The Relationship Between Economic Growth And Tax Revenue: Bounds Testing

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Abstract : Taxes are one of the most important sources of finance; moreover they are able to have various impacts on chief indicators of economy. However, taxes may have negative as well as positive impacts. The relationship between economic growth and tax revenue in Turkish economy has been studied in this survey. In the survey, the existence of relationship between series and co-integration as well as long and short term links have been studied through ARDL bounds testing and it was observed that series moved together in the long term.

In the long term analysis, a relationship between indirect and direct taxes with economic growth has a meaningful and positive relationship. It was found out that direct taxes effect bigger than indirect taxes.

In the short term analysis, the coefficient of vector error correction model was signed negative and statistically meaningful. This means that the deviation, which took place in the short term between series which moved together in the long term, has disappeared and series came close to each other. Again, both types of taxes in the analysis of short-term growth is positive and statistically significant influenced, besides in the short term analysis it was observed that indirect taxes effect bigger than direct taxes.

Key words: Economic Growth, Indirect and direct taxes revenue, Bounds testing.

JEL Sınıflandırması: E62, H21, H27, O49.

1. Introduction

Tax is the transfer of the sources without any provision and under the rules of political force from the economical deparments of the goverment in order to provide the expenses of the puclic facilities (Temiz, 2008). Throughout the history countries have provided the income they need to act their basic functions by collecting taxes.At the same time tax policy is used for the economic and social purposes like allocation for sources through increasing internal savings,increasing economic growth of the country, providing price stability and controling the production and consumption level indirectly.

Tax incomes are one of the most essential sources to administer the public facilities.In order to provide social security services,state investments and the other public expenses the goverment will either collect taxes or get into the debt. Getting into debt is the last way to prefer for the countries.

Taxes in an economic system may effect the amount of the goods and services produced and the income and prices of production factors directly or indirectly (Yılmaz, 1996). The taxes which have the capacity to effect directly

people's decisions to use for the labour, savings,investment and source can be effective on the economic growth via different channels.Especially for the developing economies analysing the relationship between the taxes that are the primary source for the public and the growth would contribute to form tax policies and improve some applications (Gül ve Kenar, 2009).Especially in developing countries today taxation policy which is an instrument for the financial policy is a very effective financial instrument (Eker vd., 1996:32).

We can categorize the taxes in use today in three groups according to the characters of the event that caused for their use: The taxes about the incomes including income taxes, corporation taxes,etc;the taxes about expenses including income taxes based upon expenses,transaction and sale taxes and custom taxes,etc;the taxes about the propertiess and the transfer of the properties including general property taxes,real estate taxes,capital taxes,motor vehicle taxes (Temiz,2008).

Also taxes can be categorized in some other forms as in rem-monetary,spesific-advolorem and direct-indirect taxes (Bulutoğlu,1970). Furthermore it is also common to categorize the taxes in two big classes as direct or indirect. While analysing the reflection of the taxes on the economic growth in recent studies, especially direct and indirect identification is used.This identification is also very essential to form good taxation systems.

Direct taxes are the taxes collected from the individuals and the corporations according to their income level whose tax payer and payer is the same. In these taxes there is no possibility for the tax payers to reflect his tax obligation to the others. Income taxes that the goverment collect from the factor incomes (interest, fee, profit, annuity) and taxes on the properties and corporation taxes are the example for the direct taxes (Turan,2008).

On the other hand indirect taxes are the taxes resulted from the use of goods and services.Everybody using the taxable goods and services pay the tax at the same percentage however income they have.In these taxes the tax payer and its payer is different. The Value Added Tax and the excies tax are in the group of indirect taxes. (Temiz,2008).

