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Impact of Government Size on Employment in Iran

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Abstract

Given that the role of government is crucial in Iran's economy, therefore, clarifying the role of government size employment can be very important; especially from the aspect that public sector in the economy is considered as a competitor to the private sector. The aim of this study is to investigate whether the government could have had an impact on employment in Iran during 1970-2011. Since identifying short and long-term relationships in this research is important, therefore, necessary analysis is performed by ARDL model analysis, using Eviews Software. The results show that government size has a positive impact on employment in short-term and long-term.

Keywords: Government size**,** ARDL Model**,** employment, government expenditure

Introduction

Along the history, governments of various sizes have interfered in people's social and economic life circumstances. According to the economist "KINSEY", the active presence of governments is occasionally necessary in economic recession conditions and their involvement might cause disturbances for economic growth in other situations and shall be to a large extent limited. On this basis, it can be asserted that government expenditures are indicative of the measures deployed in order to achieve economic growth. Level of government expenditures represents volume of operations or size of the government; therefore, ideal size of governmental intervention in economic

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activities has been always brought under consideration by economists. Lately, considerable attention in articles has been paid to impact of government's size on economic growth. From theoretical point of view, if the public sector is less efficient than the private sector, larger size of the government results in deceleration of economic growth. But larger size of government could lead to faster economic growth if the public sector produces those general essential commodities which the private producers are unable to supply. Numerous studies have focused on impact of government's size on economic growth with respect to demographic variables. Despite of its remarkable relative economic advantages, agriculture sector is generally known as a declining sector with serious restrictions in terms of employment development. Entrepreneurs in industry sector encounter less challenge thanks to the specific features and availability of more suitable infrastructures in this sector. Studies demonstrate that the agriculture sector can temporarily, and at least until the time of certainly resolving the employment crisis, provide an important part of the required employment opportunities in the developing societies, undertaking the entrepreneurship function for a considerable portion of the society's unemployed population. Organized structure of activities in the form of workshops and factories and companies, relatively lower riskiness of industrial production, more predictable behavior of consumers of industrial commodities, clear definitions of work relations, utilization of advanced technologies, and concentration of activities in certain regions coupled with many of other factors are among the reasons of easier and faster attraction of domestic and foreign capitals in industry sector, enabling further evolution and growth of new employment opportunities. But in the agriculture sector, entrepreneurship trend goes on more slowly and difficultly due to opposite features to industry. Size of government is among the significant variables explaining the growth level in economies where share of governmental and public sector is high in economics. This variable affects the national economy both in terms of capital level and also in terms of purchasing of the consumable commodities. The present paper attempts to find answer to the question: how does size of government affect the agriculture sector? Main objective of the present paper is to test the effect of government's size on employment level in Iran and observe its positive and negative impacts on employment growth during 1970-2011. Therefore after reviewing the previous literature and theoretical concepts, are estimated in a selective model and the results will be analyzed and discussed.

Literature Review

The theory of relationship between governmental expenditures and economic growth was initially proposed by Hobbes in 1651. In his opinion, government's performance in aspects such as supporting the possession rights would encourage the economic growth. Classic and neoclassic economists offer several reasons for governmental involvement or presence, which have maintained their significance for years to come. This reasoning is based on market inefficiency and failure and the need to governmental intervention. Market failure refers to the conditions in which market-based economy is not able to optimally allocate its resources among the different sectors. Market failure can have different causes and degrees. In each instance or state of market failure, role of government and type and form of governmental interventions could be absolutely different from one another. In general, there are two attitudes among economists concerning impact of government's size on economic growth. According to the theory

