Government Size, Inflation and Economic Growth in Iran

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Abstract: This paper examines the causal relationship among government size, inflation and economic growth for the period (1959-2007) in Iran. The results phillips-perron unit root test indicate that the three variables mentioned above are integrated of order one. Besides, Johansen co-integration test implies the existence of long-run relationship among the variables. The VEC model has been estimated to test direction of Granger causality. The findings indicate that there is no causality relationship between government size and GDP growth. Also, the results confirm a negative unidirectional causality running from economic growth to inflation. Another result of the study shows that a decline in the government size may lead to low inflation without any pressure on economic growth.


Key words: Government Size, Inflation, Economic Growth, Vector Error Correction model.

INTRODUCTION

Government represents a vital role in the economic structure of developing countries. Planning, organization and the optimal allocation of resources can be considered as government functions. Yet, there are, at least, two major challenges with fiscal policies. First, the "crowding-out theory" has created some concern about the trade-off between government size and economic growth. Some evidence confirms the negative correlation between government size and GDP growth (Barro, 1990; Cooley, Thoms and Gary Hansen, 1989). In contrast, karras found that the government marginal product of government expenditures is positive (Johansen and Juselius, 1990; Karras, 2007, Karras, 1993). The second challenge concerns the relationship between government size and inflation. The Friedman's idea that "inflation is always and everywhere a monetary phenomenon has been challenged by the "fiscal theory of the price Level (FTPL). On the basis of FTPL theory, price Level is determined by fiscal policies. Sargent's view has provided a theoretical background for the FTPL theory (Oxley, 1994). Sargent explained that the fiscal authority moves first by committing to a path for primary budget disequilibrium, stimulating the central banker to create revenue from money (signorage).

The paper also examines the impact of the interaction economic growth and inflation on government size. The idea about the existence of such an impact originates from Phillips. Recent contributions to the Literature includes Cooley and Hansen (Bussetto, Marco 2002; Barro 1991; Fischer, 2001) and Aiyagari and Eckstein (Aiyagari, rao and Zvi Eckstein, 1994). tend to confirm the trade off between economic growth and inflation among others.

As a case study for Iran, this paper examines the causality among government size, economic growth and inflation. The remainder of the paper follows as follows. Section 2 describes the methodology. In section 3 the empirical evidence is presented and section 4 concludes the paper.

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Methodology:
The study has been employed annual data (1959-2004) in order to causality test among inflation, economic growth and government sizes in Iran. On the basis of stock and Watson’s (1989) findings, the traditional Granger causality (Granger, C.W.J and R.F Engle 1987) are sensitive to the stationary of time series. Non-stationary of time series data has often been considered in empirical studies. Therefore, in the first step, Phillips-perron unit root test is used. The paper utilizes Johanson maximum Likelihood procedure (Hsih, E and K Lai 1994) for co-integration test. If the presence of co-integration is confirmed, VEC model can be used to show the direction of causality relationship. In the final step the vector error correction (VEC) model is utilized to show the presence and the direction of causality relationship between the three up macro variable. According to Engle and Granger (Ghali, K.H 1999) the VEC model will be:

(1) \( \Delta \ln(GDP_t) = a_{11} (L) \Delta \ln(GDP_{t-1}) + a_{12} (L) \Delta \ln(CPI_{t-1}) + a_{13} (L) \Delta \ln(GS_{t-1}) + \lambda_1 ECT_{t-1} + \epsilon_t \)

(2) \( \Delta \ln(CPI_t) = a_{21} (L) \Delta \ln(GDP_{t-1}) + a_{22} (L) \Delta \ln(CPI_{t-1}) + a_{23} (L) \Delta \ln(GS_{t-1}) + \lambda_2 ECT_{t-1} + \epsilon_t \)

(3) \( \Delta \ln(GS_t) = a_{31} (L) \Delta \ln(GDP_{t-1}) + a_{32} (L) \Delta \ln(CPI_{t-1}) + a_{33} (L) \Delta \ln(GS_{t-1}) + \lambda_3 ECT_{t-1} + \epsilon_t \)

where \( \ln(GDP) \), \( \ln(CPI) \), \( \ln(GS) \) and are, receptivity, the Log of real GDP, consumer price index, government size (the ratio of total government expenditures to (GDP) and error term. Also, \( \varnothing, (L) \) and ECT are difference operator, polynomials in the lag operator "L." and the coefficient of the lagged error correction term.

