RELATION OF ANNUAL REAL MOVING IN VALUME OF DOMESTIC DEBT AND REAL ECONOMIC GROWTH PERFORMANCE IN TURKISH ECONOMY AFTER - 1980 TERM: RESULTS AND GENERAL CRITICISM ORDER TO ECONOMICS DEVOLEPMENT PROCESS

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Abstract

The stability of economic growth is the one of the most important macro-economic component of the economic development. Considering Turkish economy during the period from 1980 to 2003, the economic recession was observed during 6 of last 24 years. This is an indication of the fact that the stable real economic growth fell short to perform as a macro-economic factor to contribute to the economic development during the period after January 24 resolutions. The possible influence of value of domestic debt has been scrutinized and it has been determined, upon single linear regression analysis, that value of domestic debt had had negative influence on the real economic growth. Given that the stability in the real economic growth is among one of the most important macro-economic functions of the economic development, value of domestic debt in Turkish economy after 1980 adversely affected the real economic growth of Turkish economy.

Key Words: *Per capita GNP, value of domestic debt, the economic development, the real economic growth, the regression analysis.*

Özet

Reel ekonomik büyümedeki istikrar, iktisadi kalkınmada makro-ekonomik etkenlerin en önemlilerinden biridir. 1980-2003 yılları arasındaki Türkiye ekonomisi incelendiğinde, 24 yıllık periyodun 6 yılında reel ekonomik daralma

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sonucuyla karşılaşılmaktadır. Bu sebeple 24 Ocak Kararları sonrasındaki Türkiye ekonomisinde makro-ekonomik etken olarak istikrarlı reel ekonomik büyümenin iktisadi kalkınmayı destekleyici performans gösteremediği sonucuyla karşılaşılmaktadır. Söz konusu zaman kısıtında istikrarlı bir reel ekonomik büyüme performansı gösterilememesinde, iç borç stoğundaki dalgalanmaların olası etkisi araştırılmış ve yapılan tekli regresyon analizi neticesinde, iç borç stoğundaki yıllık dalgalanmaların reel ekonomik büyüme performansına negatif etki ettiği sonucu bulunmuştur. Reel ekonomik büyümedeki istikrarın iktisadi kalkınmanın makro-ekonomik fonksiyonlarından birisi olduğundan hareketle, 1980 sonrası Türkiye ekonomisinde iç borç stoğundaki dalgalanmaların, Türkiye' nin iktisadi kalkınmasına olumsuz etkide bulunduğu sonucuyla karşılaşılmaktadır.

*Anahtar **Sözcükler:** Fert başına düşen GSMH, iç borç yükü, iktisadi kalkınma, reel büyüme, regresyon analizi.*

1. INTRODUCTION

Notwithstanding the economic policies observed following the establishment of the republic of Turkey that used the domestic debt in public financing, this was rather in the form of formal accounting of the uncovered liquidity put into circulation, since such domestic debt were mainly in the form of "Central Bank Advances" before 1980[1]. Failure of Turkish economy to fulfill her obligations undertaken by stand-by agreement with IMF in 1979 has curtailed the possibilities available for obtaining external loans[2]. As a result, Turkish economy entered into now process that resulted with January 24 resolutions. January 24 resolutions have given rise to increase the volume of the medium- and long-term loans[3]. This was the policy implemented to cope with the problem of the financing the public deficits.

The strategy followed during this period was to reduce the portion of so-called "Central Bank Advances" in aggregate burden of the domestic debt, as was undertaken within the framework of additional obligations toward to IMF

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1 Seyhun DOĞAN (1996) *IMF İstikrar Programları ve Türkiye,* İstek Basın Yayın, İstanbul, pp.131.

2 Gülten KAZGAN (1985) *Ekonomik Dışa Açık Büyüme,* Altın Kitaplar Yayınevi, İstanbul, pp. 386.

3 Erdoğan ALKİN (1980), *Uluslararası Ekonomik İlişkiler,* İ.Ü. İktisat Fakültesi Yayınları, pp 317-321.

in attempt to restructure the domestic debt on behalf of relatively long-term loans. The tendency was observed towards to more flexible economic policies implemented after 1983 following the gradual release of IMF's control. Especially high interest rates up to 49% on 3-month term deposits[4] as of end of 1983 and start of 1984 had given rise to accumulation of the savings in the form of such 3-month term deposits, given the rapid increase of the inflation rates that were higher then predicted.

