (ADF) t-statistics for the unit root tests (Dickey and Fuller, 1979). The ADF test is carried out by estimating the following regression:

$$Yt = \beta + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha i \Delta Y_{t-i} + \varepsilon_t \qquad (2)$$

where ε_t is a pure white noise error term and where β and m are constant and lag length respectively. The number of lagged difference terms is determined according to Schwarz information criterion (SIC), the idea here is to include enough terms so that the error term ε_t is serially uncorrelated.

The ADF – t values reported in Table 1 show that all variables are non-stationary in levels but they all become stationary after first differencing. In other words, they are all integrated of order one, [I(1)]. Thus, these data series in their levels could lead to spurious regression results, unless the relevant series are all cointegrated. This gives good reason for

applying cointegration analysis to the data because non-stationary variables may not necessarily contain a long–run equilibrium relation.

Table 1. ADF-t Values for Unit Root Tests

At Levels-I(0)			At First Differences - I(1)		
Variables	**ADF-t Values**	**Lag Length[1]**	**Variables**	**ADF-t Values**	**Lag Length[1]**
EDI	-1.714530	0	Δ EDI	-5.411333	0
DEMOC	-2.393636	1	Δ DEMOC	-7.171585	0
CPI	-2.210056	1	Δ CPI	-3.740665	0
GINI	-2.371172	1	Δ GINI	-8.575129	0
OPEN	-1.134999	0	Δ OPEN	-6.824225	0
GROWTH	-1.285937	0	Δ GROWTH	-5.128769	0
R	-0.826767	0	ΔR	-4.872097	0

**: Significant at 1% level. All critical values are based on MacKinnon (1996) critical values.
[1]: Lag lengths are chosen according to Schwarz information criterion (SIC).

3.2.2. Cointegration Tests

To test for cointegration, we apply the Engle-Granger (1987) method to our static long-run equations as illustrated below for the Equation 1:

In the first stage, static long-run (cointegrating regression) equation is estimated as follow:

$$EDI_t = c_0 + c_1DEMOC_t + c_2CPI_t + c_3GINI_t + c_4OPEN_t + c_5GROWTH_t + c_6R_t + u_t \quad (1)$$

In the second stage, the residuals from cointegrating regressions, e_t, are tested for stationarity. The regression to be estimated in the second stage, therefore, is:

$$\Delta e_t = \alpha + \beta e_{t-1} + \sum_{i=1}^{k} \gamma_i \Delta e_{t-i} + \varepsilon_t \quad (3)$$

where e_t is residuals from Equation 1. If the series e_t is stationary by the ADF tests, i.e., integrated of order zero [I(0)], then the long-run regressions of Equation 1 will be regarded as cointegrated.

Table 2. ADF-t Value for Cointegration Test from Static Long-run Regression

Regression	ADF-t Values	Lag Length[1]
Equation 1	-6.064816*	0

*: Significant at 1% level. Critical value is based on MacKinnon (1996) critical values.

[1] : Lag lengths are chosen according to Schwarz information criterion (SIC).

As can be seen from the Table 2, cointegration is achieved for the Equations 1 at 1% significance level. Therefore, we assume that the long-run regression of our model is cointegrated by the Engle Granger test. This enables us to formulate ECM for the cointegrated equation which will be discussed in the next section. For the cointegrated regressions, we also report long-run regression estimates in order to make comparison with short-run estimates obtained from the ECM. The results are reported in Table 3 and will be discussed later in section 4.