of the first group of economists, the larger size of government is likely to reduce the economic growth due to inherent inefficiencies of the governments. The other group presumes an important role for government in economic growth process. According to the latter attitude, the government plays a significant role in alleviation of conflicts and contradictions among private and social benefits. Government supplies public products and services like transportation, communications, and infrastructures and possesses the necessary power and authority for elimination or adjustment of negative foreign impacts. It is therefore likely that larger government would accelerate the economic growth. Many studies have also recently investigated the relationship between size of government and economic growth. Some researchers believed that governmental intervention has positive effect on economic growth while others assessed this event as a negative impact. Some authors also hold the opinion that type of government involvement and mechanism of government's impact on economy is significant with regard to economic growth. Rafiee and Zibaee (2003) in their studies reached to the conclusion that size of government has significant and positive effect on Iran's agriculture sector and productivity of manpower in the respective sectors is also directly related to investment of public sector. Studying government shrinkage via privatization, Karimi Petanlar (2004) also concluded: though impact of privatization on economy is generally ambiguous, but one can state concerning its method that privatization in the form of transfer through stock exchange could be effective for improvement of employment condition in Iran. In Ram's research (2008), data of 115 countries for the period 1960-1980 indicate that impact of growth rate of aggregate government expenditures on actual GDP growth rate is significantly positive. Presence of government in economy was assessed as positive and an increase in government's size was asserted to lead to economic growth and consequently positive impact on economy.

The study by Dar & Amir khalkhali (2002) on productivity shows that averagely total productivity growth of production agents including capital productivity growth is smaller in countries with larger size of the government, and, larger government has a detrimental impact on economic growth. With regard to government expenditures, the research results of Romer (1989) suggest that share of governmental expense in GDP is negatively correlated to actual per capita GDP growth rate. Ram (1989) also demonstrated that there exists a negative correlation between size of country and size of government and also commercial liberalization. This could signal a positive relationship between commercial liberalization and size of government. Guseh's finding (1997) regarding governmental intervention in economy states that governmental involvement in economy is an obstacle against growth, and, increment in the size of government negatively affects the economics and macroeconomic variables.

Impact of commercial liberalization on the size of government was tested by Benarroch & Pandey (2008) using panel data. The results indicated that there is no evidence suggesting positive correlation between these two variables. The results of their causality test also revealed that larger size of government leads to less commercial liberalization. The study by Davies (2009) dealt with impact of amount of government consumption expenditures on social welfare (measured by HDI index). He performed an estimation using panel data by means of GMM technique. The findings showed that the optimal size of government with respect to human progress level is significantly larger

than optimal size of government with respect to the gross domestic production (GDP) value.

Chen & Lee (2005) tested Armey's non-linear theory (1995) in order to analyze the relationship between size of government and economic growth and reached to the conclusion that there is a linear correlation between the size of government and economic growth. The study by Afonso & Furceri (2008) analyzed the impacts of size and uncertainty of governmental revenues and expenditures in different periods on economic growth of OEDC and European Union countries and indicated that both parameters negatively affect the economic growth. In addition, more rigorous analysis of each component of revenues and expenditures suggests the following factors have remarkably negative and significant effect on economic growth:

1) Indirect taxes (value and uncertainty);

2) social aids (value and uncertainty);

3) Government consumption (value and uncertainty);

4) Subsidies (value);

5) Governmental investment (uncertainty).

Concerning mechanism of government intervention in economy, Vedder & Gallaway (1998) also reached to the conclusion that: different impacts might arise for different types of government involvement, and finally, government involvement in economy can have positive and negative effects depending on the type of its involvement.

Benarroch and Pandey (2012) in an article examined the relationship between trade openness and government size using total expenditure data and breakdown of government expenditure, including social security data. Causality test indicates the absence of a causal relationship between trade openness and total or separate spending of government. Similar results were obtained even when the samples were divided into low-income countries versus high-income countries. Among the results, the only strong evidences that were statistically significant showed a positive relationship between trade openness and education costs in low-income countries. The results of their study also indicate that in no case there exists a positive relationship between social security and trade openness.

Brückner and Gradstein (2013) in their article entitled "External volatility and government size in developing countries" has provided instrumental variables estimation of the effects of annual GDP fluctuations on government size. Their results show that based on a data set for a Panel of 157 countries over more than half a century, fluctuations in rainfall, have a positive effect on the annual GDP fluctuations in those countries with above-average temperatures. In these countries also the rainfall fluctuations have a positive significant reducing effect on the government proportion of GDP. However, there is no such reducing effect of rainfall fluctuations on annual GDP in countries with below-average temperatures. They came to the conclusion that using the rainfall fluctuations as an instrumental variable in the sample countries with above-

average temperatures, results in the fact that more fluctuations of annual GDP lead to a greater proportion of government in GDP. In his research, Romer (1989) inferred that larger government has detrimental impact on economic growth. Among others, researchers like Barro (1989) illustrated this finding in the form of a non-linear correlation between size of government and economic growth, whereas in another study, Karras (1993) reached to the conclusion that government accelerates the economic growth.

