

## Government Size & Economic Growth: New Evidence from Some Developing Countries

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### ABSTRACT

There have been significant advances in the effect of government size on economic growth in recent decades. Government Expenditure plays a major role in innovation, raising productivity and increasing economic growth and therefore affects all economic sectors. The purpose of this paper is to estimate the impact of government expenditures on economic growth in developing countries. To do so, we have used a sample of 18 developing countries for which the necessary data were available for the period 1990-2007. We concentrate on the usage aspect of government expenditure to deal with its impact on economic growth. We have also used a new composite index of government expenditure called Openness. Our findings based on panel data regression models indicate that in fact, a negative relationship between government consumption expenditures and economic growth exists for both groups of countries, and positive relationship between government construction expenditures and economic growth exists for developing countries. Therefore, downsizing government consumption expenditures in these countries is suggested.

JEL classification: H54; H61; J21.

**KEY WORDS:** Government Size; Economic Growth; Developing countries; Panel Data.

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### INTRODUCTION

Proper and appropriate role of government size, as discussion has started among economists and statesmen of the classical period and the views of Adam Smith (laissez-faire) in the nineteenth century. Of course, economic public programs were presented after major economic crisis, have changed significantly in this century. When the Second World War changed the basis of income and social security systems started expanding and when certain public programs were presented after major economic crisis, in other words; the period after World War II was on an evidence that the governments played an effective role in the economy and improved social security costs of people through their government interference and the results of this remarkable growth in the decades of 60 and 70 were in industrial countries. Was the effect of government spending on economic growth positive or negative? The answer to this question is already not clear and arguments in both directions can be presented. To where the effects are known to public goods and external effects of natural monopolies over the major obstacles to growth and to be expect that kind of expenditure government in order to correct these problems is to reinforce growth and follow Barro (1990), this can be named Producing Government. Another problem is that the government may produce valuation estimates lead to excessive growth. In various accounts, according to public goods and services they will be evaluated. This procedure creates problems that researchers understand whether the increase in government spending leads to higher economic growth, is to reach devoted path. Because of this assumption implicitly, the production

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technology with constant efficiency of scale remove is produced and that all the products were classified as final goods rather than goods production cost interfaces that reduce the private sector. Another reason is the assumption that market value goods are equal to the cost of production because government is spending part of the gross domestic product as well. As if the measured gross domestic product of the cost, consumption and investment, both are part of the gross domestic product. Explain in terms of gross domestic product growth of government spending changes the concept to explain part a phenomenon by its own. Summarized the arguments above about the expected effects on the growth of government spending have been, to our this result will make the case that the effect of government spending in general, cannot be granted before an outcome can be, and also expect that different types of costs, have different effects.