Captured by the whirl of the domestic debt, Turkey has undergone process of contraction that was indicated by 15% decrease in the net banking interest proceeds in 1988. as compared with the previous year's figure.[5] In the course of immediate financial crisis and high inflation rates had led adoption of the monetary policies, preventing the implementation of radical measures to be introduced in the public financing. As a result of this process, the regulations[6] had been introduced as of August 8, 1989, in order to ensure Turkish Lira's convertibility with respect to foreign currencies, which was postponed one after another since 1984, although first included into the agenda as of 1979[7]. Fostered by the expectations the high rate of change in the exchange rates on behalf of the foreign currency, the tendency was observed in the composition of overall savings accounts in favor of the dollar denominated accounts. During the period from 1988 to 93, the ratio of dollar denominated accounts to aggregate saving accounts increased up to 39%, from its previous ratio of around 24%[8]. In addition to the tendency toward to the foreign currency, the gold purchases as a tool of investment with high rate of liquidity were increased and the threshold of 100 ton production was exceeded after overall increase of 37 % in gold production since 1989[9]. As a result, the interest rates of the domestic debt rapidly increased, whereas the maturity dates were continuously shortened. The

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4 İlker PARASIZ (1992), *Para, Banka ve Finansal Piyasalar,* 4. Baskı, Ezgi Kitabevi, s.292.

5 Selçuk ABAÇ (1990), *Türkiye'de Bankacılık ve Bankalar Sistemi*, IBAR Yayınları, İstanbul, p. 29.

6 Ömer ABUŞOĞLU (1986), *Türk Lirasının Konvertibilitesi,* GÜR-YAY Matbaacılık, Ankara, p. 74.

7 Türkel MİNİBAŞ (1992), *Azgelişmiş Ülkelerde Kalkınmanın Finansman Bütçeleri ve Türkiye,* Der Yayıncvi, İstanbul, p. 104-104.

8 TBB (1998), *Bankacılar,* No. 26, Annex, İstanbul

9 Stewart MURRAY, J (1991), Gold 1991, Gold Fields Mineral Services Ltd., London, pp. 36.

interest rate of 3-month Treasury debenture to the bearer was 50.30% at 1987, which was increased to 88% in 1991[10], whereas the ratio of long-term loans to overall volume of the domestic debt was decreased to 40% in 1991 from its 75% in 1982[11]. During the period after 1992, the amounts of payments against the principal and the interest of the domestic debt were turned out to be higher than the volume of the domestic debt, as a results of public financing through short term loans with high interest rates[12] and the portion of total repayment for the interest against the domestic debt to overall public spending jumped to 14% from its 2% in 1980's[13], all of which were typical for the general characteristics of the economic policies that were followed so far. To this end, this was in fact an indication of the increasing portion of "Central Bank Advances" in financing the public indebtedness[14].

Under the process of ever deepening whirl of public financing, it was indispensable to refer to IMF once again upon issued a letter of intent on December 9, 1999 in order to control of the course of event that was aggravated, after a minor economic crisis in 1994, encountered as a result of multiplication of the domestic debt via short-term internal and external loan facilities. The measures implemented during the period between 1999-2001 were not successful to bring the burden of the domestic debt under control. Given the burden of US$98.0b annual repayments projected during the period between 1999 and 2005 against medium- and long-term loans[15], the reference of the exchange rate was adopted instead of the interest rate in the economic stability program, however, the foreign currency reserves, which were reduced to critical levels, did not allow the implementation of the foreign currency reference[16]. As

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10 TOBB (1993), *1992 Ekonomik Rapor*, 48. Genel Kurul, pp.109.

11 Nuray ALTUĞ (1994), *Türkiye'de İç Borçların Yapısında 1970-1992 Yılları Arasında Meydana Gelen Değişeler Üzerine Bazı Gözlemler"*, İstanbul Üniversitesi Maliye Araştırma Merkezi Konferansları, 36 Seri, İstanbul, pp.172.

12 T.C. Maliye Bakanlığı (1997), *Yıllık Ekonomik Rapor*, Ankara, pp. 108.

13 DİE (2002), *İstatistik Göstergeler, 1923-1992*, Ankara, p. 527.

14 Mustafa TEKİN, Murat ÇİFTÇİ (2004), *Uzun Dönemde Statik Ekonomik Alan Olarak Türkiye ve Reel Büyümedeki Etkenler: Uluslararası Karşılaştırmalı Analiz ve Ekonometrik Uygulamalar"*, Active, No. 42, pp. 58.

15 TCMB (2001), *Yıllık Rapor*, 2001, Ankara.

16 Gazi ERÇEL (1999), *IMF'ye Niyet Mektubu*, www.tcmb.gov.Türkiye Cumhuriyeti/yeni/evds/yayın7imp7mektub.htpl (Accessed on June 23, 2001).

a result, the economic crisis was inevitable in 2001 with an economic recession at the rate of 11.1 %, and the ratio of the volume of the domestic debt to GNP increased to 68.1% from 29%[17].

High rate of increase in the burden of the domestic debt In the course of post-1980 Turkish economy reveals a variable trend in the real growth in per capita GNP. With the economic recession observed during 6 of last 24 years, the stable real economic growth was not achieved in Turkish economy as a macro-economic factor that would contribute to the economic development.