The situation desired in the taxation policies is to provide most of the tax collection by the direct taxes.These taxes mostly support the economic growth. However, indirect taxes can contribute to the economic growth like direct taxes if they are used suitable for economic structure of the country,too. Economic growth expresses the increase of the real national income in the length of time.In developed or especially developing countries economic growth has a special importance. There are many theories in this issue.Economic growth theories are analysed in terms of their factors,qualities and characters that have effects on the economic growth. In this context economic growth theories mostly major on the matters of capital accumulation,technical improvement and population increase.In an economy there are two commonly approved approaches about the economic growth rate. These are Harrod-Domar and Neo-classic Harrod-Domar growth model founded by making Keynesyen balance model dinamic and based on Keynesyen hypothesis actracted many attentions in the post-war years. Harrod-Domar model suggests the idea that growth rate is determined by the capital accumulation.In this case it can be possible for the goverment to realize the target growth rate by intervening the economy via the financial policy instruments or to remove the possible drifts on the long term growth rate.In this context the government on one hand has a great role to realize the economic growth with the public expenses,on the other hand it can use the taxation policy as an instrument for an increase in the total savings quantity of the economy.In this case it will be possible to increase the public savings,to encourage private investments and to resist against the structural instabilities which are derived from the economic growth and may cause a danger in growth.(Demircan, 2003).

At the same time indirect taxes can help to reduce the consumption and encourage the savings in the economy by effecting the relative prices.So an indirect tax on the consumption goods can reduce the expenses on these goods by increasing the consumption cost and it can help these sources to be directed to the investments. (Temiz,2008).

In this study the relationship between the indirect and direct tax incomes and the economic growth in Turkey is analysed with the limit test approach by the help of the annual information between 1924 and 2009 years.In the study,in second section following the introduction part,the sructure of the taxation in Turkey is analysed and third section including a summary of literature about the subject follows. Method and information set are in the fourth,analyse and empiric findings are in the fifith section.The study ends with a short conclusion and evaluation part.

2. Taxation Applications In Turkey

While in developed countries especially rate of the direct taxes are high in tax incomes,in developing countries indirect taxes are high.In developed countries avarage %26 of total taxes , in developing countries more than %50 of taxes is composed of indirect taxes. The main reason for that is the application of indirect taxes is easier in spite of the difficulties in the application of the taxes collected on the income, the individuals are unaware about

these taxes and they response less to the tax implementors.The high rate of the indirect taxes in developing countries is closely related to the economic growth.Since the taxation systems are not exactly efficient in these countries, indirect taxes are emphasized.(Temiz,2008).

When the improvement of indirect and direct taxes are analysed in Turkey a great and fast change stand out in the composition of the direct and indirect taxes in total tax incomes especially post-1980. While the indirect tax rate is %36 in 1980,this rate went up to % 64 when we were in 2009. It can be said that the taxes collected from goods and services like value added tax and excise tax have an essential role in total tax incomes in the increase of indirect taxes.

Especially after the economic crisis in 1994 in Turkey the rate of indirect taxes in total taxes increased an this rate rised until %69.(Graphic 1).After economic crisis and The Marmara Earthquake in 1999 some temporary taxes became permanent and this was effective on this rise.

While 71 Billion TL of tax (%36)of the total 196 Billion TL of tax collected in 2009 in Turkey is consisted of direct taxes, the rest of 125 Billions of TL(%64)of tax is consisted of indirect taxes. This shows we are very far away from the ideal porsion rate between direct and indirect taxes.

Graphic: 1 The Portion of Direct and Indirect Taxes in Tax Incomes in Turkey
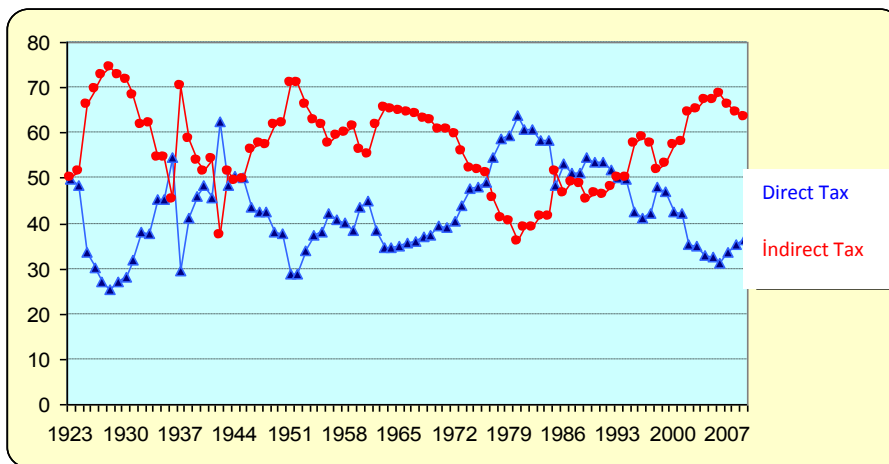
One important point is that the rate of the tax incomes of the countries in the rate of gross national product.While this rate passes %40 in developed countries,it is %20 in developing countries.(Graphic 2). This rate is essential in showing how much public expenses are financed by the tax incomes and whether the countries need external loans or not.

