A Study on the Effect of Fluctuations in Tax Revenues on Economic Growth in Iran

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Abstract:
Economic growth is considered as one of the most important economic goal for countries. Therefore, recognizing the factors that determine economic growth is very important. To achieve the above objective, due to the extreme volatility in oil revenues, using other revenues such as tax is important. Recognizing the effect of these fluctuations on the growth, according to the fluctuations in financial policies, including taxes, can be helpful in order to achieve long-term goals of growth. Therefore, in this paper, the effects of tax revenues on the economic growth of Iran in the period of 1973-2013has been studied by using the EGARCH-ARDL method. Results suggest that volatility in tax revenues does not have a significant impact on growth, but the tax revenues themselves have significant effect on growth in the long-run but not in the short run.

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1. Introduction

Economic growth is one of the most important goals of any country and has an undeniable impact on improving the welfare of the society. Therefore, determining the factors affecting economic growth and the fact that how the growth rate is affected by different policies has always been considered by economists. Taxes can be effective in economic decision making and on growth rate, because of an effect they have on physical and human return of investment. The rate of taxes in most developed countries significantly increased during the twentieth century (at the beginning of the previous century, taxes increased from about 5 - 10 percent GDP to 20 - 30 percent GDP in the present time). Such a significant increase in taxes has created some questions about the effects of taxes on economic growth (Jafari Samimi and Hasanzadeh Jozdani, 2001). Prior to the second half of 2001, exogenous growth models were raised. In these models, the long-term economic growth rate was impressed only by the rate of population growth, technological changes and capital accumulation and the effects of fiscal policies on economic growth were not searchable in this pattern. By appearance of endogenous growth models, this issue was more considered and it increased the tendency toward these models (Romer 197, Lucas 1992). The monotonous growth rate in these models depends on the parameters of the utility function, production, and other factors. The human capital and its accumulation in endogenous models were used as endogenous growth factors (Romer, 1992). The key feature of endogenous growth models is the lack of lowered yields of the inputs that could be accumulated. This feature makes the growth move forward, indefinitely. Studying the effects of various factors, such as government tax, policies on economic growth would be possible when the long-term economic growth becomes endogenous.

Although oil revenues make a significant part of public funds for financing developmental programs to implement infrastructural projects and while increasing oil price increases financial resources of Petroleum Exporting Countries, the empirical

evidence has shown that a sudden increase in oil revenues makes opportunities but it is also considered as a threat (Komeijani et al, 2012). On the other hand, reducing oil revenues after a drop in its price reduces financial resources in the renter states and consequently, reduces productive and infrastructural investments and finally reduces production and increases inflation. On one hand, political pressures, regional changes and oil sanctions and on the other hand, the mischievous policies of OPEC countries in the violation of oil production quotas have led to reduction in oil price in recent months. Therefore, this issue has damaged oil-dependent economic planning. So, despite receiving petrodollars, it is necessary to be concerned about price development in the oil market, too. Existence of these fluctuations in oil revenues has required the countries to achieve income resources that are far away from external shocks and will be met through internal resources. This financial source is tax. Tax is the most appropriate and most acceptable type of government income of all and it is considered as an efficient means for macroeconomic purposes such as economic stabilization, employment, improving social welfare and economic development (Rajabi et al, 2011). Comparing this resource with other sources, we can see that the more the share of taxes on the costs of the state, the more significantly the creation of adverse economic impacts will be prevented. Hence, an efficient tax system is very important to achieve economic growth; but on the other hand, fluctuations in the incomes may have adverse effects on macroeconomic variables such as economic growth. According to the mentioned issues and their importance, considering tax income and its fluctuations as a means is very important to improve economic activities. So in this study, a detailed assessment of this issue with that goal has been done. This study consists of 6 parts. After the introduction in the second part literature review has been expressed. In the third part background of the research and in the fourth section methodology and introduction of variables has been investigated. In the fifth section estimation of the model and conclusion has been presented in the sixth section.

2. Literature review

Tax is one of the most important economic issues in any society. Tax regulations are considered as main rules in economic fields and they are perhaps one of the most important pillars of governments' economic policies. Not only do tax regulations create income for the government, but also they are being used as one of the most important means of financial policy in order to achieve economic and social goals. One of the most important economic problems of public sector in our country is financing government costs and especially very low proportion of taxes. On the other hand, low economic growth and dependence on oil and inequality in income distribution in our society indicate poor performance of the economic system and inefficiency of social justice programs. Taxes as redistribution policies of income can have a significant role in improving income distribution in a society. Therefore, any implementation of tax policy can have different effects on economic growth and income distribution (Abonoori and ZivariMasoud, 2014).