Table 1: Real Economic Growth Performance and Change of Domestic Debt

Years	Per Capita GNP (Annual Real Growth - %) (cpGNP)	Volume of Domestic debt / GNP (%)	Volume of Domestic Debt / Annual Real Change of GNP (%) (cdomDEBT)
1980	-4.8	13.6	-
1981	2.3	12.35	-9.191
1982	0.6	12.63	2.267
1983	1.7	22.77	80.285
1984	4.5	20.91	-8.169
1985	1.7	19.72	-5.691
1986	4.4	20.54	4.158
1987	7.5	22.95	11.733
1988	-0.7	22.03	-4.009
1989	-0.6	18.2	-17.385
1990	6.8	14.4	-20.879
1991	-1.6	15.39	6.875
1992	4.4	17.6	14.36
1993	6.2	17.89	1.648
1994	-7.8	20.56	14.925
1995	6.1	17.33	-15.71
1996	5.3	21.02	21.293
1997	8.7	21.38	1.713
1998	2.3	21.7	1.497
1999	-7.6	29.28	34.931
2000	4.7	29	-0.956
2001	-11.1	68.06	134.69
2002	6.4	54.49	-19.938

[17] DPT (2004), *Temel Ekonomik Göstergeler,* Haziran 2004, Ankara.

2003	6.2	54.49	0.001

Sources: DİE, 2001, DPT, 2004

As it is shown on the table above, there has been a fluctuating volume of the domestic debt in terms of its ration to GNP. The analysis will be made in this context, on the effect of the annual fluctuation in the ratio between the volume of the domestic debt to GNP on annual real growth rates in per capita GNP.

2. ECONOMETRIC REVELATIONS

The volume of the internal loans is considered during the period between 1981 and 2003 so far as it is relevant in the econometric analysis of the progress in the volume of the internal loans following January 24 resolutions. For time series, the following single linear regression formulation steps are adopted:

2.1. Tests of stability

Firs of all, the stability of variables concerning time series will be tested in this regression-analysis. Both independent and dependent variables will be presented according to Augmented Dickey-Fuller unit root test.[18]

2.1.1. Results of the unit root test of both Annual change of Gross National Product (cpGNP) and Annual change of Domestic Debt / Gross National Product (cdomDEBT)

cpGNP:annual change of Gross National Product			
cpGNP		**t-Statistic**	**Prob.**
Augmented Dickey-Fuller test statistic		**-5.989225**	0.0001
Test critical values:	1% level	-3.769597	
	5% level	**-3.004861**	
	10% level	-2.642242	
cdomDEBT :Annual change of Domestic Debt / Gross National Product			
cddomDEBT		**t-Statistic**	**Prob.***
Augmented Dickey-Fuller test statistic		**-5.643356**	0.0001
Test critical values:	1% level	-3.769597	

[18] D.A. DICKEY, W.A. FULLER (1979), "Distribution of the estimator of autoregressive time series with a unit root", ***Journal of the American Statistical Association Volume 74.***, p. 427-431.

	5% level	**-3.004861**
	10% level	-2.642242

The stability of both independent and dependent variables was determined in level.

2.1.2. Results of Engle-Granger cointegrations test for residues

Engle-Granger cointegrations test will be applicated for residues of this regression model.

Error		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-5.025998**	0.0007
Test critical values:	1% level	-3.788030	
	5% level	-3.012363	
	10% level	-2.646119	

According to the test results, the variables are cointegrated. Therefore, the regression which will be established between the independent and dependent variables for level will not be a spurious regression.

2.2. Regression Model

$$\mathbf{cpGNP} = \beta_0 + \beta_1(\mathbf{cdomDEBT}) + \varepsilon_i \qquad (1)$$

Within the framework of the formula as provided above, the data depicted under two columns of Table 1 for annual real progress of per capita GNP and the annual rate of change of the ratio between the volume of the internal loans to GNP. The results obtained upon analysis via single liner regression are as follows:

Model			
cpGNP $=\beta_0+\beta_1($ **cdomDEBT** $)$		(1981 -2003) n=23	
The independent Variable	The Coefficient	t Value	Prob
The constant	3.086819	3.335461	**0.003**
cdomDEBT	-0.090163	-3.428827	**0.002**
$R^2 = 0.35$	**DW =2,22**	**Prob(F) = 0.002**	

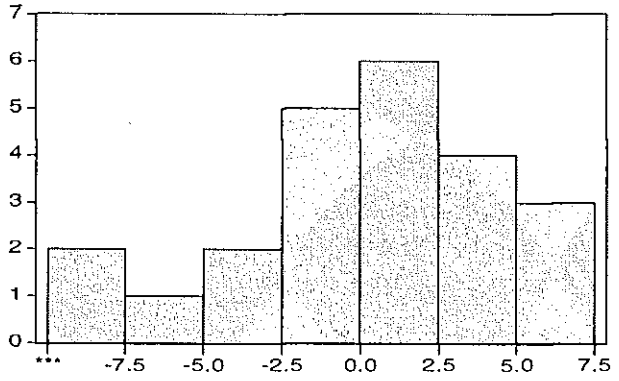
2.2.1. Model Specifications Error Test (Ramsey RESET Test)

The result of Ramsey RESET Test

Ramsey RESET Test:			
F-statistic	0.377926	Probability	**0.690318**
Log likelihood ratio	**0.897248**	Probability	**0.638506**

There are not deficient or extra variables in this model.