Graphic2: The Rate of Tax Incomes in the Rate of Gross National Product (%)
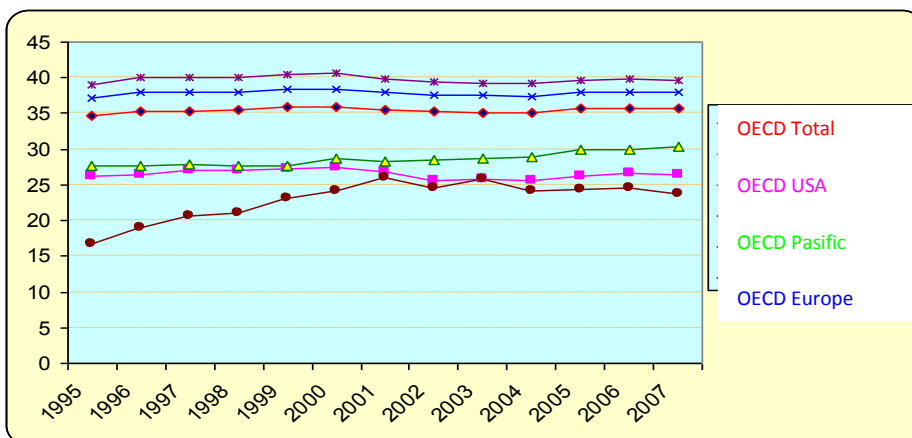
Source: OECD, Revenue Statistics of OECD Member Countries, Paris,2009.

3. Literature

There is a wide literature on the subject of the effects of the direct and indirect taxes on long term growth.In accordance with the Neo-classic growth model Solow (1956) supposes that taxation has no effect on long term growth. Most of the studies in accordance with the Internal growing model result direct and indirect taxes have a negative effect on the long term growth. It is accepted that indirect taxes have more effects on the gowth than the direct taxes.

Marsden (1983),wanted to stress that as the tax rates increase it causes low growth. Skinner (1987), reached a similar result by using the rates of personal and institutional income taxes.

King ve Rebelo (1990), observed about % 2 of decrease in growth per year when tax rates increased % 10.As a result in the study, he stated that in long term income taxes have a decreasing effect on the individual earnings,on the other hand Mendoza vd. (1997) stated that in theory it can be estimated that the changes in income taxes affect the investments and the growth but in practise the tax policy and the changes on composition of direct and indirect taxes is an uneffective instrument to effect the economical growth in long term.

Easterly ve Rebelo (1992) who used an information set about 1970-1988 years for many developing countries concluded that two measurements about marginal income rates have a negative but unimportant effect on the individual consumption growth .

Plosser (1992) stated that there is a negative relationship between avarage individual real growing rates and avarage tax rates on income and profits in OECD countries,while William Easterley ve Sergio Robelo (1993) stated that this negative relationship disappeared when the begining income stage was checked. Writers also stated that the countries applying low tax rates was more succesful in reaching a high growing speed than the countries applying high tax rates.

Roubini and Milesi-Feretti (1994) searched the effects of income taxes in open economy on the economic growth in accordence with the internal growing models.They especially stressed on the effects of the taxation of the income on the pysical capital saving decision of private sector and increase of the allocations via individual capital savings.Writers concluded that allocation and pysical taxes have negative effects on the growth.