Receiving and paying tax have been effective and important issues due to the diversification of economic activities on the one hand and increasing the role of governments to expand public services, social welfare, the obligations of the state in economic and social fields and efforts to achieve economic growth and equitable distribution of income on the other hand. Governments using this source will be able to supply a significant portion of different costs and also based on considered priorities, allocate the available resources. About the effects of taxes on macroeconomic variables, there are two views as follows (Abonoori and ZivariMasoud, 2014).

A) The view of demand-side economics: This view states that tax can have a significant role as a factor for creating balance in macroeconomic through demand management. Consumption expenditure and private investment on financial policies are very important. Tax through a final propensity to consume affects tenable income and has an impact on consumption. Reduction in the final propensity through reducing the multiplier to

consumption leads to a reduction in the volume of demand. Also, the obtained tax incomes, depending on their type, affect the demand-side and its mix. Furthermore, investment in the long term affects the production, but its impact rapidly leads to aggregating demand in the economy.

B) Supply-side view: supply-side economists believe that increasing production and reducing tax is the right solution to fight against inflation. One of the most important claims of supply-side economists is that tax rates have negative effects on the incentives of work and saving. Of course, the impact of taxes on savings depends also on the motivations of savings. So fans of this view believe that increasing the level of employment and production in the economy occurs, as a result of a reduction in tax rates. This view, according to Laffer Curve, argues that tax reduction may be so effective that through increasing work and production, not only reduces taxes but also by increasing supply it can reduce the inflation.

2.1. The effective channels of taxes on economic growth

One of the first tasks in studying the effect of tax on economic growth in endogenous growth models is conducted by Lukas (1990) on a closed economy. Using a production function with a constant elasticity of substitution showed that tax policy changes do not have a significant impact on economic growth. King & Rebelo, by extending the Lucas model from a closed economy to an open economy concluded that by increasing tax on investment and revenue obtained from the workforce, economic growth rate significantly decreases. Jones, Menoli and Rasi by combining the principles of both previous models concluded that increasing tax has a larger disruptive effect than Lukas task, thus tax cut will be effective on economic growth (Mani et al, 2011). It can be shown that various activities of governments can change the ratio of capital in the AK models and thereby affect growth rate per capita. Activities such as investment in services, infrastructure, protection of property rights, and taxation of private activities are of these measures. Therefore, government activities are effective

on long-term growth and in the endogenous models, we will be able to consider the role of government (Tari and Sattari, 2005).

Baro (1991) assumed a production function in which per capita production is a function of per capita capital inputs and government services.

$$y = AK_i^a G_i^{1-a} \quad 0 < a < 1 \tag{1}$$

In his function, with the assumption of constant returns to the scale in each firms for private factors of G and K together with assumptions of fixed entire labour and in the constant values of G, declining return for capital accumulation is considered (similar to Ramsey growth model). In this pattern, government costs are divided into generator and non-generator services. Generator services (g) are those services that are used as generative services in the Production Processes of agencies and the conditions of first and second terms exists in them, that is $\phi'' \prec 0, \phi' \succ 0$ (Saadi et al,2011). In the case of assuming the observance a balanced budget from the state and also when financing is done through the tax, we will have:

$$g = T = \tau y = \tau . k . \phi(\frac{g}{k}) \tag{2}$$

Where T is government tax revenue and τ is the tax rate.

By obtaining derivative of the mentioned function, the final product of capital will be obtained.

$$\frac{\partial y}{\partial k} = \phi(\frac{g}{k}).(1 - \phi'.\frac{g}{k}) = \phi(\frac{g}{k}).(1 - \eta) \tag{3}$$

That η is the income elasticity of y upon government spending. With the assumption of maximizing the present value of household utility function, we have:

$$u = \int_0^{\&} (\frac{c^{1-\delta} - 1}{1 - \delta}) e^{-\rho t} \tag{4}$$

By maximizing the present value of the utility, the optimized consumption path is obtained:

$$\frac{c^{\cdot}}{c} = \frac{1}{\delta}(aA^{1/a}.(1-a)^{\frac{1-a}{a}} - \delta - \rho) \tag{5}$$

The above relationship is correct in conditions that there is no tax on the income. When a fixed proportion of income is paid as tax to the government, the final productivity of capital is:

$$pmrc = (1-\tau).(\frac{\partial y}{\partial k}) \tag{6}$$

In this way, the following equation will be obtained for growth rate, per capita income and per capita capital:

$$\gamma = (\frac{1}{\delta}).\left[(1-\tau).\phi(\frac{g}{k}).(1-\eta)-\rho\right] \tag{7}$$