2.2.2. Normal distribution for errors (Jarque-Bera Test)



Series: Residuals	
Sample 1981 2003	
Observations 23	
Mean	-5.79E-16
Median	1.515363
Maximum	5.851977
Minimum	-9.541238
Std. Dev.	4.160034
Skewness	-0.568541
Kurtosis	2.644843
Jarque-Bera	1.359962
Probability	0.506627

Errors in this regression model are normally distributed

2.2.3. Results in structural change test (Chow , Cusum of Square Test)

2.2.3.1. Chow Test

Computing Fc in an application and comparing it with the critical Ft value with the appropriate df, one can decide to reject or not reject the null hypothesis that the variances in the two subpopulations are the same. If the null hypothesis is not rejected, then one can use the Chow test.

For 1994

Equal variance.

$H_0 : \sigma_1^2 = \sigma_2^2$

$H_1 : \sigma_1^2 \neq \sigma_2^2$

Sum squared resid (1981 - 2003) =	380.7288	n=23
Sum squared resid (1981 -**1994**) =	210.6993	n_1=14
Sum squared resid (1995 -2003) =	100.2301	n_2=9

$$\sigma_1^2 > \sigma_2^2 \Leftrightarrow F_{computed} = F_c = \frac{\sigma_1^2}{\sigma_2^2} = \frac{\sum_{i=1981}^{1994} e_1^2/(n_1-k)}{\sum_{i=1995}^{2003} e_2^2/(n_2-k)} = \frac{210.6993/(14\text{-}2)}{100.2301/(9\text{-}2)} = \frac{17.55}{14.31} = 0.81$$

$F_{table} = F_t = F_{\alpha;(n_1-k);(n_2-k)} = F_{0.05;12;7} = 3.57$

$F_c < F_t$ *Therefore* H_0 *is accepted*

- **The Chow test**

If the error variances in the two subpopulations are Equals, the Chow test can be application

H_0 : *There is* structural *change*

H_1 : *There is no* structural *change*

$$F_{calculated} = F_c = \frac{\left[\sum_{i=1981}^{2003} e_t^2 - \left(\sum_{i=1981}^{1994} e_1^2 + \sum_{i=1995}^{2003} e_2^2\right)\right]/k}{\left(\sum_{i=1981}^{1994} e_1^2 + \sum_{i=1995}^{2003} e_2^2\right)/(n-2k)}$$

$$F_{calculated} = F_c = \frac{\left[380.7288 - \left(210.6993 + 100.2301\right)\right]/2}{\left(210.6993 + 100.2301\right)/(23-2.2)} = \frac{34.89}{16.36} = 2.13$$

$F_{table} = F_t = F_{\alpha;k;(n-2k)} = F_{0.05;2;19} = 3.52$

$F_c < F_t$ *Therefore* H_0 *is accepted, that is there is no* structural *change*

Chow Breakpoint Test: 1994			
F-statistic	2.297795	Probability	0.127722
Log likelihood ratio	4.982281	Probability	0.082815

For 1999

Equal variance.

$H_0 : \sigma_1^2 = \sigma_2^2$

$H_1 : \sigma_1^2 \neq \sigma_2^2$

Sum squared resid (1981 - 2003) =	380.7288	n=23
Sum squared resid (1981 -1999) =	349.4617	n_1=19
Sum squared resid (2000 -2003) =	2.529757	n_2=4

$$\sigma_1^2 > \sigma_2^2 \Leftrightarrow F_{computed} = F_c = \frac{\sigma_1^2}{\sigma_2^2} = \frac{\sum_{i=1981}^{1994} e_i^2/(n_1-k)}{\sum_{i=1995}^{2003} e_2^2/(n_2-k)} = \frac{349.4617/(19\text{-}2)}{2.529757/(4\text{-}2)} = \frac{20.55}{1.26} = 16.25$$

$F_{table} = F_t = F_{\alpha;(n_1-k);(n_2-k)} = F_{0.05;17;2} = 19.43$

$F_c < F_t$ *Therefore* H_0 *accept*

The Chow test

If the error variances in the two subpopulations are Equals, the Chow test can be application