Table 3. Estimation Results of Cointegrated Regression and ECM

Cointegrated Regression	ECM	Estimates of Coefficients	T-Values of Estimates	R^2, DW F-Statistic
$EDI_t = c_0 + c_1DEMOC_t + c_2CPI_t + c_3GINI_t + c_4OPEN_t + c_5GROWTH_t + c_6R_t + u_t$	-	c_0 = -58.3025 c_1 = 0.9515 c_2 = -3.5911 c_3 = 1.6910 c_4 = 0.3097 c_5 = 0.9504 c_6 = 0.0430	-1.3764 0.5101 -0.8108 2.5737** 1.6893* 13.1292*** 0.2991	R^2 = 0.945 DW = 2.059 F =75.973***
-	$\Delta EDI_t = re_{t-1} + c_0 + c_1\Delta DEMOC_t + c_2\Delta CPI_t + c_3\Delta GINI_t + c_4\Delta OPEN_t + c_5\Delta GROWTH_t + c_6\Delta R_t + \varepsilon_t$	r = -1.0467 c_0 = -0.3516 c_1 = 0.10.90 c_2 = -5.6839 c_3 = 2.4204 c_4 = 0.0653 c_5 = 0.8214 c_6 = -0.0513	- 5.4982*** -0.3105 0.0544 -1.0996 5.7926*** 0.1858 9.6643*** -0.2638	R^2 = 0.904 DW = 1.695 F =29.918***

Notes: One star (*), double star (**), and triple star (***) indicate significance at 10%, 5% and 1% levels, respectively.

3.3.3. Error Correction Model (ECM)

We have already shown that the economic discomfort index (EDI) and the other variables in the models are cointegrated; that is, there is a long-run, or equilibrium, relationship among the variables. In the short-run, however, there may be disequilibrium. Therefore, one can treat the error term, e_t as the "equilibrium error". This error term can be used to tie the short-run behaviour of EDI to its long-run value. (Gujarati, 2004: 824)

Based on the results of the Engle and Granger cointegration test, we also estimate the ECM, since ECM are recommended as a valid formulation in the Granger Representation Theorem for all cointegrated variables stationary in first difference.

Engle and Granger's (1987) representation theorem suggests that if a group of variables are all integrated of I(1), i.e., are stationary in their first differences, and if they are cointegrated, then, it is possible to represent them in the form of an ECM. An ECM combines short-run fluctuations with a long-run static equilibrium relation and such short-run fluctuations around the long-run equilibrium relation fade away over time. The parameters of an ECM are all regarded as short-run parameters whereas those estimated from cointegrated regressions are the long-run. We can formulate an ECM representation of Equation 1 in the following form:

$$\Delta EDI_t = re_{t-1} + c_0 + c_1\Delta DEMOC_t + c_2\Delta CPI_t + c_3\Delta GINI_t + c_4\Delta OPEN_t + c_5\Delta GROWTH_t + c_6\Delta R_t + \varepsilon_t \quad (4)$$

where c_0 stands for constant and e_{t-1} denote the lagged residuals from the long-run regression of Equation 1 and represent the error correction term. It measures the single period response of the actual economic discomfort index to departures from its equilibrium value.

Estimation results of ECM are also reported in Table 3 and will be discussed later in section 4.

It should be noted that if the ECM is a valid representation, then the coefficient r should be negative and statistically significant. The negative sign of r implies that the short-run fluctuations around the long-run equilibrium relation disappear over time. The high negative value of r, i.e., closer to –1, indicates that in the absence of other interventions, any deviation of actual value from its equilibrium value will be mostly

eliminated in one period. In other words, if the actual value is above its equilibrium level, the negative coefficient of lagged residuals implies that the actual value will decline in the next period. In general, if there is an actual level that may be higher or lower than the equilibrium level, depending on the direction of deviation, then, the error correction mechanism works to converge the actual rate towards its equilibrium level. (Beşkaya, 2001:161). This is what would be expected if the economic discomfort index deviated from its long-run equilibrium.

The economic meaning of an error correction formulation, such as, of Equation 4 is that, "…although the series in the models may wander considerably (because they are non-stationary), they still do not drift too far apart. The equilibrium relation of Equation 1 is a stationary point characterized by forces that tend to push the economy back toward equilibrium whenever it moves away. In time periods when [economic discomfort index] and the other variables in the model are not in equilibrium, the residuals from [Equation 1] may be called the equilibrium error, and they have to be stationary for [economic discomfort index] and the other variables to move back to equilibrium. The idea of error correction is that a proportion of the equilibrium error in one period is corrected in the next period" (Ghatak, 1998: 481).