Overall, there are diverse opinions concerning impact of government's size on employment growth, and in general, on the economy. Hence, further studies need to be conducted in this regard.

Model Specification

Minimization of aggregate expenditures on inputs corresponding to an assumed level of production and also input and output prices are among the critical issues in theory of the firm. Expenditure minimization method is one of the techniques applied for deriving demand function of workforce and the factors which affect this function including government expenditures. In this method, for different production levels, minimal required expenditures for gaining the desired production levels are obtained, which represents the cost function of the firm. This cost function is defined as a function of production level and input prices, which perfectly describes the behavior of the firm with the assumption of completely competitive conditions.

Using this method for Cobb-Douglas production function, there will be:

$$f(x_1, x_2) = x_1^a x_2 b$$

Minimization is imposed as follows:

Min $\quad w_1 x_1 + w_2 x_2$

If: $\quad\quad f(x_1, x_2) = x_1^a x_2 b$

Solving via substitution:

$$x_2 = (y x_1^{-a})^{1/b}$$

X2 is substituted in the target function to minimize the function without any constraint:

$$w_1 x_1 + w_2 (y x_1^{-a})^{1/b} \quad \text{Min}$$

The abovementioned function is differentiated with respect to x1 and is then put equal to zero in order to obtain x1 or conditional demand function as a function of y, w1, and w2.

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If x1 and x2 are respectively assumed as demand for workforce (E) and demand for capital (K), then w1 and w2 will be wage of workforce (w) and cost of capital (r), respectively. The actual added value (AV) is considered as the index of production level (y):

Assuming:

$$\gamma = 1/(a+b), \beta = 1/(a+b), \alpha = -b/(a+b), o = (a/b)^{b/(a+b)}$$

There will be:

$$E(W, r, AV) = oW^{\alpha} r^{\beta} (GDP)^{\gamma}$$

Now, taking natural logarithms from both sides of the equation, demand function of workforce will have the following form:

$$\ln(E(W, r, GDP)) = \ln(O) + \alpha \ln(W) + \beta \ln(r) + \gamma \ln(GDP)$$

To express impact mechanism of governmental expenditures on workforce demand in agriculture sector, the relevant index is included in the former equation:

$$\ln(E(W, r, GDP)) = \mu + \alpha \ln(W) + \beta \ln(r) + \gamma \ln(GDP) + \theta \ln(G)$$

In equation above, μ = Ln (0), and G is government size index. Also:

Ln (E): natural logarithm economic of IRAN

Ln (W): natural logarithm of the wage paid in IRAN at fixed price of 1997 (million Rials)

Ln (r): natural logarithm of the cost of capital in IRAN (in terms of the index)

Ln (GDP): natural logarithm of GDP at fixed price of 1997 (billion Rials)

Ln (G): natural logarithm of the government's size index (government consumption expenditures)

Analysis of Results

In the present research, the time series data for years 1970-2011 were used to analyze the results. Primarily, stationary test of equation variables or Augmented Dickey-Fuller's test was applied to estimate the equations. Except for cost of capital opportunity growth which was at stationary level, other variables became stationary after differencing once. Since structural break is one of the reasons of being non-stationary, no break was observed after carrying out the structural break test on initially non-stationary variables. Therefore, the technique proposed by PESARAN et al. (2001) entitled "Auto-Regressive Distributed Lag (ARDL) method" was used to avoid non-stationary state because the equation contains stationary variables of zero and one degrees. This approach enjoys specific advantages compared to other methods. First,

some distinction is considered between the dependent and explanatory variables, solving the endogenous problem. Second, the short-term and long-term components are estimated simultaneously, alleviating the problem of missing variables and autocorrelation. Third, regardless of convergence degree of estimators, this method attempts to identify and estimate the model and removes the concern about equality of convergence degrees of variables prior to standard analysis of identical convergence and there would no need to unit root test any more.