H_0 : *There is* structural *change*

H_1 : *There is no* structural *change*

$$F_{calculated} = F_c = \frac{\left[\sum_{i=1981}^{2003} e_t^2 - \left(\sum_{i=1981}^{1999} e_1^2 + \sum_{i=2000}^{2003} e_2^2\right)\right]/k}{\left(\sum_{i=1981}^{1999} e_1^2 + \sum_{i=2000}^{2003} e_2^2\right)/(n-2k)}$$

$$F_{calculated} = F_c = \frac{\left[380.7288 - \left(349.4617 + 2.529757\right)\right]/2}{\left(349.4617 + 2.529757\right)/(23-2.2)} = \frac{14.36}{18.52} = 0.77$$

$$F_{table} = F_t = F_{\alpha;k;(n-2k)} = F_{0.05;2;19} = 3.52$$

$F_c < F_t$ *Therefore* H_0 *accept that is no* structural *change*

Chow Breakpoint Test: 1999			
F-statistic	1.571916	Probability	**0.233484**
Log likelihood ratio	**3.521763**	Probability	0.171893

For 2001 chow forecast test

In the chow breakpoint test, when the series with N element is divided into two, n1 at the first part, n2 at the second part and k is the parameter number of the model;

The condition of n1>k, n2>k is searched. Besides this, if the circuit that is thought structural change does not provide these conditions, the chow breakpoint test can not be applied because one of the models belonging to a time would not be estimated. In such conditions, the chow forecast test is used instead of the chow breakpoint test.

Here, the test of regressive model's stability expressed whether or not results acquired from a subsample are acceptable to the whole sample. In this respect, the sum of the squares ($\mathbf{c}'_1\mathbf{e}_1$) of the residual acquired from one subgroup is compared with the sum of the squares ($\mathbf{e}'_R\mathbf{e}_R$) of the residual acquired form the whole sample with N element.

n1<k with the first subgroup

n2<k with the second subgroup

the whole samples are compared. The chow forecast test is used in order to determine structural change in the conditions in question. In such condition, hypotheses are formed like those in the chow test. If n2<k is, test statistics are

$$F_{cal} = \frac{\left(\sum_{i=1}^{N} e_R^2 - \sum_{i=1}^{n_1} e_i^2\right)/n_2}{\sum_{i=1}^{n_1} e_i^2/(n_1-k)} = \frac{(\mathbf{e}_R'\mathbf{e}_R - \mathbf{e}_1'\mathbf{e}_1)/n_2}{\mathbf{e}_1'\mathbf{e}_1/(n_1-k)}$$

$$F_{Table} = F_{\alpha;df1;df2} = F_{\alpha;n_2;n_1-k}$$

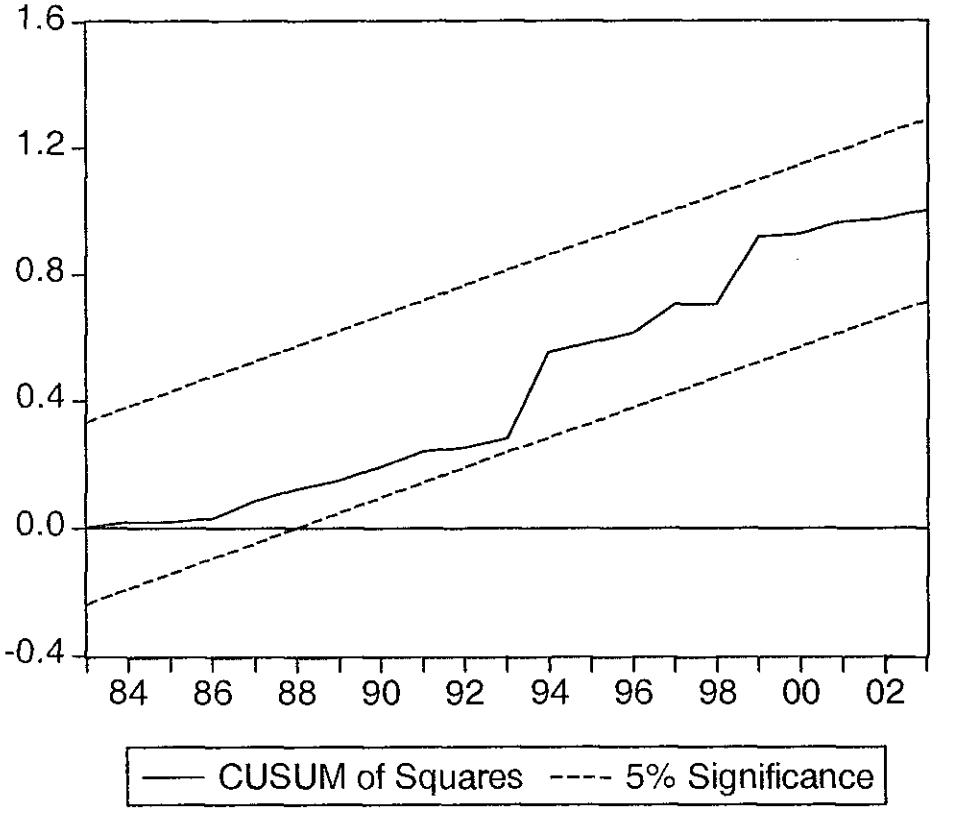
Accounted test statistics is decided by comparing with values that are found in the alpha error portion sd1=n2 and sd2=n1-k with the freedom of degrees.