Similarly, \( \varnothing \), shows the deviation of the dependent variable from the long run equilibrium. The non-significance of explanatory variable coefficients are referred to as a short run non-causality. In this case, if no causality in either direction is found, "the neutrality hypothesis" will be supported. The absence of a Long run causality is found from the non-significance "ECT" coefficients. In this case, the dependent variable is weakly exogenous. Thus, if the coefficients of the explanatory and ECT variable are non-significant, we will find the strong endogeneity of the variables.

The Empirical Evidence:
The results of the philips-perron unit root test for levels and first difference are shown in table 1. The results indicate that the variables are integrated of order one.

The results of the co-integration test shows that value of the calculated likelihood ration (31.6) percent is greater than the ciritical value (29.7 percent) which denotes the rejection of the non-co integration hypothesis.

Table 2 show the results of VEC model estimation. In can be seen that of the error correction coefficients are significant (except for inflation equation). In fact, these variables are weak exogenous in the Log run. Also, due to the significance of error correction coefficient in inflation equation, a deviation in inflation will not de adjust to equilibrium value in the Long-run. Considering the Lagged explanatory variables, there is no causality relationship between government size and economic growth. Also, it can be seen that in the short run there is unidirectional Granger causality running from economic growth to inflation. In fact, one percent increase in GDP growth leads to decrease of 0.2 percent in inflation with two lagged period. As it is well indicated in table 2, one percent increase in inflation caused to decrease of 0.6 percent in government size with two lagged period where one percent increase in government size leads to increased of 0.2 in inflation. In other words, the obtained results confirms a bidirectional causality between government size and inflation.

<table>
<thead>
<tr>
<th>Table 1: Results of Philips-perron unit root test</th>
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<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Ln (GDP)</td>
</tr>
<tr>
<td>Ln (CPI)</td>
</tr>
<tr>
<td>Ln(GS)</td>
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</tbody>
</table>

Source: Authors calculations.

* = Significant at 1 percent.
*** = Significant at 10 percent.

<table>
<thead>
<tr>
<th>Table 2: VEC Model Results</th>
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<tbody>
<tr>
<td>Error correction</td>
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<tr>
<td>Count Eq</td>
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<tr>
<td>D(Ln(GDP)(-1))</td>
</tr>
<tr>
<td>D(Ln(GDP)(-2))</td>
</tr>
<tr>
<td>D(Ln(GPI)(-1))</td>
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<tr>
<td>D(Ln(GPI)(-2))</td>
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### Table 2: Continue

<table>
<thead>
<tr>
<th></th>
<th>D(Ln(GS(-1)))</th>
<th>D(Ln(GS(-2)))</th>
<th>C</th>
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<tbody>
<tr>
<td></td>
<td>0.1(0.95)</td>
<td>0.17(2.07)</td>
<td>0.03(0.15)</td>
</tr>
<tr>
<td></td>
<td>0.11(1.1)</td>
<td>0.21(2.63)</td>
<td>-0.03(-0.19)</td>
</tr>
<tr>
<td></td>
<td>0.2(0.8)</td>
<td>0.31(5.74)</td>
<td>0.04(0.78)</td>
</tr>
</tbody>
</table>

Source: Authors calculations.
Values in parentheses are T statistics.
Optimal number of Lag is employed by using Bayesian criterion (SBs).

**Conclusion:**

The role of government size in the growth process as well as inflation has received much attention in economic literature. Also, many studies have been carried out to characterize the impact of the above variables on government size. Considering the Iranian policy makers’ emphasis on privatization and the execute of Article 44 of the constitution the paper has investigated the causal relationship among GDP growth, inflation and government size. According to the results obtained, the economic growth and government size have no significant effects on each other. The empirical results confirm the existence of a negative bidirectional relationship between GDP growth and inflation in Iran. Also, the findings of the study indicate that there is a significant bidirectional Granger causality between government size and inflation so increase in inflation reduces government size where an increase in government size leads to increase in inflation. Thus, considering the obtained result, a decline in government size, without any pressure on economic growth, may lead to low inflation.

### REFERENCES


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