Results of short-term estimation in Table (1) at significance level of 95% indicate that growth of employment in agriculture sector and growth of the wages were incorporated in the short-term model with one lag. Other variables were incorporated in the model without any lag. Furthermore, results of CUSUM test showed that the short-term coefficients are sufficiently stationary and the period under study is an appropriate interval.

Results of long-term relationship estimation at significance level of 95% in Table (1) reveal the fact that growth of government consumption expenditures as well as growth of GDP have positive impact in the long term on employment growth. but growth of cost of capital and growth of the wages negatively affect the employment growth. In addition, the results suggest that none of the variables in the long term have significant impact on employment growth .Table 1: Results of short-term relationship estimation

Table 1: Results of short-term relationship estimation

Variable	Name of Variable	Coefficient	t-statistics
LE(-1)	Growth of employment with one lag	0.67	2.98
LG	Growth of government consumption Expenditures	0.05	4.13
LW	Growth of wages rate	-0.08	-1.86
LW(-1)	Growth of wages rate with one lag	-0.09	-4.17
Lr	Growth of cost of capital	0.077	1.84
LGDP	Growth of GD	0.054	1.53
C	x-intercept	-0.017	-1.21
R-Bar-Squared= 0.91	R-Squared=0.95	DW-statistic=1.71	

Table 2: Results of long-term relationship estimation

Variable	Name of Variable Coefficient	Coefficient	t-statistics
LGDP	Growth of GDP	0.75	1.08
LG	Growth of government consumption Expenditures	4.29	1. 17
LW	Growth of wages rate	-3.43	-0.19
Lr	Growth of cost of capital	-1.03	-1.16
C	x-intercept	-12.05	-0.08

To compare short-term and long-term behavior of the variables, the error correction model related to the short-term relationship was also estimated; the results can be seen in Table (3).

Table 3: Results of error correction model estimation

Variable	Variable Name of Variable	Coefficient	t-statistics
DLr	Growth difference of cost of capital	-0.08	-3.22
DLW	Growth difference of wage rate	-0.12	-1.97
DLGDP	Growth difference of GDP	0.09	0.97
DLG	Growth difference of government consumption expenditures	0.12	5.21
DC	Difference of x-intercepts	-0.31	-1.65
ECM(-1)	Error correction term	-0.012	-0.1.8
R -Squared= 0.81 R-Bar –Squared= 0.65 DW-statistic=1.64			

Error correction model correlates the short-term fluctuations of variables to their long-term values. Also, the obtained error correction coefficient of this model indicates the adjusted percentage for imbalance of the dependent variable that is corrected to approach the long-term correlation. Coefficient of error correction term equals -0.012 which shows relatively slow adjustment rate.

Conclusions and Recommendations

The logical duties of government shall be listed in order to obtain a suitable size for government involvement in economies of different countries. There are five fundamental duties essentially undertaken by governments without which it will be impossible to achieve sustainable development, poverty-alleviation and popular support and collaboration:

1) Founding the legal structure with executive guarantee

2) Creation of stable policy-making environment, especially stability in macroeconomic variables

3) Investment in fundamental social services and infrastructures

4) Supporting the damageable strata of society

5) Protecting the environment

Government in Iran has always played a substantial role in economy. This role in particular found further significance following increase in oil price during 1970s and powerful economic involvement of government turned out to be by far more important than before. In the current world, the governments shall respond to rapid development of technologies, exceeding population growth pressures, environmental concerns, further merging of markets in the global scale, and transition to more democratic states. And accordingly, it is not surprising that the behaviors of governments have transformed and their attitudes have also changed with regard to their role and