By assuming balance in the budget, the tax rate can be written as, by considering, the derivative of γ upon $\frac{g}{y}$ the following equation is obtained:

$$\frac{d\gamma}{d(\frac{g}{y})} = \frac{1}{\delta}.\phi(\frac{g}{y}).(\phi'-1) \tag{8}$$

In the above equation, economic growth rate will increase when $\phi' \succ 0$ is positive and when $\phi' \prec 0$, it will decrease. Tax influences economic growth through 3 channels: The effect on allocation decisions of firms; the effect on the accumulation of production factors; and the impact of tax on investment in R &D (research and development) activities (Shafiee et al, 2006)

The effect on allocation decisions of firms
Many firms will be forced to reconsiderate their allocation decisions as a result of applying tax tools of the government and hence by emerging these deviations, a net loss in social welfare will be made. For example, if production functions of the whole economy are in the form of Cobb-Douglas, then with the establishment of a tax on thei people's income, the net income from tax is equal to:

$$Y = (1-t)A_t K_t^a L_t^{1-a} \tag{9}$$

And under these conditions, the marginal productivity of capital is equal to:

$$r_t = (1-t)aA_t \left(\frac{K_t}{L_t}\right)^{a-1} \tag{10}$$

Thus, it will be clear that income tax reduces the marginal productivity of capital and affects the motivation of capital accumulation among people and finally will have an impact on the growth.

The effect on the accumulation of production factors
An increase in taxes will lead to a decrease in the efficiency of savings and in this way the motivation for physical capital accumulation (K) will reduce. However, the final impact of this issue on the growth depends on how much human capital (H) is affected by this problem. This subject can be studied in two modes.

The first mode: if production of human capital only requires the existence of human capital:

In this condition, the decline in physical capital is fully compensated by the increase in human capital and the economy finally will reach the pre-tax increase. Thus, the impact of this increase in taxation on the economic growth will be zero.

The second mode; the production of human capital require both the existence of human capital and physical capital: in this condition, by reducing the level of physical capital, the human capital will not be able to fully compensate its reduction and hence the economic growth will reduce due to the reduction in the level of physical capital. Of course, to what extent human capital can compensate the reduction in the physical capital, depends on technology (Tanzi, 1986)

The impact of tax on investment in the R&D activities
This case mostly occurs through tax exemptions (in other words, tax expenditures). In fact, in many cases, tax exemptions in generative sections can be a stimulus of increasing investment in these sections. For example, we can refer to tax exemptions in R & D activities. In this case exemptions lead to creating more motivation for the investment, and so in the long term they can have a positive effect on economic growth. In contrast, if the

considered exemptions are applied in rent-seeking goals, they will lead to distortion in the allocation of resources in the economy and hence these kinds of tax expenditures will have negative effects on the growth (Shafiee et al, 2006)

2.2. Fluctuations in fiscal policy (with the emphasis on tax) and economic growth

In the above discussion, the relationship between tax and economic growth was discussed according to the literature and the relationship between tax and economic growth was examined specifically,but there is no linear relationship to express the tax fluctuation relationship and its impact on economic growth. For this purpose, it can be expressed from two views: First, the fluctuation and tax uncertainty and investment; second, fluctuation and tax uncertainty and deficit that in both cases, at the end the effect of tax fluctuation on economic growth will be explained. Financial volatility is the most important concerning issue in fiscal policy and it influences growth. Theoretically, the limitations of fluctuations of the government fiscal cost in long-termhave both negative and positive impacts on the growth. Specifically, by accepting government expenditures, the economic theory shows that directional fluctuations can be a source of instability. On the other hand, governments can nullify commercial cycle fluctuations by optional fiscal policies and automatic stabilizers. The optional policies include a change in taxes or current expenditures (Antonio & Joao, 2012). Existence of fluctuation in optional policies such as taxes not only cannot play its stabilization role, but also as an external shock it stimulates the fluctuations of commercial cycles and intensifies uncertainty and instability of the macroeconomy.