In an another study Roubini and Milesi-Feretti (1995) searched the effects of income and consumption taxes in the process based on the pysical and individual capital savings. The results showed that in general taxation of factor incomes(individual and pysical capital) had decreasing effects on the growth.The effect of consumption taxes on the growth is determined to change according to the supply of labour flexibility and consequently free time preferances.

Razin and Yuen (1995) searched the effects of taxation of capital income on the long term growth in accordence with the internal growing model which is open to the international capital movements and the population increase is considered as an internal variable. The results of the study containing G7 countries showed that in the case of whole capital movement, cuts on the capital taxes would cause a decrease on the individual income rates and growth.

Engen ve Skinner (1992) who used an information set including 1970-1985 years about 107 countries stated that both expenses of the state and the taxation have strong and negative effects on the growth,it was estimated a 1.4 percent point decrease on long term growth by increasing the budget with 10 percent in balance on the expenses of the state and the taxation,the administritive structure of the tax system was also important on the evaluation of the effect of the taxation on the production , Ram's results were supported by the instrumental variables approach.

Engen ve Skinner (1996) searhed the effects of a general taxation cut under the control of three approach on the long term growth.These approaches consists of a micro model containing investigation of historical time series for the USA, a stage regresion analysis, labour supply,investment demand and productivity boost. The result of the study show that taxation had a mid-staged effect on the long term growth.

Leibfritz and the others (1997) stated that about a 10 percent point increase on the tax rates in the past 35 years could have decreased the OECD annual growth rates about ½ percent point,however this calculation had some defects to evaluate the effects of taxes on the economy so it was necessary to support these calculations with an another approach.

Kneller and the others (1999) who studied weather the proofs in OECD countries are coherent with the estimates of the endogenic growing models anticipating that puclic expenses and the structure of the taxes could effect the stable growth rate by using an information set including 1970 and 1995 years about 22 OECD countries reached a fact that non-deforming taxation didn't decrease the growth but deforming taxation decreased the growth, productive state expenses increased the growth but non-productive expenses didn't increased the growth.

Anastassiou and Dritsaki (2005)searched for the Greece economy the tax incomes,direct marginal tax rates and the relationship between savings-income rate and growth rate.In the study to search for the long term realtions Johansen koentegrasyon method,fort he short term relations Granger causility test was used.The proofs showed the existence of a long term relation between the variations in the study. In term of short term relations, it was found a one way casual relation from direct marginal tax rates and tax incomes to the growth.

Durkaya ve Ceylan (2006) analised the realtionship between 1980–2004 years tax incomes and economical growth with Engle-Granger integration test and casuality test and figured out that there was a double sided realtion between direct taxes and growth,however there was no realtionship between indirect taxes and the growth. It was stated that if the tax increases to increase the tax incomes had been made upon the indirect taxes,the negative effect of the tax increase on the growth would have been decreased. It was also stated that the change of the current tax items from direct taxes to indirect taxes would make the same effect.

In his study Demircan(2003)stated that there was a close relationship betweeen groth and economy policies and a growth and development in the country ecenomy was closely related with the income tax decreases. He stated that to work was important and the tax decreases which increase the production and national income would directly increase the gross national product rate,and also if there was a politic and economic stability in the state,the changes to reconstruct in tax conduction and mechanisms for taxing encouragement had positive effects on the growth and development.Also he stated that the direct taxes taken on expenses were both for providing the equality in taxes and they affected indirectly economic growth and development in terms of encouraging the savings by reducing the luxurious consumptions.

4. Data And Methods

This survey covers 1924 and 2009. 3 variables have been used and all variables have been calculated in percentages. The variable vektör of the survey is: Yt=[DLIt, DSZt]. Y stands for Gross National Product (GNP), DLI indirect tax income and DSZ direct tax income. All data have been taken from the website of the Directorship of Income(www.gib.gov.tr).