4. Estimation Results

The first step of a time series analysis to test the relevant macro variables for stationarity. As can be seen from Table 1, all variables under consideration are non-stationary but they reject the unit root hypothesis in their first differences. In other words, they are all integrated of I(1). In the second step, cointegration tests are carried out for the Equation 1 and reported in Table 2. The regression result exihibits cointegration for the Equation 1 at 1% significance level. This enables us to develop the ECM in order to analyze short-run impact of economic and political factors on economic discomfort.

The cointegrated regression, as can be seen from Table 3, reveals a negative relationship between CPI and EDI as suggested by the negative sign of the coefficients of CPI. One should note that all the estimates from the static long-run equation are interpreted as the long-run estimates. Thus, the coefficient of CPI, like all other coefficients, is long-run estimate. This means that an increase in corruption decreases economic discomfort in the long-run. But, the coefficient of CPI obtained from long-run regression is not significant at even 10% significance level.

Therefore, we could not rely on the magnitude of the coefficients of CPI which is -3.591. On the other hand, all the coefficients of other explanatory variables have positive signs. Among them, OPEN, GINI and GROWTH variables are significant at 10%, 5% and 1% significance levels respectively. This implies that increasing levels of trade openness, income inequality and GDP growth rise economic discomfort. Positive signs of the coefficients of DEMOC and R also mean that increases in democracy and interest rate rise economic discomfort. DEMOC and R variables, nevertheless, are not significant even at 10% level. Therefore, we again could not rely on the magnitude of the coefficients of DEMOC and R which are 0.951 and 0.043 respectively.

The DW value of 2.059 obtained from cointegrated regression is high enough to reject the null hypothesis of positively correlated disturbance terms in the long-run equation. R^2 of 0.945 implies that almost 95% of variation in the economic discomfort is explained by the explanatory variables. In addition, the F-value of 75.973 indicates that all the coefficients are jointly significant at 1% level.

The ECM formulation of equation 1, that is, equation-4, represents the short-run adjustment of economic discomfort to changes in economic and political factors.

Error correction coefficient, r, has the expected negative value of -1.046, and it is significant at 1% level. However, the value is greater than one, which implies that error correction mechanism does not work, and hence, any divergence from long-run equilibrium does not correct in the following periods. All the explanatory variables in ECM, except for R, have the same signs as in static long-run equation-1. Therefore, it can be concluded that, in the short-run, economic and political factors behave the way just like they do in the long-run. Negative sign of the coefficient of interest rate (R), in contrast to the long-run, means that a rise in interest rate decreases economic discomfort in the short run. It should also be noted that the coefficients of the variables in ECM are interpreted as short-run estimates.

5. Conclusion

In this study, we apply time series analysis to the Turkish data for the period of 1980-2010 in order to analyse both long-run and short-run relationships between economic discomfort and various measures of economic and political factors. Our estimation results demonstrate that a

rise in trade openness, income inequality, democracy, interest rate and GDP growth rate increase economic discomfort in the long run. Conversely, increasing level of corruption decreases economic discomfort in the long run. As far as short run estimates of error correction model are concerned, economic and political factors under consideration behave as same as they do in the long run. The only exception is interest rate. In the short run, there exists an inverse relationship between interest rate and economic discomfort. In other words, higher interest rate leads to a decrease in economic discomfort.

Our study, in general, shows that political factors along with economic variables have some significant impacts on Turkey's economic well-being. This picture, we believe, urges the need for taking account of political issues like democracy, corruption and income inequality in making economic policies. In other words, economic policy makers should not only focus on economic variables, but also concentrate on political factors in order to achieve better economic performance for Turkey.

Bibliography

Asher, M.A., R.H. Defina and K. Thanawala (1993), "The Misery Index: Only Part of the Story", *Challenge*, March-April, Vol. 36, pp. 58-62

Bağdigen, M. and Beşkaya, A. (2005) "The Impact of Corruption on Government Revenues: The Turkish Case," *Yapı Kredi Economic Review* vol.16, no.2, pp.31-54.

