# Fiscal Performance and Growth: Do institutions matter?

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December 31, 2010

**Abstract**

It is well documented that resource-rich countries, on average, have experienced poor growth performance compared to non-resource economies, often described as the "resource curse". Weak governance and institutional infrastructure could have a direct negative effect on growth by lowering the productivity of the economy. In addition, in more shock-prone economies, such as oil exporters, bad institutions can also affect the quality of fiscal policy management. This study investigates whether the interaction between different institutional qualities and fiscal policy explain the differences in growth performance among oil-exporters? The empirical investigation utilizes data for a panel of resource abundant countries for the period 1984-2007. In order to disentangle the direct effect of institutions on growth from that indirect effect through fiscal policy, the study applies a treatment effect model. In this empirical framework, the growth loss due to poor fiscal performance as a result of weak institutional and governance qualities can be compared to the direct effect of institutions on growth.

JEL codes: O43, E62, Q38
Keywords: Growth Regressions, Resource Abundance, Instrumental Variable Analysis

# 1 Introduction

Evidence on whether fiscal policy affects growth is so far inconclusive. However, the recent view that differences in institutional and governance qualities could explain the differences in growth performance among countries is better established. Weak governance and institutional infrastructure could have a direct negative effect on growth by lowering the productivity of the economy. In more shock-prone economies, such as oil exporters, bad institutions can, in addition to the direct effect, have an indirect effect by undermining the economy's ability to properly respond to external shocks. In particular, institutions affect the quality of fiscal policy management. This indirect effect is yet under-investigated, especially for oil-rich countries. A pro-cyclical fiscal policy, relatively high public debt ratios, or (and) a disproportionate increase in government spending during an oil boom can all be a manifestation of week institutions that lead to some form of fiscal policy failure. To the extent that this "voracity" effect is large, weak institutions and governance in oil-exporting countries can severely be detrimental to growth. The central argument of this paper is that the quality of institutions and governance in such countries can affect the outcomes of fiscal policy, resulting in a second-round indirect effects on growth.

It is well documented that resource-rich countries, on average, have experienced poor growth performance compared to non-resource economies in the past few decades. The so called "resource curse" phenomenon has intrigued many researchers to probe into the different potential channels. This study contributes to this literature by posing the following question. Could the interaction between different institutional qualities and fiscal policy mechanisms, such as expenditure

composition and size, the financing decision, and the reaction to an external shock, explain the differences in growth performance among oil-exporters? The results should shed some light on the direct and indirect return to improving the quality of institutions in oil-exporting economies.

The empirical investigation will utilize data for a panel of resource-rich countries for the period 1984-2007. In order to disentangle the direct effect of institutions on growth from that indirect effect through fiscal policy, the study applies a treatment effect model. In this empirical framework, the growth loss due to poor fiscal policy management failure as a result of weak institutional and governance qualities can be compared to the direct effect of institutions on growth.

The literature on institutions as a "deep" determinant of growth has been growing for more than a decade. The findings of this literature suggest a positive relation between the quality of institutions and growth (e.g., Knack and Keefer (1995); Acemoglu, Johnson, and Robinson (2001); Rodrik, Subramanian, and Trebbi (2002); Dollar and Kraay (2003)). In an influential study, Rodrik (1999) made a direct link between greater exposures to external shocks, the quality of conflict resolution institutions, and growth. Large external shocks usually trigger distributional conflicts. Therefore, if conflict management institutions are weak this can exacerbate the economic costs of terms of trade shocks. The country's productivity diminishes, argues Rodrik (1999), and the institutional weakness leads to delays in needed policy adjustments. The main insight drawn from this study, which is relevant to our paper, is that in open economies, as in the case of oil exporting countries, output is more prone to terms of trade shocks, and hence institutional qualities can play a greater role in determining their growth

performance.