In this survey boundary test approach which was developed by Pesaran vd.(2001) has been used in order to study the effect of tax revenue over economic growth. This method is considered to be more usable when comperad to cointegration method developed by Engle-Granger. Series have to be stable in the first differnce in the Engle-Granger and Johansen. Series can be in different stability levels in ARDL method. Another advantage of boundary test approach is that analysis can be made with only a few data. (Narayan and narayan, 2004:25) More over as the regresive variables included in analysis. The level and regressive values of independed veriables can be observed on depended variables. In boundary test apprach firstly whether series move together in long-term is analysized by means of ARDL cointegration method. İf there is conşntegration relationship betwen series the coefficient and statistic of regression carried out with this serries will be meaningfull and reliable. İf relationship can be pointed out whit be serries lon an short term analysis are held by means of ARDL method.

5. Analysis And Empirical Findings

5.1. ADF Unit Root Test

If time serries is not stable, medyan, variance and covariance changeble in time. Shocks take place in a term can effect the others and it becomes permanent. The analysis carried out in this case includs fake regression and F and t statistics loos their meaning (Gujarati, 1999:2.712).
The stability levels of serries and unitroot test have been studied with ADF test.
DF test is carried out based on three regression equation (Dickey and Fuller, 1979).

Simple position:
$$\Delta Y_t = \gamma Y_{t-1} + u_t \tag{1}$$

Intercept:
$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + u \tag{2}$$

Trend and intercept:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \gamma Y_{t-1} + u_t \qquad (3)$$

As a result of this tests the DF statistic been compared Mac Kinnon crtitical values zero hypotesis is tested against the lternative hypotesis. Zero hypotesis showes that serries is not stable alternative hypotesis. İf error correction term is autocorrelated equation (3) is regulated as:

$$\Delta Y = \alpha_0 + \alpha_1 t + \gamma Y_{t-1} + \beta_i \sum_{i=1}^{m} \Delta Y_{t-i} + u_t \qquad (4)$$

Here m stands for regression length and Δ stands for difference operator. Regression number depends on obtaining model without autocorrelation. A test which is carried out this way is called ADF test in short. Tests results obtained accordingly are shown in Table 1.

Table 1: ADF Test Results Expanded for Dickey-Fuller Variables (ADF)

Variables	Level Values		1. Difference	
	ADF sts..	Mac Kinnon %1 test values	ADF sts.	Mac Kinnon %1 test values
G	-1,83	-3,51	-8,40[2]	-3,51
DLI	-1,78	-3,52	-3,55[10]	-3,52
DSZ	-2,41	-3,51	-9,17[2]	-3,51

Note:The values in [ ] points out teh number. By taking the lenght which Akaike is the lowest. Mac Kinnon test values pointed out without trend and intercept test values.
In the Table 1 it is observed that all series I(1) when their first differences are taken.

5.2. Co-Integration Test

The level values of many macroeconomic variables are not stable. If there is a co-integration relationship between series in other words if series move together in the long term, a fake regretion trouble will not be faced in an analysis to be carried out with level values(Pesaran etc, 2001:290;Gujarati 1999). However, the dynamic behaviors of variables moving together in the long term cause some deviations in the balance equation(Enders, 1996:151). This is one of the basic characteristic of co-integration variables and plays an important part in the short term dynamic. The dynamic model appearing along with this process is called error correction model(Enders, 1995: 365).
An unrestricted error correction model is setup so that boundary test approach can be applied. (unrestricted error correction model: UECM) This model can be applied to our survey as fallows:

$$\Delta G_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta G_{t-i} + \sum_{i=0}^{m} \alpha_{2i} \Delta DLI_{t-i} + \sum_{i=0}^{m} \alpha_{3i} \Delta DSZ_{t-i} + \alpha_4 G_{t-1} +$$
$$\alpha_5 DLI_{t-1} + \alpha_6 DSZ_{t-1} + u_t \qquad (5)$$

Here, m; stands for optimum length, Δ stands for difference operator, u_t stands for error correction term, those which are given with other letter abbreviation stands fort he meanings in variable definitions. In this survey optimum lenght has been determined by means of Akaike Criterion. According to Kamas ve Joyce (1993)
There musn't be restpective connection error terns of optimum laght lend so that the test can give healthy result. If there is autcorolation in the lag lenght which akaike criteria lowest. One has to next lag.
The test result of lag lenght are presented in table 2. Maksimum lag lenght is 4 since the data in this survey is annual.