Barro, R. J. (1996): Getting It Right: Markets and Choices in a Free Society. Cambridge: The MIT Press.

Barro, R. J. (1999) "Reagan vs. Clinton: Who's the Economic Champ?", *Business Week*, 22 February. Available online at: http://www.economics.harvard.edu/faculty/barro/files/bw99_02_22.pdf, 12.02.2013.

Beşkaya, A. (2001) "An Empirical Investigation of Aggregate Consumption Behaviour in Turkey", *Unpublished PhD Thesis*, Demontfort University, Leicester: England.

Beşkaya, A. ve M. Bağdigen (2008) "The Relationship Between Corruption and Government Revenues: A Time Series Analysis of the Turkish Case: 1980-2005, *Yapi Kredi Economic Review*, vol. 19, no.1, pp.67-84.

Di Tella, R., R.J. MacCulloch and A.J. Oswald (2001) "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness", *American Economic Review*, vol. 91, no.1, pp. 335-341.

Dickey, D. A. and Fuller, W. A. (1979) "Distributions of the Estimators for Autoregressive Time Series with a Unit Root", *Journal of the American Statistical Association,* vol. 74, pp. 427-431.

Dumlu and Aydın (2008), "Ekonometrik Modellerle Türkiye için 2006 Yılı Gini Katsayısı Tahmini", *Ege Akademik Bakış / Ege Academic Review,* vol.8, no.1, pp. 373 -393.

Freedom House (2012),"Freedom in The World Data" available online at: http://www.freedomhouse.org/sites/default/files/inline_images/FIWAllScoreRatingsByRegion1973-2011.xls, accessed: 04.12.2012.

Ghatak, A. (1998). "Aggregate Consumption Function for India: A Cointegration Analysis under Structural Changes 1919-1986", *Journal of Applied Statistics*, vol.25, no. 4, pp. 475-488.

Gujarati, D. N. (2004) BasicEconometrics, 4th Edition, The McGrow-Hill, New York.

Kibritçioğlu, A. (2007) "A Comparison of Macroeconomic Performances of Governments in Turkey, 1987-2007", Munich Personal RePEc Archive, MPRA Paper No. 3962, available online at: http://mpra.ub.uni-muenchen.de/3962/, 10.01.2013.

Lovell, M.C. and P.L.Tien (2000) "Economic Discomfort and Consumer Sentiment", *Eastern Economic Journal*, vol.26, no. 1, pp.1-8.

MacKinnon, J. G. (1996) "Numerical Distribution Functions for Unit Root and Cointegration Tests" *Journal of Applied Econometrics*, vol. 11, no. 6, pp 601-618.

Okun, A. (1970): The Political Economy of Prosperity. Washington, DC: Brookings.

Pavel Luengas and Inder J. Ruprah (2009) "Should Central Banks Target Happiness? Evidence from Latin America", Inter-American Development Bank Office of Evaluation and Oversight Working Paper: OVE/WP-02/09 available online at: http://ove/oveIntranet/DefaultNoCache.aspx?Action=WUCPublications@ImpactEvaluations. 10.01.2013.

SPO (2012), "Ekonomik ve Sosyal Göstergeler (1950 - 2010)" available online at:

http://www.dpt.gov.tr/PortalDesign/PortalControls/WebIcerikGosterim.aspx?Enc=83D5A6FF03C7B4FC5A73E5CFAD2D9676, accessed:04.12.2012.

TSI (2012), "Gelir ve Yaşam Koşulları Araştırması" available online at: http://www.tuik.gov.tr/PreHaberBultenleri.do?id=8661)

Wang, J (2001) "Economic Analysis of Corruption" *PhD Thesis* in Department of Economics, Emory University, Atlanta.

Welsch, H. (2007) 'Macroeconomics and Life Satisfaction: Revisiting The "Misery Index"', *Journal of Applied Economics*, vol. 10, no.2, pp. 237-251