On the other hand, the decision of investors based on investment depends on factors controlled by the government. The stability and predictability of financial tools of the government may have significant effects on the decision and behavior of an entrepreneur. Existence of volatility in financial tools (deficit, taxes, and government costs) will cause uncertainty for an investor; therefore, the higher the variance of these fluctuations,

the higher the value of effectiveness of his decision through available uncertainty in the business space and his decisions will be influenced more seriously. Pindyck(1988), states that the transparency and predictability of policies will have great influence on the private investor. He argues that the investor is sensitive to the changes and fluctuations of policies and the risks associated with them. In an environment that there are changes and fluctuations in the policies, the parameters of fiscal policies are effective on its other associated policies. When the government decides to change its financial policy, the investor, due to uncertainty resulted from change and volatility in the fiscal policy, will not be able to make a decision about fixed capital. For example, a change and volatility in tax have animpact on individuals' savings and in the long-term will negatively affect the decisions of investors (Abdiweli, 2005). Thus, it can be inferred that changes and fluctuations in fiscal policy will have adverse effects on economy.

2.2.1. Uncertainty, tax fluctuations and investment
When taxes are counted in the capital budgeting as a part of investment costs, tax rates and tax bases should be taken into consideration. When modifications and changes in the tax occur, prediction the related variables for investors will become difficult and this leads to increasing uncertainty which is known as Fiscal Tax Uncertainty (Hadian & Tahvili, 2014)

In addition to changing and reforming the law, there is a possibility of uncertainty about tax policy. This problem occurs when the current tax regulations have some specific intricacies; In this case, investors use a simple model to measure the amount of paid taxes on investment projects whereas financial authorities determine the amount of tax based on tax regulations. As a result, when a firm makes a decision about investment, two different values can be considered for tax: the planned tax and the real tax amount that these amounts may be different from each otherand from investors' perspective. Even if tax policy does not change, the difference between the two values can be random. This type of uncertainty is called Model Specific Tax Uncertainty. Tax

financial uncertainty, specifically affects long-term investment projects while Model Specific Tax Uncertainty could be effective on any investment project with any time horizon (Hasset and Gilbert, 1998)

On the other hand, it can be inferred that the parts of government investments that can be financed through taxes and are complementary of private sector investments (crowding in effect) will be affected by creating volatility in tax incomes. Therefore any change and volatility in tax incomes is effective on this part of investment and finally will be effective on the decisions of individuals and private firms. According to the neoclassical vision, the investment is considered as the main factor of economic growth. Therefore, the mentioned changes in tax are effective on the incentives of investors and as a result will have a significant impact on economic growth. Given that investment and the capital accumulation arising from it are considered as keys of economic growth for any country (Kazemi, 2013), the countries that have enjoyed rapid growth are those that invested a significant percentage of their GDP and the countries that have failed in terms of economic growth are countries that did not have significant investments. These explanations are based on growth theories and the main and neoclassical growth model of Solow (1956) and Swan (1956) that state one of the key and determining factors of grow this investment rate (Jahangard, 2007).Therefore, it can be concluded that: Any uncertainty and volatility in taxes is effective on investment decisions and finally, according to growth models, will affect economic growth.

3. Background of the research
William & Andrew (2014) in a study investigated the effect of tax revenue changes on the economic growth of the USA. They concluded that the structure of the economy and financial institutions in the case of changes in tax rates for achieving economic growth will be distorted. Tax cut increases individuals' motivation to work, save and invest, but financial firms will be affected due to the increase in the costs arising from the tax cut and it also lead to an increase in the budget deficit of the central

government. However, in the long term national savings will decrease and interest rate will rise. In this case, tax cut net effect on economic growth will be indefinite. However, estimates suggest that it will have a small and negative effect on the growth. Johansson et al (2008) in a research studied the tax on economic growth in OECD countries. The results of this study indicated that taxing firms is harmful to the growth and suggested that income and consumption should be taxed. Therefore, it is better to tax assets and consumption to achieve better revenue and appropriate tax base. Saeedi kia & Mousavi (2015) in a research, investigated the effect of tax incomes on the growth and economic development of Iran during 1971-2006 using VAR method. The results showed that there is a significant positive effect on current tax revenue and structure of payments and public index (the price of consumer for goods and services). Also, there is no relationship between tax revenue, human resources index, employment (literacy rate) and the rate of economic growth. Abonoori and Zivari Masoud (2014), in a research studied the impact of tax incomes on economic growth and income distribution (Iran and the selected countries of OECD) by using OLS and GMM. The results showed that the increase in tax revenues has a positive and direct correlation with economic growth and by increasing tax incomes the Gini coefficient will increase and as a result income inequality become more. Asghari and Zenoori (2013) in their research studied the effects of tax and government consumption expenditure on the economic growth in selected Islamic countries of MENA region in the period of 1995-2011 by using Panel Smooth Transition Method.Theresults showeda severe negative effect of taxes and government consumption expenditure in values higher than the calculated threshold for government consumption expenditure share on GDP.