Since the seminal work of Sachs and Warner (1995), (SW hereafter), a growing body of literature has tried to explain the disappointing growth performance of resource-abundant economies and their "growth deficit" as compared to non-resource economies; a phenomenon usually referred to as the "resource curse". The more recent research in this area tried to link this apparent "curse" to institutional and political factors. SW dismissed the notion that abundant natural resources negatively affect the quality of institutions, and hence their findings show that natural resources are not detrimental to growth through the institutional channel. Contrasting this approach, Mehlum, Moene, and Torvik (2002), (MMT hereafter), argue that "institutions may be decisive for how natural resources affect economic growth even if resource abundance has no effect on institutions" (p.3). This view is consistent with the findings of Rodrik (1999), discussed above. Indeed, MMT find that in resource-rich countries, with poor rule of law, natural resources are detrimental to growth since it induces a shift in entrepreneurial resources away from production into unproductive activities. They conclude that, the quality of institutions matter to whether a country escapes the resource curse or not. The natural resource abundance does not hinder economic growth in countries with sound "producer-friendly" institutions. MMT used the same data and empirical methodology (OLS) applied by SW to test the predictions of their theoretical model. They captured the effect of natural abundance on growth given a certain level of institutional qualities by adding an interaction term of both variables to the growth regression.

Collier and Goderis (2008), (CG hereafter), confirmed the previous results

of MMT. Using an error correction model for a panel of resource-rich countries, they find that the resource rents may not affect growth "through" affecting the quality of institutions and governance. Rather, there is strong evidence that the effects of revenue booms work "conditional" on governance. Again, in the group of "good" governance countries the resource rent has a positive effect on growth. This result is reversed in countries with "bad" governance qualities. However, they probed more into the channels through which governance and institutions can affect the "curse" outcome. They investigated the interaction between each of industrial development, trade openness, and government consumption with institutional qualities. The only variable that appeared significant is government spending. They conclude that the resource curse could be working through increasing government consumption. This effect is exacerbated with poor quality of institutions. It should be emphasized here that the interaction term clearly does not capture the effect of bad or good institutions on fiscal policy management outcomes or can suggest any causality between them. It merely shows the marginal extra growth losses resulting from larger government consumption associated with low institutional qualities. This result, however, lends support to the insights raised by the theoretical work of Robinson, Torvik, and Verdier (2006), (RTV hereafter).

RTV theoretical paper is the only study, to the best of our knowledge, that accounted for the effect of institutions on public policies. The model shows that 'the incentives politicians face when they confront resource booms map into different policy choices depending on the quality of institutions' (p.465). In countries with weak institutions and those that lack government accountability and trans-

parency, political incentives could lead to inefficient government spending, e.g., on increasing public employment, or reducing taxes in return for political support. RTV conclude that institutional qualities, therefore, are critical for escaping the resource curse or not. Other studies find that natural resource abundance negatively affects growth through its negative effect on institutional qualities. Isham, Woolcock, Pritchett, and Busby (2005) found that natural resources negatively affect the quality of the national socioeconomic institutions, and that the later is endogenously determined by the nature of dependence on natural resources. Their findings also emphasize that institutions are a significant determinant of growth. i Martin and Subramanian (2003), studying the case of Nigeria, also find natural resources may or may not be a curse, but they have a significant detrimental impact on the quality of domestic institutions and, through this channel, on long-run growth.

Three important conclusions can be drawn from the above discussed literature. First, institutions do matter for growth, especially in resource-rich countries. Second, except for CG, the above-empirical studies looked at the total effect of institutions on growth in resource rich economies. None of these studies accounted for the possibility that weak institutions retard growth by inducing fiscal policy management failures or any other form of policy failure. Third, the implications of RTV theoretical study are not yet fully investigated in the existing literature on resource curse. Therefore, a clear difference between the present study and studies that link institutions to growth in resource-rich economies is that this study can say more about the channels of causation. In particular, the distinction is made between the effects of institutions operating through the market (the direct

effects), and those operating through government policy, namely fiscal policy. Another advantage is that our study directly measures the impact of institutional qualities on the goodness of fiscal policy management outcomes. One limitation though is that the interplay between institutions and policies can exist through other policies, such as trade policies or exchange rate policies. While this is fundamentally true, fiscal policy in oil-rich economies is directly linked to the use and allocation of the resource rent and is in the heart of re-distributional conflicts that may arise especially during oil revenue booms.