Table 2: The lag length is point out for boundary test

m	AIC	LM Test
1*	**8,217**	**0,69**
2	8,295	0,47
3	8,246	0,04
4	8,287	0,19

The optiumum lag length determined as a one in the table 2.In this lag length hasn't aoutocorolation.
After lag length determined it passed testing process cointegration relation ship between variables.
In boundary cointegration relationship between values is made by mines of testing ziro hypotesis.
(H_0:α_4=α_5=α_6=0) Zero hypotesis accept or reject is determinated with F test.

Calculate value contrasted table conpered and contrast min and max value in Pesseran etc 2001 table. In the fisrt case if calculated F statistic value lover than min critic value. It is decided that there is coengration relation between series. In the second case if calculated F statistic value in between max and min critice value no definite commend can be made. In this case must be tried alternative cointegration methots. Finaly f calculated F statistic value bigger than table max critic it is decidet that there is cointegration relationship between serious.

In this study unrestricted error correction model is estimate to lag length and calculated F statistic. Results given in table 3. For testing H_0 calculated F statistic value compared with critic value which taken Pesaran etc 2001 in table 3. This critic values given fort 2 independed variable and mining full %1.

Table 3: Boundary Test Results

k	F Calculated	Min	Max
2	14,20	5,15	6,36

Note: k stands for variable number. Critical values are extracted from Table CI (iii) in Pesaran etc.

It is observed that calculated F statistics is higher than utmost critical value. In this case H_0 hypothesis is denied and it is concluded that there is a co-integration relationship between variables. Since the existence of co-integration relationship between series is remarked, ARDL models started to be estimated to search the long and short term relationships between variables.

5.3 Long Term Analysis

ARDL model which is used in order to analyse long term relations is formulated as:

$$G_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i}G_{t-i} + \sum_{i=0}^{n} \alpha_{2i}DLI_{t-i} + \sum_{i=0}^{p} \alpha_{3i}DSZ_{t-i} + u_t \qquad (6)$$

Here m, n, p is length and determined with AIC. This transaction has been carried out with the method that Kamas and Joyce(1993) proposed in their causality analyses so as to determine length. Therefore; first of all, regression according to dependent variables' own regressive values is made and the length of the whit out autocorrelation model which gives the lowest AIC value. Then, regression models were formed by keeping the identified length of the dependent variable stable and all possible regressions of foreign direct investment variable which is the first independent variable and the regressive number of independent variables was found by taking AIC values into consideration. Optimum regression number was obtained by repeating similar transactions for other variables. As a result of the transaction carried out, it was decided that ARDL(4,1,4) was the long term ARDL model to be estimated and results are presented in table 4.

The Lag Length determine for The Long Term Boundary Test

m (G)	AIC	LM Test	n (DLI)	AIC	LM Test	p (DSZ)	AIC	LM Test
0	-	-	0	8,710	0,00	0	8,382	0,00
1	8,889	0,83	1*	8,600	0,60	1	8,262	0,93
2	8,925	0,11	2	8,621	0,94	2	8,286	0,61
3	8,900	0,17	3	8,643	0,14	3	8,309	0,01
4*	8,875	0,99	4	8,662	0,23	4*	8,244	0,25

The estimate results of long term ARDL(4,1,4) and long term coefficients calculated based on the results mentioned are available in table 5.