Rajabi et al (2011) analysed the impact of tax rates on economic growth in Iran, in the period of 1973-2007 using three-stage least squares method (3SLS). The results indicate a direct relationship of government expenditure on economic growth and

the reverse relationship of tax rate on economic growth. Samati et al (2008) in their study investigated the growth effect of government revenues on inflation and economic growth during theperiod of 1959-2007 using simultaneous equations system. In this study income tax tool was used. The results showed that the real growth rate of tax revenues does not have a significant effect on real economic growth rate, but it has a negative and meaningful impact on inflation rate. Tari and Sattari (2005) in a research studied the effect of government expenditure and tax on economic growth in OPEC countries using panel data method. The results showed that government spending has a negative effect on economic growth, but the effect of tax on economic growth is not significant. JafariSamimi and Hasanzadeh Jozdani(2001),in their research, studied the effect of tax on economic growth and presenteda review of theoretical and empirical analysis. This study, in the context of theoretical endogenous growth models, showed that the effect of tax on economic growth is unclear. According to the type of data (sectional or time-series) and parameters of the model the sudy showed the weak effect of tax on economic growth.

4. Methodology and introduction of variables

In recent years in the modelling and prediction of variability and fluctuations, various experimental and theoretical studies have been conducted. The simplest way to deal with variabilityis using historical estimates. Historical variability involves calculating the variance (or standard deviation) of the considered variable during the period of investigation that is appled as a criterion of future variability. On the other hand, historical variance is a useful method to compare the ability of prediction models. In estimating econometric models with the traditional method, one of the limiting assumptions is the constant variance of error terms so that in the case of rejection statistical analysis has been eroded and void. To get rid of this failure, Robert Engle (1982) introduced a pattern named as ARCH. In this method, it is assumed that the random term has a zero mean and it is uncorrelated but its variance will be formed with the assumption

of past information of that variable. Since time series during time show different behaviours, it is expected that the variance of considered variable is not fixed and depends on the behaviour of error terms. In this case, the assumption of constant variance is rejected (Soori, 2012). This model has several advantages. First in this model the dependent variable δ_t^2 is logarithmic,thus coefficients of the variables in the right side can be positive or negative. In any case δ_t^2 will be positive. Hence, there is no need to apply non-negative restrictions on the coefficients. Second, this model also considered the effect of asymmetric shocks; becauseγ is the coefficient of ut-1 that this can be positive or negative. For example, if δ_t^2 represents the variability of stock returns,γ represents the effect of positive and negative shocks while α is a coefficient that considers only absolute value of |ut-1|.Here if γ= ⌐ itis symmetric ,otherwise asymmetric. Ifγ is positive, it shows that the effect of negative shocks is more than positive shocks. In other words, the impact of positive shocks equals to γ and the impact of negative shocks equals to α (Soori, 2012).Integration techniques are used to estimate the econometricmodel. Therefore, the ARDL method is used to estimate long-term relationships between template variables and dynamic analysis. In this method, the number of optimal lags is determined by Akaike, Schwarz and Hannan-Quinn Criteria and in the short term Error Correction Model (ECM) is used that both indicates short-term dynamic relationship and the balancing speed to the long-term(Tashkini,2005). According to the study conducted by Pesaran and Shin (2001) that was done using ARDL method,it issuggested that ,it is possible to obtain long-term compatibility coefficient between considered variables in a model while the mentioned method is done regardless of I(0) or I(1) of the variables (Samadi and Pahlevani,2009).

The used variables in this study include fluctuations in tax revenues, tax revenues, government consumption spending, construction spending and economic growth GDP per capita. All

data has been extracted from the central Bank and the Statistical Centre of Iran.

5. Estimation
5.1. Assesing the stationarity
Dickey-Fuller unit root test is used to study the stationarity of the variables. The unit root test should be introduced in a way that before estimating an econometric model we must be sure that the model doesn't have a non-cointegration problem; because if the variables of the model are non- cointegration, there may not be a long-term balanced relationship between variables. Thus the estimate of the mentioned model would be only a false and meaningless regression. The results of non- stationary of variables have been shown in Table 1.