So, that will turn our focus next to studies that considered fiscal policy in oil exporting countries and those that linked fiscal policy outcomes to the quality of institutions. In many oil-exporting countries, government finance has often been plagued by a highly volatile revenue stream, very weak tax base, pro-cyclical government expenditures, and pro-cyclical foreign as well as domestic finance. Tazhibayeva, Ter-Martirosyan, and Husain (2008), and Pieschacon (2009), provided evidence that fiscal policy is a key mechanism in transmitting the oil price shocks to the economy affecting the output level, output volatility, and growth. On the other end, Fasano-Filho and Wang (2001) found no evidence in support of a significant relationship between government expenditure policy and non-oil GDP growth in the GCC countries, despite the importance of the public sector in these countries. However, none of these studies controlled for the possible effect of institutions on growth, or on fiscal policies. Some literature studied the effect of institutional traits on fiscal policy outcomes.

Tornell and Lane (1998) and Tornell and Lane (1999) showed that in countries that suffer trade booms the institutional factors and the underlying power struc-

ture of the economy may explain the excessive spending of government revenue windfalls. This is known as the "voracity" effect, whereby a positive temporary shock to income leads to a more than proportional increase in public spending. Under weak and fractionalized institutions, the "powerful" groups in the society would try to appropriate a greater share of national wealth by exerting "pressure" on the fiscal authorities to increase public spending that directly benefits them. Stein, Talvi, and Grisanti (1998) find that, for a sample of Latin American countries, countries with certain political traits, such as weak support for the governing party, are more likely to pursue stronger pro-cyclical expenditure policies in response to a business cycle. They also find that more transparent and hierarchical budgetary procedures can lead to lower deficits and debt. Alesina, Tabellini, and Campante (2008a) show that political and institutional qualities can influence the fiscal outcomes in both OECD and non-OECD countries. Their findings also confirmed the existence of a "voracity effect" when institutions are weak. Again, none of these studies considered the effects on economic growth or focused on resource-rich economies.

The present study contributes to that existing literature in that it disentangles the effect of institutions on growth in oil-exporting countries into two components: a direct effect of institutions on growth as well as the indirect channel through affecting fiscal policy management outcomes. This will provide insights into the channels through which both fiscal policy and institutions may affect growth, and their relative importance. The findings would shed more light on the size and significance of the growth effect (loss) resulting from the fiscal appropriation of the resource rent and the return on promoting best practices.

Objective: This study aims to 1) Present new empirical evidence on the decomposition of the effects of institutions and governance qualities on growth; 2) Provide better understanding of the channels through which fiscal policy may affect the growth performance in oil-rich economies; 3) Measure the effect on institutional quality on fiscal policy management outcomes.

# 2 Data and Methodology

## 2.1 The Data

The study will utilize a panel of resource abundant countries for which data is available. That sample includes countries such as Algeria, Angola, Azerbaijan, Bahrain, Indonesia, Iran, Kuwait, Libya, Mexico, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Trinidad and Tobago, Venezuela, UAE. The period of analysis is 1984-2007. Data on institutions is available from the International Country Risk Guide (ICRG) dataset. Alternative measures of governance and transparency are available from the World Bank (WBI Governance & Anti-Corruption). The data on fiscal policy variables are drawn from the Government Finance Statistics issued by the IMF. Other data, such as real per capita GDP, population growth, rate of inflation, openness are available from the World Bank's World Development Indicators and the IMF's International Finance Statistics (IFS). Some data, such as public debt ratios or government capital formation, may not be available from IMF publications. In such cases, the countries' Central Banks and fiscal authorities' published data will be used.