If n1<k is, test statistics is accounted in the similar way.

Chow Forecast Test: Forecast from 2001 to 2003			
F-statistic	0.467292	Probability	0.708729
Log likelihood ratio	1.724956	Probability	0.631400

No structural change

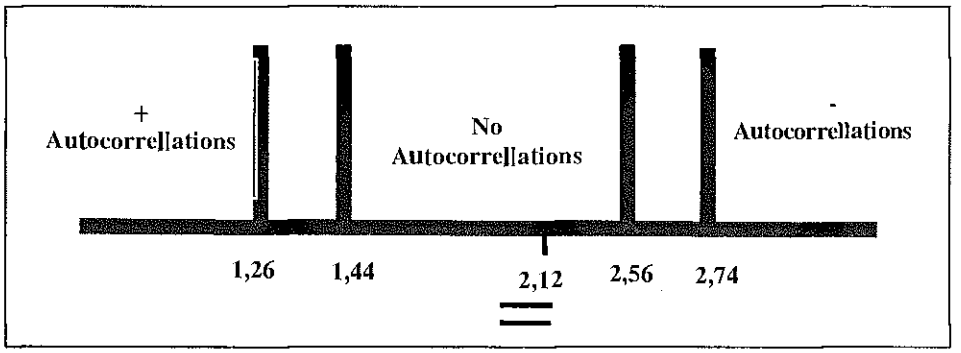
2.2.3.2. CUSUM SQ TEST



No structural change

2.2.4. Results in Autocorrelations tests

a-) Durbin Watson – d Testi



Here, d statistics was calculated as 2.12. $\alpha = 0.05$ in level of significance, the critical values of DW are $d_L = 1.26$ and $d_U = 1,44$ with the degree of freedom. Thus $4\text{-}d_U = 2.56$ and $4\text{-}d_L = 2.74$. DW d statistics falls on the region of non-autocorrelation, hence there is no an autocorrelation.

b-) Breusch – Godfrey LM Testi

$$u_t = \hat{\beta}_0 + \hat{\beta}_1 X_t + \hat{\rho}_1 u_{t-1} + \hat{\rho}_2 u_{t-2} + v_t$$

$H_0 : \rho_1 = \rho_2 = 0$ *no second ordered autocorrelations*

$H_1 : \rho_1 \neq \rho_2 \neq 0$ *second ordered autocorrelations*

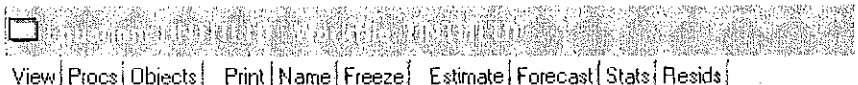
$$u_t = 0.22 + 0.00009 X_t - 0.13 u_{t-1} - 0.004 u_{t-2} + v_t$$

$R^2 = 0.02$ $\quad \chi^2_{cal} = n.R^2 = 0.042$ $\quad df : \hat{\rho} = 2$

$\chi^2_{table} = \chi^2_{\alpha;df} = \chi^2_{0.05;2} = 5.99$

$\left|\chi^2_{cal}\right| = \left|0.042\right| < \chi^2_{table} = 5.99$ *Therefore do not reject* H_0

c-) Examining the Correlogram of residues



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Correlogram of Residuals Squared

Date: 02/21/07 Time: 21:51
Sample: 1981 2003
Included observations: 23

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.262	-0.262	1.7996	0.180
		2	-0.014	-0.089	1.8047	0.406
		3	0.063	0.039	1.9202	0.589
		4	-0.249	-0.241	3.8016	0.434
		5	0.378	0.290	8.3552	0.138
		6	-0.090	0.049	8.6293	0.196
		7	-0.041	-0.004	8.6890	0.276
		8	-0.129	-0.256	9.3253	0.316
		9	-0.160	-0.141	10.381	0.320
		10	0.001	-0.261	10.381	0.408
		11	0.134	0.118	11.248	0.423
		12	-0.042	-0.038	11.340	0.500

It was observed that the values of Autocorrelations and Partial Correlation functions did not exceed confidence limits at no levels $[(0 \mp 1.96(1/\sqrt{23}) \rightarrow (-0.408\ ;\ 0.408)]$. Therefore no autocorrelations were observed

2.2.5. Homoskedastisite Tests:

2.2.5.1. ARCH LM test

After these two tests

After these two texts to analysis autoregressive conditional heteroskedasljicily we also decide to make a ARCH text. ARCH depends on the assumption that error term variances in period to depends on the previous periods' error term variations and its existance is an indicator of the specification error.