implementation mechanism of this role. During the recent years, the global consensus has reached to the realities based on empirical evidences and impacts of and governmental policies and institutions; these findings are regarded as essential assets of development for nations. For instance, sustainable economic and social development will not occur without effective and efficient presence of government. Nowadays, it has been extensively accepted that presence of an effective and efficient government, and not a government with insignificant role, has an essential and pivotal role for achieving the objective of social and economic development. Nonetheless, this fact has been also accepted that such government shall play its role mainly as a partner and supplier of facilities instead of acting as manager and leader. In other words, the government shall complete and not replace the market activity. Experiential evidences prove that appropriate economic policies (especially stability in macro scale), development of human capitals, and openness of economy are highly significant for attaining pervasive and sustainable economic growth and mitigating poverty and deprivation. And with significance of these factors, role of government finds a more sensitive status. For the same reason and taking into account the importance of EMPLOYMENT in Iran's economy, it seems that intelligent governmental intervention and support from production and employment in this sector will provide the context for further development. The government is finally recommended to increase its expenditures in this sector so as to improve the employment condition in the respective sector in the long term.

References

Afonso A, Furceri D. (2008). Government Size Composition, Volatility and Economic Growth, Working Paper Series, No 849. ECB Working Paper No. 849. Available at SSRN:http://ssrn.com/abstract=1077767

Barro RJ (1989). "A Cross-Country Study of Growth, Saving and Government". National Bureau of Economic Research, Cambridge, Research, University of Chicago Press.

Barro RJ (1990).Government Spending in a Simple Model of Endogenous Growth, Journal of Political Economy, 98(5): 103-125.

Benarroch M, Pandey M (2008). Trade openness and government size, Economics Letters, 101(2), 157–159.

Benarroch M, Pandey M (2012). The relationship between trade openness and government size: Does disaggregating government expenditure matter?, Journal of Macroeconomics, 34(7),239-252.

Brückner M, Gradstein M (2013). Exogenous volatility and the size of government in developing countries, Journal of Development Economics, Vol. 105, 254-266.

Chen ST, Lee CC (2005). Government size and economic growth, Journal of Policy Modeling, 27(5), 1051–1066.

Dar AA, Amir Khalkhali S. (2002). Government size, factor accumulation, and economic growth: evidence from OECD countries, Journal of Policy Modeling, 24(2): 679–692.

Davies A. (2009). Human development and the optimal size of government, The Journal of Socio-Economics 38(3): 326–330.

Guseh J.S. (1997). Government size and economic growth in developing countries: A political-economy framework, Journal of Macroeconomics, 19(4): 175-192.

Karimi Pantanlar S. (2004). "Privatization, Size of Government, and Employment in Islamic Republic of Iran", Research Journal of Human and Social Sciences, 13(1):49-57.

Karras G. (1993). Employment and Output Effects of Government Spending. Is Government Size Important? Economic Inquiry 31(3): 354-369.

Noferesti M. (2008). Unit Root and Co-integration in Econometrics; RASA Cultural Services Institute, Second Edition, IRAN.

Nourzad F. (2000). The productivity effect of government capital in developing and industrialized countries, Applied economic, 32(5):1181-1187.

Rafiee H. & Zibaie M. (2003). "Size of Government, Economic Growth and Productivity of Workforce in Agriculture Sector", Agriculture Economy and Development, 43:27-34.

Ram R (1986). Government size and economic growth, A new framework and some evidence from cross-section and time-series data: The American Economic Review, 76(2):191-203.

Ram R (1989). Government size and economic growth, A new framework and some evidence from cross-section and time-series data: reply, The American Economic Review, 79:281-84.

Ram R (2008). Openness, country size, and government size: Additional evidence from a large cross-country panel, Journal of Public Economics 93(3): 213–218.

Romer P. M. (1989). Human Capital and Growth: Theory and Evidence, National Bureau of Economic Research Working Paper, No: 3173, Cambridge, MA, National Bureau of Economic Research, USA.

Taskini A. (2005). Applied Econometrics Along with Micro-fit, DIBAGARAN-e Scientific-Artistic Institute First Edition, Tehran.

Vedder RK, Gallaway LE (1998). Government size and economic growth, Prepared for the Joint Eco*ement & Data*, 110(4), 611-631. doi: 10.1108/0263