## 2.2 The Methodology

The empirical framework is motivated by the objective of decomposing the effects of institutional and governance qualities into direct and indirect effects through fiscal policy management outcomes. The strategy can be summarized in adding to a standard growth regression, institutional quality variables, controls for fiscal performance as well as information regarding resource abundance intensity.

$$\dot{y} = X\alpha + \beta_1 I + \beta_2 FP + \beta_3 RA + u \quad \text{where} \quad EX'u = 0, \quad EI'u \neq 0 \text{ and } EFP'u \neq 0 \tag{1}$$

Where $\dot{y}$ is the growth rate of real per capita income, $X$ is a vector or control variables standard in growth regressions, $I$ is a vector of institutional quality variables, i.e., corruption, property rights, governance, institutional transparency. Such variables capture the direct growth effect of different measures of institutional qualities. $FP$ is an indicator of fiscal performance after controlling for the indirect effect of institutions. This study argues that not only government revenues and expenditures may matter for growth, but also the quality of fiscal policy management, and that the latter is directly influenced by the quality of institutions. Last, $RA$ is a variable denoting resource abundance intensity in each country.

Fiscal policy management, or otherwise fiscal performance, which is argued to be indirectly influenced by growth determinants as well as institutional features, is proxied by using either procyclicality levels of fiscal policy or a binary variable indicating presence or not of a voracity effect. The two proxies of fiscal performance require independent estimation methodologies. We describe the two methodologies

below:

## 2.3 Estimation of Procyclicality

The relationship between fiscal policy and the business cycle is, as discussed in the literature (Alesina, Tabellini, and Campante (2008b)), an indicator of fiscal performance. Procyclicality of fiscal policy is considered as an indicator of poor fiscal policy whereas countercyclical fiscal policy indicates better fiscal management. The performance indicator resulting from this estimation procedure is a continuous variable. Following the methodology of Alesina et al. (2008a) we measure procyclicality in country $i$ by the coefficient $\delta$ from the following panel regression:

$$\Delta F_{it} = \delta_i OUTPUTGAP_{it} + \gamma X_{it} + \lambda F_{it-1} + \zeta_i + \upsilon_t + \epsilon_{it} \tag{2}$$

where $F_{it}$ is public spending, $OUTPUTGAP$ is a measure of the business cycle, $X_{it}$ is a vector including all other controls, $F_{it-1}$ lagged public spending, $\zeta_i$, $\upsilon_t$, and $\epsilon_{it}$ are unobserved error terms, and $t$ subscripts denote years (Alesina, 2008).

As discussed in the literature, (Jaimovich and Panizza (2007), Gali and Perotti (2003)), if GDP reacts to fiscal policy, then OLS is not a consistent estimator of the above regression, since it would be biased. To correct for this, we follow the methodology of Alesina et al. (2008b) instrumenting the output gap of country $i$ with the output gap of the region of country $i$, excluding country $i$ itself. Regional decomposition follows the definition of the World Bank.

## 2.4 The Voracity Effect

Our second proxy for Fiscal Performance, $FP$, is based on the existence of a voracity effect in a country. The voracity effect is a proxy for fiscal performance since it provides information regarding fiscal management (Tornell and Lane (1998), Tornell and Lane (1999), and Lane (2003)). According to its political explanation "when more resources are available the common pool problem is more severe and the fight over common resources intensifies, leading to budget deficits" (Alesina et al. (2008a)). Then, the calculated ***hazard*** $\gamma$ can be used as a regressor, in place of $FP$, in the growth regression.

Fiscal Performance in turn, measured either as procyclicality or by using the voracity effect, is treated as an endogenous variable that depends on several factors, including the income level and institutional and governance traits. Thus, we need to correct for this endogeneity.

Low institutional qualities are expected to increase the probability of fiscal policy management failure. Therefore, this methodology combines a growth model with a fiscal policy management failure model in a treatment-effects-model fashion (developed by Heckman (1978) and G.S. Maddala and Vinod (1993)). In such representation, the dummy for fiscal policy management failure represents the "treatment" in the growth equation that captures the "outcome". The treatment-effects model is thus a two-step estimation procedure in which a probit regression is estimated first to obtain the hazard that is, then, used in the outcome regression in the second step.