ARCH test puts the residual squares in period t into regression with lagged values and it tests that all their coefficients are 0 with LM test.

$$u_t^2 = \alpha + p_1 u_{t-1}^2 + p_2 u_{t-2}^2 + \ldots + p_n u_{t-n}^2 + v_t$$

Also in this text lagged values cannot be determined a priori, some tests must be done. In ARCH test hypothesises are as follows:

$H_0 : p_1 = p_2 = \ldots = p_n = 0$, ARCH has no affect

H_1: At least one p_i is different from zero, ARCH has affect

(Lag=1) one period lagged ARCH text

$u_t^2 = 5.52\text{-}0.07u_{t-1}^2$ Cal $\chi^2 = n.R^2 = 0.136$

As Cal $\chi^2 = n.R^2 = 0.136$ is smaller than 3.84, Ho is accepted and therefore there is no ARCH effect in this model

(Lag=2) two period-lag ARCH test:

$u_t^2 = 6.91\text{-}0.10u_{t-1}^2 \text{-}0.20u_{t-2}^2$ Cal $\chi^2 = n.R^2 = 0.44$

As Cal $\chi^2 = n.R^2 = 0.44$ is smaller than 3.84, Ho is accepted and therefore there is no ARCH effect in this model

(Lag=3) Three period-lag ARCH test:

$u_t^2 = 7.92\text{-}0.13u_{t-1}^2 \text{-}0.21u_{t-2}^2 \text{-}0.13u_{t-3}^2$ Cal $\chi^2 = n.R^2 = 0.36$

As Cal $\chi^2 = n.R^2 = 0.36$ is smaller than 3.84, Ho is accepted and therefore there is no ARCH effect in this model

(Lag=4) Four period-lag ARCH test:

$u_t^2 = 8.60\text{-}0.14u_{t-1}^2 - 0.23u_{t-2}^2 - 0.14u_{t-3}^2 - 0.084u_{t-4}^2$ Cal $\chi^2 = n.R^2 = 0.25$

As Cal $\chi^2 = n.R^2 = 0.25$ is smaller than 3.84, Ho is accepted and therefore there is no ARCH effect in this model

2.2.5.2. Spearman Rank Correlations Test

$$H_0 : r_s = 0 \quad \textit{Accept Autocorrelation}$$
$$H_1 : r_s \neq 0 \quad \textit{Accept Autocorrelation}$$

$$r_s = 1 - \frac{6\sum D^2}{n(n^2-1)} = 1 - \frac{6.(2194)}{23.(23^2-1)} = 1 - 1.083 = -0.083$$

$$t_{cal} = \frac{r_s\sqrt{n-2}}{\sqrt{1-r_s^2}} = \frac{-0.083\sqrt{23-2}}{\sqrt{[1-(-0.083)^2]}} = -0.386$$

$$t_{table} = t_{\alpha;n-2} = t_{0.05;23-2} = 2.07$$

$$|t_{cal}| = |-0.386| < t_{0.05;23-2} = 2.07 \quad \textit{Therefore do not reject } H_0$$

As the aggregate results on the table above suggest, the annual fluctuations in the ratio of the volume of the internal loans to GNP had negative influence on Turkey's real economic growth performance in the course after January 24

resolutions. There is no auto-regressive process in the model and t-statistic turns out to be significant.

3. CONCLUSION

The most important macro-economic factor on the process of the economic development is the performance in the real economic growth, save quantitative indicators. The better and more stable is the performance in the real economic growth in a country, the higher is the rate of recovery of the economic development. As a result, high rate of stable performance in the real economic growth gives rise to high rate of increase in the real national products. In a country where the national income increases in real terms, the qualifications of the labor force will be improved, to this end, the training activities and the competence will be increased. The focus will be on the cultural and social welfare. The public spending will be increased, the progressive improvement will be observed in the distribution of the disposable income on the basis of positive discrimination, thanks to the availability of public resources as a result of the real economic growth. Therefore, the preference towards to the welfare economy will be fostered. This will ensure the implementation of the strategies specific to a social administration[19].

1980 was a milestone for Turkey in many aspects. It marked an understanding in the economic strategies toward to relatively open market economy to be achieved progressively in attempt to cope with the challenges in a competitive world, rather than so-called mixed economy, where the policies were designed for the purpose of import replacement under the pronounced domination of the public sector. This has led to the determination of implementation for the objective of competitive economy strong enough to be able to enter into foreign market, rather than stagnant economy that was isolated from the rest of the world. Such an objective was vulnerable enough to had faced with 6-year stagnation in a 24-year period, which was characterized by the

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[19] For further informaiton, see Murat ÇİFTÇİ (1999), *Ampirik Bulgular Biçiminde Sosyal Devlet Kavramının Sosyo-Ekonomik Analizi*, İstanbul Üniversitesi, İktisat Fakültesi Yayını, No. 4206/567, İstanbul.

economic recession, let alone the deviation both in the stability and the rate of increase of the real economic growth.