Table 5: The results of Estimated ARDL (4,1,4) Model and The Long Term Coefficients

Variables	Coefficient	t-statistical
c	0.980880	0.400290
G_{t-1}	-0.003891	-0.027863
G_{t-2}	-0.092723	-0.723156
G_{t-3}	-0.004752	-0.042695
G_{t-4}	-0.122843	-1.233238
DLI_t	0.323505	3.733284
DLI_{t-1}	0.131856	1.405338
DSZ_t	0.276303	4.966621
DSZ_{t-1}	0.208335	3.236775
DSZ_{t-2}	-0.025281	-0.367004
DSZ_{t-3}	0.016428	0.258477
DSZ_{t-4}	0.156683	2.534998
The Long Term Coefficient		
DLI	0,371963	4,251
DSZ	0,461113	4,094
c	0,801235	0,401
Diagnosis Tests		
$R^2=0.82$	$\chi^2_{BGAB}(2)=1,588(0.21)$	
$\overline{R}^2=0.79$	$\chi^2_{WDV}=0,309(0.99)$	
$F\ ist.=29,58(0,00)$	$\chi^2_{JBN}=24,78(0.00)$	
$DW=1,84$	$\chi^2_{RRMKH}(1)=0,13(0.71)$	

Note: Here, χ^2_{BGAB}, χ^2_{WDV}, χ^2_{JBN} and χ^2_{RRMKH} are respectively Breusch-Godfrey successive dependence, White changing variance, Jarque-Bera normality test and Ramsey model establishment error statistics in regression. The figures in parentheses reflect p-probability values.

Taking the results in table 5 into consideration, both direct and indirect taxes increase economic growth and affect it statistically meaningfully.

Dolaysız vergilerin büyümeyi, dolaylı vergilerden daha çok arttırdığı görülmektedir.

5.4. Kısa Dönem Analizi

Short term relation between variables again investigated by means of ARDL Error Correction Model based on boundary test approach. ARDL model which is used in order to analyse short term relations is formulated as:

$$\Delta G_t = \alpha_0 + \alpha_1 EC_{t-1} + \sum_{i=1}^{m} \alpha_{2i} \Delta G_{t-i} + \sum_{i=0}^{n} \alpha_{3i} \Delta DLI_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta DSZ_{t-i} + u_t \quad (7)$$

Here EC_{t-1} is error correction terms and it stands for one term lagged of error terms series which it is obtained from long term relationship. Coefficient for this variable is point out duration of sort term deviation. If this sign of coefficient is negative, deviations happen in short term between series is convergences to long term balance value. If this sign of coefficient is positive, not convergences to long term balance value.

In this model lag length of veriables determineted just like long term. As a result of the transaction carried out, it was decided that ARDL(5.1.0.0.0) was the short term ARDL model to be estimated and results are presented in Table 6.

Table 6: Determination of Lag Length for short Term Boundary Test

m (ΔG)	AIC	LM Testi	n (ΔDLI)	AIC	LM Testi	p (ΔDSZ)	AIC	LM Testi
0	-	-	0	8,893	0,28	0	8,633	0,05
1	9,002	0,58	1	8,790	0,12	1	8,422	0,01
2	8,939	0,33	2*	**8,745**	**0,44**	2	8,428	0,41
3*	**8,912**	**0,77**	3	8,769	0,05	3	8,413	0,003
4	8,927	0,31	4	8,783	0,02	4*	**8,271**	**0,50**

Tablo 6'da da görüldüğü üzere, tahmin edilecek kısa dönem ARDL modelinin ARDL(3,2,4) modeli olduğu sonucuna ulaşılmıştır. ARDL(3,2,4) modeli tahmin edilmiş ve kısa dönem tahmin sonuçları Tablo 7'de verilmiştir.