## MATERIALS AND METHODS

### 2-Government Expenditures and Economic Growth: Empirical Studies

Recently, some studies have analyzed the relationship between Size of Government and economic performance. Many of them examined the impact of Government Expenditure on productivity growth. However, the main conclusion of most studies supported the positive impact of Government Expenditure on economic performances of developed as compared to developing countries. Over views of the literature on Government Expenditure and economic growth can be found in David Cameron (1978) was the first to convincingly demonstrate a connection between trade openness and government finance. In a sample of 18 OECD countries, Cameron found openness in 1960 to be a strong predictor of the increase in government tax revenues as a share of GDP between 1960 and 1975. He postulated that more open countries were more heavily unionized which, through collective bargaining, lead to greater demand for government transfers in the form of social protection and reeducation. Ram (1987) finds evidence for Wagner's Law in some of the time-series though not in the cross-section. However, other authors have found evidence in the cross-section. Comparing Latin America with the OECD, Additionally, Lucas (1988) argues that public investment in education increases the level of human capital and this can be seen as a main source of long-run economic growth. Moreover, Barro (1990) mentions the importance of government expenditure in public infrastructure for economic growth and Romer (1990) stresses the relevance of research and development expenditure. Therefore, composition of public spending is also a relevant issue, and if the aim is to promote growth, the focus should be put on the more productive items of the budget, even if the balance between the various functional items of the budget can vary according to the particular circumstances and priorities of each country. Easterly and Rebelo (1993) find strong evidence for Wagner's Law in both cross-sectional data covering 105 countries from 1970–1988 and historical data covering 26 countries from 1870–1988. The correlation between per capita income and government size is frequently found in both longitudinal and cross-sectional data in both historical and current periods. Henrekson (1993) notices that the bulk of the support for Wagner's Law derives from regressions in levels and, invoking Granger and Newbold (1974), cautions that regression equations specified in levels of time series often lead to erroneous inferences if the variables are non-stationary. He contends that income and the share of government expenditure, while correlated, are not, in fact, cointegrated, and demonstrates this in Swedish time series data from 1861–1990. He concludes that the correlation reported by other researchers may be spurious. However, Oxley (1994) examines data on Britain from 1870–1913, and finds evidence that Wagner's Law holds and does satisfy Granger causality.<sup>8</sup> Per capita income and government size are also correlated in the modern period. In a broad sample of 115 countries from 1950–80, Next, both Wacziarg (1997) and Alesina and Wacziarg demonstrate that country size and openness are negatively related in the presence of a wide range of controls. And these results are replicated in regressions in which more direct measures of trade policy such as tariffs and measures of “outward orientation” are substituted for openness (see Sachs and Warner, 1995). Alesina and Wacziarg (1998) offer an explanation for the observed fact that larger countries have smaller government consumption as a share of GDP. Their argument is built on two ideas taken from the literature on country formation. First, sharing non-rivalrous public goods over larger populations results in lower per capita costs of provision. Second, larger populations tend to exhibit greater heterogeneity in preferences over public goods provision. Equilibrium country size emerges as a tradeoff between the costs of increasingly heterogeneous preferences and the benefits of sharing non-rivalrous public goods over larger populations. The result is that larger countries tend

to exhibit lower per capita expenditure on public goods. Meanwhile, smaller countries are more open to trade. To the extent that market size influences productivity, smaller countries are more negatively impacted by a closed world trading system. Put differently, smaller countries are more viable under open trading systems because they can benefit from spillovers due to foreign production. Thus not only are small countries more likely to be open to trade, but small countries will be more common during periods of greater trade integration. Together, these effects imply that smaller countries are both more open to trade and spend more on public goods. Alesina and Wacziarg supply a pair of results that support their assumptions. First, in the regression of per capita government consumption on log of population, the latter has a negative and significant coefficient, supporting the conjecture that larger countries spend less on public goods. Second, when transfers and interest payments are added to government consumption and the regression is rerun, the point estimate is relatively stable but the significance drops markedly suggesting that per capita transfers are unrelated to country size. The effect exists in public goods but not in transfers. Rodrik (1998) noted that the correlation extends to countries of all income levels and exists for all available measures of government consumption. He asserts that Cameron's collective bargaining explanation is unlikely to explain the correlation in the broader sample of countries due to the relative weakness of organized labor in developing countries. Rodrik hypothesizes that government expenditure may serve as a form of insurance against external risk. Stein, Talvi, and Grisanti (1998) observe, "the size of government in the lowest income quartile of Latin America averages 20% of GDP compared to 30% of GDP in the highest and 48% of GDP in OECD countries. In other words, richer countries tend to have larger governments. And Milesi-Ferretti, Perotti, and Rostagno (2002) generate contradictory hypotheses concerning the effects of electoral rules on public expenditure. Persson, Roland, and Tabellini construct a Downsian model of electoral competition with forward-looking voters. Contrasting majoritarian and proportional voting rules, they find that the former focuses electoral competition on a few key districts, leading to fewer public goods but more redistribution than the latter. Austen-Smith (2000) and Milesi-Ferretti, Perotti, and Rostagno (2002) both predict that total government expenditure is higher under proportional representation. Persson and Tabellini (2004) confirm these predictions in a panel of 80 democracies during the 1990s. But Persson and Tabellini (2004) limit their study to total expenditure and do not break out central government expenditure by category. This study shows that their results are replicated in each category of expenditure: that majoritarian government results in smaller expenditures across the board. It further shows that panel regressions of expenditure shares cannot distinguish between Milesi-Ferretti, Perotti, and Rostagno (2002) and Persson and Tabellini (2004).