Utilizing this framework allows for decomposing the impact of institutional qualities on growth in two effects; a direct effect on growth conditional on a stan-

dard set of control variables and an indirect effect reflecting the growth costs associated with a higher propensity to fiscal policy failure. Worth mentioning, the properties of the time-series dimension of the data will be tested for unit roots and panel cointegration. Other issues also will be addressed such as the possible reverse causality inherent in growth regression and country fixed effects. In addition, more than one measure of fiscal management outcome will be constructed according to different criteria for robustness checks. One criterion can be fiscal expenditure restraint. Oil boom episodes, for example, that witness less than proportionate increase in government spending reflects the success of fiscal policy management in curtailing a fiscal policy expansion. However, periods that witness more than proportionate increase in spending as a result of an oil boom is a sign of the existence of a "voracity" effect, in which the government is under pressures to increase spending. Also, increasing public debt during times of plenty is a clear sign of failure of fiscal management. An expansionary fiscal policy during booms, even if it is not accompanied by an increase in the levels of debt, is also signaled as reflecting suboptimal pro-cyclical fiscal policies. So, this variable will be constructed in accordance with the definitions of a good or a bad fiscal policy management existing in the literature (e.g, Tornell and Lane (1998)).

$$y_1 = X\gamma + \beta y_2 + u \quad \text{where} \quad EX'u = 0 \text{ and } \quad Ey_2'u \neq 0 \tag{3}$$

# 3 Results

Next we will show results of the following:

Table 1: Growth Regressions
Dependent Variable: /Per Capita GDP growth)

| | [1] | [2] | [3] | [4] |
|---|---|---|---|---|
| Constant | 0.0115 | 0.159 | 0.44 | -0.12 |
| | [0.02] | [0.35] | [0.97] | [-0.24] |
| GDP in 1980 | -0.0009 | 0.001 | 0.0002 | -0.0016 |
| | [-0.13] | [0.18] | [0.00] | [-0.23] |
| Secondary | 0.008 | 0.006 | 0.006 | 0.009 |
| education in 1985 | [0.95] | [0.81] | [0.79] | [1.09] |
| Investment Price | -0.004 | -0.004 | -0.004 | -0.004 |
| | [-2.92] | [-2.83] | [-2.62] | [-2.87] |
| Deficit | -0.427 | -0.45 | -0.43 | -0.46 |
| | [-1.36] | [-1.43] | [-1.39] | [-1.47] |
| Country Openness | -0.001 | -0.001 | -0.0008 | -0.002 |
| | [-0.44] | [-0.60] | [-0.26] | [-0.71] |
| Open Budget Index | -0.006 | -0.006 | -0.003 | -0.007 |
| | [-1.21] | [-1.13] | [-0.56] | [-1.34] |
| Bureaucratic | | 0.165 | | |
| efficiency | | [0.96] | | |
| Corruption | 0.185 | | | |
| | [1.45] | | | |
| Democratic | | | -0.037 | |
| Accountability | | | [-0.36] | |
| Institution Index | | | | 0.26 |
| | | | | [1.60] |
| Estimation method | OLS | OLS | OLS | OLS |
| $R^2$ Within | 0.037 | 0.035 | 0.033 | 0.043 |
| $R^2$ Between | 0.104 | 0.099 | 0.085 | 0.094 |
| $R^2$ Overall | 0.029 | 0.026 | 0.024 | 0.03 |
| | N=407 | N=407 | N=407 | N=407 |

Robust t-stats in brackets

- Our preliminary results did not account for the potential endogeneity that runs from the countries level of development and growth and institutions. Higher growth rates and income levels can feed into institutional qualities and outcomes. In addition, poorer fiscal performance may call for and result in series of changes in budget and fiscal institutions. Therefore, next we use an IV technique to address endogeneity issues.

- We use next the degree of procyclicality as our fiscal performance variable.

- We Construct a voracity effect indicator and run a treatment effect model where the probability (hazard) of experiencing a voracity effect is used as a regressor in the growth regression.

# 4 Conclusions

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