Table 1: results of generalized Dicki-fuller unit root test

variable	The critical value in %5 level	The value of t statistic
LGDP	-2.93	-1.12
DGDP	-2.93	-3.94
TAX	-2.93	-1.14
DTAX	-2.93	-3.57
TT	-2.93	-2.37
DTT	-2.93	-5.23
GC	-2.93	-2.95
GW	-2.93	-1.34
DGW	-2.93	-6.64

Source: findings of research

Results of stationary of generalized Dickey-Fuller unit root test indicates that, except for government consumption spending (GC) that is stationary, other variables (LGDP = logarithm of GDP, TAX = tax revenues, TT = fluctuations of tax revenues, COG = the cost of government construction) were not stationary but they would be stationary by making the first order difference.

5.2. Estimating the model of tax revenue fluctuations
According to the annual series correlation diagram,the tax incomes and also Akaike information criterion (AIC)and Schwarz Bayesian Criterion (SBC), the following equation was considered as the best equation average for tax revenues.

$$Log(TT)_t = a_0 + a_1(TT)_{t-1} + a_2 Log(TT)_{t-1} \qquad (11)$$

Based on the correlation graph,the square of remaining terms of the equation (5), the model (1,1) EGARCH was chosen as the most appropriate model and results have been presented in table 2:

$$Log(\delta_t) = \beta_0 + \beta_1 \left| \frac{\varepsilon_{t-1}}{\delta_{t-1}} \right| + \beta_2 Log(\delta_{t-1}^2) \tag{12}$$

Table 2: results of model estimation EGARCH (1, 1)

Conditional mean equation			
variable	a_0	a_1	a_2
coefficient	–0.95*	–1.37*	1.11*
standard deviation	0.275	0.09	0.033
Conditional variance equation			
variable	β_0	β_1	β_2
coefficient	–3.43*	1.726*	0.478**
standard deviation	1.29	0.402	0.286

Source: findings of research

5.3. Estimation of the short-run model

According to Pesaran and Shin (2001) by using ARDL method and by inserting good lags, it is possible to obtain long-term consistency coefficients between variables in a model. For this purpose, according to Schwarz-Bayesian criterion (SBC) two lags were considered for available variables.
The results of the short-term model are as follows:

Table 3: The results of short-term model

t statistic	coefficients	standard deviation	Variables
4.1121(0.001)	0.4215	0.1025	GDP(-1)
1.3922(0.145)	0.1132	0.08124	TAX
0.6321(0.321)-	-0.3221	0.5096	TT
2.5071(0.011)-	-0.3861	0.1540	GC
1.4722(0.089)	0.3314	0.2251	COG
2.2852(0.025)	0.5809	0.2542	COG(-1)
6.1252(0.000)	3.5214	0.5749	C
test	R^2	$\bar{R}^2$	D.W	F-Stat
test statistic	0.9856	0.9847	1.62	285.3212(0.000)

Source: findings of research

Interpretation of the short-term results of the model
The results showed that the fluctuation of tax revenues does not have significant impacts on economic growth, but its coefficient sign is negative. Although there is no linear relationship between fluctuation of tax and economic growth, according to Theoretical Foundations of fluctuations in tax, it will be effective on economy through its impact on budget deficit and investment decisions. Fluctuations in tax revenues could lead to fluctuations in the deficit (Given that tax revenue is one of the sources of public funding and prevents from the deficit) and according to theoretical principles, fluctuation in deficit has a negative effect on economic growth. On the other hand, fluctuation in tax incomes (with any origin) has a negative effect on the investor's decisions and finally represents negative sign in its coefficient. Although the effect of tax incomes has a positive coefficient, it is not significant at the appropriate level. The high level of oil revenues in the body of budget and budgeting according to these incomes even in conditions that the oil price is at the lowest level, indicates the dependence of the national economy on these incomes and yet the structure of economy is based on oil. On the other hand incorrect policies on tax planning, tax avoidance, lack of tax culture and so on are effective in the lower share of revenues in economy. Government consumption spending has a negative effect on economic growth. Undoubtedly, the large size of government and its related collections and its costs can not lead to growth. Construction costs have a positive effect on economic growth.

Since the possibilities related to autocorrelation tests, heteroskedastisity, Misspecification and normality are bigger than 0.05, null hypothesis of this test related to the absence of autocorrelation, heteroskedastisity, specification and normality cannot be rejected and the estimated model of assumptions is related to the sentence ensure error term conditions (table,4).