Cameron A. Shelton (2007) in the paper tests several leading hypotheses on determinants of government expenditure. The purpose is to avoid omitted variables bias by testing the prominent theories in a comprehensive specification, to identify persistent puzzles for the current set of theories, and to explore those puzzles in greater depth by looking at the composition of government expenditure and the level of government at which it takes place as well as its magnitude. Using Government Financial Statistics data from the IMF covering over 100 countries from 1970–2000, I look at cross-sectional and inter-temporal variation in government expenditure and both individual categories of expenditure (such as defense, education, health care) and different levels of government (central, and local). Among other results, He find a new explanation for Wagner's Law, widespread evidence that preference heterogeneity leads to decentralization rather than outright decreases in expenditures, that a great deal of the expenditure associated with increased trade openness is not in categories that explicitly insure for risk, and evidence that both political access and income inequality affect the extent of social insurance. Furceri (2007) analyzing a panel of 99 countries from 1970-2000, shows that a 1 percent increase in government expenditure business cycle volatility determines a decrease of 0.78 percentage points in the long-run rate of growth. António Afonso and Davide Furceri (2008) in the paper analyses the effects in terms of size and volatility of government revenue and spending on growth in OECD and EU countries. The results of the paper suggest that both variables are detrimental to growth. In particular, looking more closely at the effect of each component of government revenue and spending, the results point out that *i*) indirect taxes (size and volatility); *ii*) social contributions (size and volatility); *iii*) government consumption (size and volatility); *iv*) subsidies (size); and *v*) government investment (volatility) have a sizeable, negative and statistically significant effect on growth.

### 3. Model, data, and estimation methodology

We study the case of 18 developing countries and use annual data for the 1990 - 2007 periods. This time period and frequency is largely dictated by the availability of data on Expenditure. Data on GDP<sup>1</sup>, Investment (Gross fixed capital formation), labor force in Current prices, Sum Exports of goods and services (% of GDP) and Imports of goods and services (% of GDP) divided GDP, General government final consumption expenditure (% of GDP) General and government final construction expenditure (% of GDP) are from WDI<sup>2</sup>. We have also used index of Openness .

$$\text{OPENNESS} = \frac{X + Y + M}{\text{GDP}} \quad (1)$$

The basic model to be estimated on panel data for 18 developing countries is a simple production function and the sample period is 1990-2007.

$$\text{LnGDP}_{it} = f(\text{LnK}_{it}, \text{LnL}_{it}, \text{LnGC}_{it}, \text{LnGI}_{it}, \text{LnOPEN}_{it}) \quad (2)$$

The variables (for country i and time t):

GDP is gross domestic production.

L is labor force.

K is gross fixed capital formation.

OPEN is openness index.

(Ex/GDP<sub>it</sub>) is Exports of goods and services (% of GDP).

(Im/GDP<sub>it</sub>) is Imports of goods and services (% of GDP).

(G<sub>it</sub>C) is General government final consumption expenditure (% of GDP).

(G<sub>it</sub>I) is General government final construction expenditure (% of GDP).

The model can be rewritten as follows:

$$\text{LnGDP}_{it} = \alpha_{it} + \beta_3 \text{LnOPEN}_{it} + \beta_4 \text{LnGC}_{it} + \beta_5 \text{LnGI}_{it} + \beta_1 \text{LnK}_{it} + \beta_2 \text{LnL}_{it} + \epsilon_{it} \quad (3)$$

We run the regression with use of panel data technique.