It is unlikely to attribute the fluctuations in the performance of the real economic growth to a specific reason. The diversified and complex feature of the subject matter does not allow to cast the light on the totality of the underlying reasons within the format of an article as provided herein. There has yet been so many publications on the subject matter dealing with such reasons in more details thanks to their context in the form of more elaborated reports and books. The test has been provided by this article on the effect of the annual fluctuations in the volume of the domestic debt on the performance of real economic growth in Turkey, which is among one and most important effects influencing on the progress of the unstable trend undergone in the economic development.

Findings obtained as a result of the regression analysis suggest that he annual fluctuations in the volume of the domestic debt had negative influence on the annual rate of change of per capita GNP. In other words, the lack of the performance of real economic growth is attributable to the real increases in the volume of the domestic debt in Turkish economy. As a result, the real economic growth was not as it was expected as a result of the poor economic performance in the strategies adopted by financing the public spending unreasonably through domestic debt. Findings of the linear regression provides the empiric evidences with respect to the subject matter and therefore, this might provide an significant contribution to the pertinent literature. This is mainly because of extremely clear and evident data under the relevant table obtained through such regression analysis, which provides a clear depiction of the aforementioned unsustainable structure of the economy. This also provides and unique clarification to the subject matter.

Based on the fact that the real economic growth has significant influence on the tendency of the basic macro-economic factor on the economic development, it can be concluded that the strategy of financing the public spending through the domestic debt has had adverse effects on the economic development in the course of post-1980 era, with its underlying effects as a results of Value of Domestic Debt on the real economic development.

REFERENCES

ABAÇ, Selçuk (1990), ***Türkiyede Bankacılık ve Bankalar Sistemi***, İBAR Yayınları, İstanbul,

ABUŞOĞLU, Ömer (1986), ***Türk Lirasının Konvertibilitesi***, Adana: GÜR-YAY Matbaacılık

ALKİN, Erdoğan (1981), ***Uluslararası Ekonomik İlişkiler***, İstanbul: İÜ İktisat Fakültesi Yaymı No: 2881/478.

ALTUĞ, Nuray (1994), ***"Türkiye'de İç Borçların Yapısında 1970-1992 Yılları Arasında Meydana Gelen Değişeler Üzerine Bazı Gözlemler"***, İstanbul, İstanbul Üniversitesi Maliye Araştırma Merkezi Konferansları, 36 Seri.

ÇİFTÇİ, Murat (1999), ***"Ampirik Bulgular Biçiminde Sosyal Devlet Kavramının Sosyo-Ekonomik Analizi"***, İstanbul, İstanbul Üniversitesi İktisat Fakültesi Yayını, No. 4206/567.

DIE (2001), ***İstatistik Göstergeler***, *1923-1992,* Ankara.

DOĞAN, Seyhun, (1996), ***IMF İstikar Programları ve Türkiye,*** İstek Basın Yayın, İstanbul.

DPT (2004), ***Temel Ekonomik Göstergeler,*** Ankara Haziran 2004.

ERÇEL, Gazi (1999), ***IMF'ye Niyet Mektubu***, www.lcmb.gov.Türkiye Cumluriyeti/yeni/evds/yayın7imp7mektub.htpl (Accessed on June 23, 2001)

KAZGAN, Gülten (1985), ***Ekonomik Dışa Açık Büyüme***, İstanbul, Altın Kitaplar Yayınevi.

MİNİBAŞ, Türkei (1992), ***Azgelişmiş Ülkelerde Kalkınmanın Finansman Bütçeleri ve Türkiye***, İstanbul, Der Yayınevi.

MURRAY, Stewart, J (1991), **Gold 1991**, London, Gold Fields Mineral Services Ltd.

PARASIZ, İlker (1992), ***Para, Banka ve Finansal Piyasalar,*** Ezgi Kitabevi, 4. Baskı.

TBB (1998), ***Bankacılar***, İstanbu, No. 26, Annex.

TCMB (2001), ***Yıllık Rapor***, Ankara, 2001.

T.C. Maliye Bakanlığı (1997), ***Yıllık Ekonomik Rapor,*** Ankara.

TEKİN Mustafa, ÇİFTÇİ Murat (2004), ***"Uzun Dönemde Statik Ekonomik Alan Olarak Türkiye ve Reel Büyümedeki Etkenler: Uluslararası Karşılaştırmalı Analiz ve Ekonometrik Uygulamalar",*** Active, No. 42.

TOBB (1993), ***1992 Ekonomik Rapor***, 48. Genel Kurul.