Table 4: the results of the classical assumptions of the model

	LM statistic	F statistic
Serial Correlation	4.1145[0.008]	2.4524(0.112)
Functional Form	1.3221[0.282]	1.8542(0.120)
Normality	0.254[0.712]	-
Heteroscedasticity	1.0245 [0.204]	1.4412(0.241)

Source: findings of research

5.4. The results of long-run estimation

To test whether the short-term dynamic relationship is inclineded toward the long-term balance, the condition is that the sum of the coefficients should be less than one. To do the considered test, figure 1 must be deducted from the sum of the coefficients and the results must be divided by the sum of the standard deviation of mentioned coefficients.

$$ t = \frac{\sum_{i=1}^{p} \hat{\phi}_i - 1}{\sum_{i=1}^{p} S_{\hat{\phi}_i}} \tag{13} $$

If the obtained absolute value of t is larger than that of critical values, which is offered by Banerjee et al (1993),the null hypothesis based on a lack of accumulation is rejected and the long-term relationship will be accepted (Tashkini, 2005).

The calculation statistic equals to -4.32 and its absolute value is larger than the offered critical value absolute value offered by Banerjee et al, Dolado and Master (3.57 in the %95 level). Thus the null hypothesis based on the lack of accumulation (long-term relationship) at %95confidence is rejected but the long-term relationship is accepted. The results of long-term estimation have been offered in table 5.

Table 5: results of long-term estimation for variables at %99 confidence

t statistic	coefficients	standard deviation	Variables
2.89(0.022)	0.3252	0.1125	TAX
-0.7483(0.421)	-0.6325	0.8452	TT
2.1590(0.016)	-0.3325	0.1354	GC
2.9062(0.005)	0.6234	0.2145	COG
8.1033(0.000)	2.5485	0.3145	C

Source: findings of research

Long-run results of the model
Tax revenue in the long-term has a positive effect on economic growth. Increasing tax revenue as a part of government revenue can help the problem of budget deficit and most part of the revenue can be spent on infrastructural and developmental affairs. According to theories, more construction and infrastructure costs results in increasing investment and as a result growth will be stimulated. Given that most investment projects are fulfilled in a long-term process, stimulating investment and private-sector accumulation along with providing the government infrastructure through financing by tax incomes, in the long-term can have significant effects on the growth. The fluctuations of tax incomes doesnot have a significant impact on the growth although their coefficient is negative. Undoubtedly, in the long term many factors have effects on the growth. Thus lower tax revenues than the whole revenue and the fluctuations arising from it, in the long-term is not able to make changes in the growth. However, because the budget structure is changed every year and its method of financing undergoes changes, tax fluctuations in the short term and in the same period will be more highlighted, but its outcome on the growth won't be shown well because of the low impact of the budget deficit. Government consumption spending in the long term has a negative effect on economic growth. The increase in the government expenditures

somehow represents an increase in the size of government in the economy; because such costs are not spent on production affairs and can even be a hindrance to the private sector. Therefore, in the long term they will have a negative impact on production flow and ultimately on the economic growth. Construction costs have a positive effect on economic growth. Government development costs that are spent in the infrastructures lead to increasing productivity or reducing government costs or decreasing exchanged costs in the private sector. They also increase the demand for private sector productions and subsequently increase the investment in this section. In general, in the economy of Iran, government development spending in infrastructure helps to facilitate the activities of the private sector. Also, according to the financial ability of government, such investments due to the large extent and weight can only be carried out by the government and cannot be included in the mandatory replacement. However, they have a positive and complementary effect on investment in the private sector and lead to increasing returns and production.

5.5. Results of error correction model

According to obtained results, if the coefficient of ECM about economic growth functions are negative and significant, in term of statistic it indicates the speed of adjustment. Also, the meaningfulness of ECM coefficient shows a long-term and meaningful relationship between the variables of the pattern. According to provided results the coefficient of ECM (-1) is -0.4521 for the model. So moving towards equilibrium occurs at low speeds.

Table 6: results of error correction model

	coefficient	standard deviation	t statistic
ECM(-1)	-0.4521	0.1725	–2.6208(0.011)