In general a regression model of panel data is as follow:

$$U_i = \mu_i + V_{it}, \quad Y_{it} = \alpha_{it} + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + u_i \quad (4)$$

Where  $E(U_i) = 0$  and have constant variance.  $U_i$  include fixed effects that show difference between individual, households or countries especial characteristic.

$V_{it}$  is residual term that:

$$V_{it} \sim \text{IND}(0, \delta^2) \quad (5)$$

First we test heterogeneous between units by F-statistic. If null hypothesis isn't accepted, we use panel data.

Null hypothesis is:

$$H_0 : \mu_1 = \mu_2 = \dots = \mu_N = 0$$

$$H_1 \neq H_0$$

$$F = \frac{\frac{(RRSS - URSS)}{(N - 1)}}{\frac{RRSS}{(NT - N - K)}} \sim F_{[(N - 1), (NT - N - K)]} \quad (6)$$

RRSS: Restrict Residual sum Squares

URSS: Unrestricted Residual sum Squares

N= numbers of units

K= numbers of parameters

Then for choice between Fixed Effect (F.E) and Random Effect (R.E) models we used Hausman Test:  $H = [$

$$(\mathbf{b}_s - \beta_s)' (\mathbf{M}_1 - \mathbf{M}_0)^{-1} (\mathbf{b}_s - \beta_s) \approx \chi^2_{(r)} \quad (7)$$

<sup>1</sup>. Gross Domestic Product

<sup>2</sup>. World Development Indicator

Where  $r$  = numbers of parameters,  $M_1$  = covariance matrix for coefficients of F.E model ( $b_s$ ),  $M_0$  = covariance matrix for coefficients of R.E model  $\beta_s$ .

In Hausman test null hypothesis show Fixed Effect. In according above tests we run the regression whit Random effect model (EGLS<sup>3</sup> method). Table 1 presents the pool EGLS (cross-section weights) regression results.

**Table 1**

**Dependent Variable: LNGDP**

Method: Pooled EGLS (Cross-section weights)

Sample: 1990 2007

Included observations: 18

Cross-sections included: 18

Total pool (balanced) observations: 319

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.924884	0.319485	6.02496	0
LNL?	0.095946	0.019622	4.88982	0
LNK?	0.9407	0.012101	77.7384	0
LNOPEN?	0.050696	0.05852	0.866305	0.387
LNGI?	0.023092	0.018926	1.220121	0.2233
LNGC?	-0.154728	0.057196	-2.7052	0.0072
<b>Effects Specification</b>				
			S.D.	Rho
<b>Cross-section random</b>			0.171871	0.5108
<b>Idiosyncratic random</b>			0.168211	0.4892
<b>Weighted Statistics</b>				
<b>R-squared</b>	0.976241	Mean dependent var		6.030328
<b>Adjusted R-squared</b>	0.975861	S.D. dependent var		1.228575
<b>S.E. of regression</b>	0.184247	Sum squared resid		10.62536
<b>F-statistic</b>	2572.156	Durbin-Watson stat		0.783065
<b>Prob(F-statistic)</b>	0			
<b>Unweighted Statistics</b>				
<b>R-squared</b>	0.990943	Mean dependent var		26.6032
<b>Sum squared resid</b>	27.44343	Durbin-Watson stat		0.303182

<sup>3</sup>. Generalize Least Squares (GLS)

## RESULTAS AND DISCUSSION

### 4. Findings and concluding Remarks

Based on regression results in table 1 the estimated parameters -except for openness and government gross fixed capital formation are significance at a 10 percent level. However, the elasticity of GDP with respect to Openness and gross fixed capital formation are positive as expected from theoretical point of view. The elasticity of GDP with respect to General government final consumption expenditure is negative and significance. Therefore, new developments in government investment and downsizing government consumption expenditures in these countries are suggested.

In general a positive relationship between construction expenditure and economic growth exists.

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