Table 7: The Results of ARDL (3.2.4) Model

Değişken	Katsayı	t-istatistiği
c	-0.100249	-0.064078
ΔG_{t-1}	0.043531	0.212927
ΔG_{t-2}	-0.030741	-0.191601
ΔG_{t-3}	0.009492	0.079344
ΔDLI_t	0.292074	3.742568
ΔDLI_{t-1}	0.100524	0.937896
ΔDLI_{t-2}	-0.033611	-0.398041
ΔDSZ_t	0.282694	5.472546
ΔDSZ_{t-1}	0.227042	2.792811
ΔDSZ_{t-2}	-0.018289	-0.187475
ΔDSZ_{t-3}	0.038494	0.497487
ΔDSZ_{t-4}	0.187336	3.517646
EC_{t-1}	-0.946504	-3.807904
Tanısal Testler		
$R^2=0,64$	$\chi^2_{BGAB}(2)=0,94(0,39)$	
$\overline{R}^2=0,58$	$\chi^2_{WDV}=0,31(0,99)$	
$DW=1,99$	$\chi^2_{JBN}=24,65(0,00)$	
$F=10,42(0,00)$	$\chi^2_{RRMKH}(1)=4,76(0,03)$	

Note: Here, χ^2_{BGAB}, χ^2_{WDV}, χ^2_{JBN} and χ^2_{RRMKH} are respectively Breusch-Godfrey successive dependence, White changing variance, Jarque-Bera normality test and Ramsey model establishment error statistics in regression. The figures in parentheses reflect p-probability values

Coefficient of EC_{t-1} (error correction terms) is -0,72 in Table 7. This coefficient is negative and meaningful like expected. If coefficient's signs of error correction terms is negative, model is convergences to long term balance level.

If this sign of coefficient is negative, deviations happen in short term between series is convergences to long term balance value. If this sign of coefficient is positive, not convergences to long term balance value (Narayan ve Smyth 2006). Therefore error correction of model is works. Although capital movements impact on economic growth, like long term effect, is positive and according with theoritical expectation, statistically insignificant.

Tablo 7'deki sonuçlar incelendiğinde; hata düzeltme teriminin (*EC*) katsayısı -0,94 ve t istatistiği anlamlı çıkmıştır. Bu katsayı beklenildiği gibi negatif ve istatistikî olarak anlamlıdır. Dolayısıyla modelin hata düzeltme terimi çalışmaktadır. Yani, uzun dönemde birlikte hareket eden seriler arasında kısa dönemde meydana gelen sapmalar ortadan kalkmakta ve seriler tekrar uzun dönem denge ilişkisine yaklaşmaktadırlar. Dolaylı ve dolaysız vergiler, cari dönemde de gecikmeli dönemlerde de büyümeyi arttırıcı yönde ve istatistikî olarak anlamlı düzeyde etkilemektedir. Bu sonuçlar beklentilerimize ve iktisat teorisine uygundur. Dolaylı vergilerin büyümeyi dolaysız vergilerden az da olsa daha çok etkilediği görülmektedir.

Result And Evaluation

In this study, from the declaration of Republic to today's Turkey, the link between the tax income and the economical development is analysis in border test method.

To understand whether tax income varieties have different effect on development, direct indirect taxes were analysied separately.

In the cooperation analysis, it is seen that there is a co ordination between the direct and indirect income and economical development. That is, these series have to movement accordingly. So, it is though that the recreation analysis administered among the series shold give us reasonable results.

In long term analysis, it is seen that both the direct and indirect tax effect the development positively. In the result of long term analysis, it is seen that indirect taxes increase the economical development more than the direct taxes. This result is more suitable for our economical thought and expectations.

In the short term analysis, the extra valve of correcting error term was seen negative and statically acceptable. This the correction of the model is working. It can be estimated that there is a balance in the long term series and the mis direction can be compensated in long term values.

The direct and indirect taxes in the monetary term effect the development considerably. These results are suitable for our economical theory. It is seen that the direct taxes effect the development slightly more than the indirect taxes. This is little different from our economical literature.

As seen from this study, the taxing policy, one of the most important part of economical policy, if used in a suitable condition, is one of the major means of development.

In order to see the Country developing in the long term, it should be better to emphasize on the indirect taxes instead of direct taxes. Because there is on unsuitable part of direct taxes for the economy. To decrease the V.A.T Value Added Tax in the common consuming goods will enable the low and middle-income society to have and consume more properties.

This will also decrease tha gap between classes, decrease the clashes among classes. İt will also help to balance the income and increase the welfare of the country.

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