Source: findings of research

5.6. Examining of the robustness and the power of the Model

Diagnostic tests are used to determine the Suitably specified model as well as the stability and firmness of the model. According to Pesaran and Shin (2001) this test can show whether the model is excessively or at a certain level stable? According to Pesaran and Shin (2001), the stability of regression coefficients can be confirmed by stability tests. These tests are very useful in time series data and they are more usable when there is not enough confidence in structural changes in the course of the study (Samadi and Pahlevany, 2009). When we want to study the short-term and long-term stability of the model simultaneously, we use (Cusum-Q and Cusum) forms. If the obtained statistical graph cuts one of the bonds of the sides in %5 level, the null hypothesis cannot be confirmed. Therefore, because in the obtained forms (Cusum-Q and Cusum) the medium graph has not cut one of the side bonds, permanent long-term stability will be acceptable for the template function.
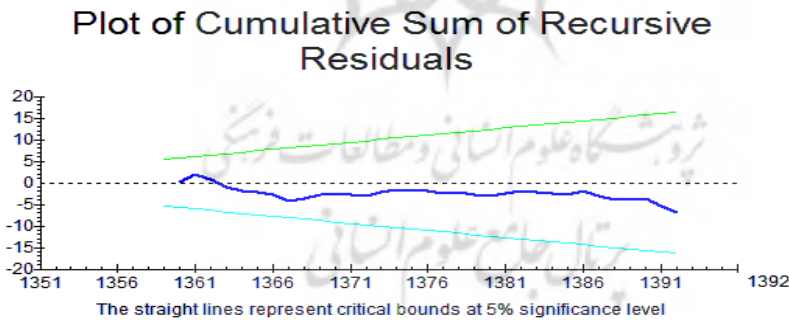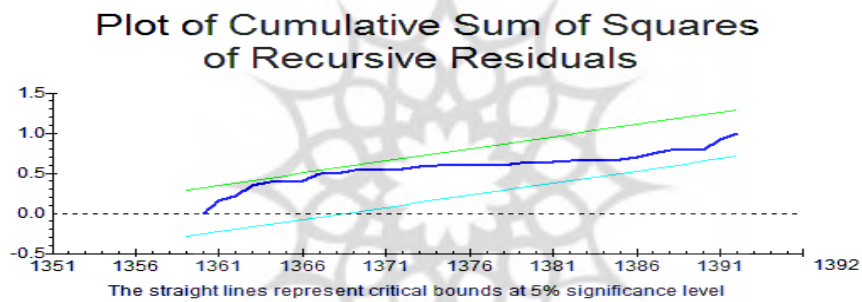
6. Conclusion

Developing economies such as that of Iran, are generally facing two major problems; first, the high share of government in spending and investment and the other severe funding constraints. Iran's economy is simultaneously suffering from both problems severely. The existence of vast oil resources has made the government very big and bulky. Also, restrictions and economic sanctions have made the access to international financial resources extremely difficult. Reducing oil revenues as a result of reduction in its price has reduced financial resources. Regional changes and oil sanctions on the one hand and political mischief of OPEC countries on the other hand, has led to reducing the price of oil in recent months. The existence of these fluctuations in the oil incomes has forced our country to achieve some income resources that are far away from foreign shocks and can be met more through domestic resources. These financial resources are taxes.

On the other hand, fluctuations in economy can create uncertainty. Fluctuations in economic variables are effective in the decisions of economic agents and its result will be represented in the related economic variables. Fluctuations in tax revenues (with any source of volatility) can have adverse effects on economic variables such as economic growth. Thus, the main objective of this study was to evaluate the effect of tax fluctuation on economic growth. For this purpose, first, the tax fluctuation was calculated using EGARCH and the result of the model was investigated in the form of ARDL method. Results suggested that although the coefficient sign of the fluctuation of tax incomes is negative, it has no significant effect on economic growth both in the short and long term. Tax revenues in the short term have no significant effect on growth but in the long term they have a significant effect on growth. Government consumption spending in the short and long term has a negative effect on economic growth. Government construction costs have a positive effect on economic growth. As implementing

constructional projects is time-consuming, the effectiveness of this variation on economic growth in the long term is meaningful.

According to results, following suggestions could be presented:
Fluctuations in tax revenues, despite the negative coeff icient sign, have no significant effect on the growth. Although tax fluctuation has not shown a meaningful impact, its negative coefficient along with other variables may have a meaningful effect on other economic variables. Therefore, the source of fluctuations (changing the baselines, base modification, etc.) is suggested to be detected and by implementing stable policies for long-term periods, their fluctuations will be reduced.

Tax incomes have positive and meaningful effects on the growth. Thus, it is suggested that by modifying the tax structure and the formulation of planning based on tax revenues (reduce dependence on oil revenues), increasing judicial measures to prevent tax evasion, promoting a culture tax and so on, attracting and receiving tax revenues would be increased. Government consumption spending has a negative effect on the growth. Reducing the size of government and trying to respect principle 44 and the full support of the private sector can have good results on the economy.

Construction costs have a positive effect on economic growth. Therefore the government can extend facilities for investment in the private sector through increasing its capital costs in creating infrastructure. Government investment spending, that creates infrastructural facilities such as improving transportation in the community, encourages the private sector to have economic activities. This ultimately leads to an increase in the production.

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