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THE ROLE OF GOVERNMENT ACTIVITIES IN EXPLAINING THE GROWTH FAILURE OF THE OIL EXPORTING COUNTRIES

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Abstract

In standard growth models such as Barro's (1990), government size is related to economic growth within an inverted U-curve framework. However, the government's involvement in the economy – in developing countries in general and in oil exporting countries in specific – is not restricted to budgetary activities. Ownership of enterprises and different forms of interventions in different markets comprise other forms of government activities in these economies. In assessing the impacts of government activities on economic growth one needs to take into account all the roles played by the government. In this paper, we examine the significance of government activities on the economic growth of oil exporting countries, through channels of government expenditure, ownership of enterprises and intervention in the economy. The results indicate that government intervention not only has a significant negative direct impact on economic growth,– which is much larger than a similar case for the rest of the world – but it also weakens the positive effects of the provision of public goods by the government.

ملخص

نماذج النمو القياسي مثل نموذج (1990) Barro's تبين أن حجم الحكومة يرتبط بالنمو الاقتصادي داخل إطار منحني مقلوب. ومع ذلك فان تدخل الحكومة في الاقتصاد في الدول النامية بصفة عامة والدول المصدرة للبترول بصفة خاصة ليس مقصورا علي الأنشطة الخاصة بالميزانية فامتلاك المشروعات والأشكال المختلفة للتدخل في أسواق مختلفة تشمل أشكالا أخرى من الأنشطة الحكومية في تلك الاقتصاديات. وعند تقييم تأثيرات الأنشطة الحكومية علي النمو الاقتصادي يجب أن نأخذ في اعتبارنا الأدوار التي تلعبها الحكومة. ونقوم في هذا البحث بفحص تأثير الأنشطة الحكومية علي النمو الاقتصادي للدول المصدرة للبترول من خلال قنوات الإنفاق الحكومي وامتلاك المشروعات والتدخل في الاقتصاد. وتبين النتائج أن التدخل الحكومي لا يؤثر تأثيرا سلبيا ومباشرا ذو بال علي النمو الاقتصادي فحسب, وهو يفوق في ذلك أية حالة مشابهة في سائر أنحاء العالم, بل نجده أيضا يضعف من التأثيرات الإيجابية التي تنجم عن توفير الحكومة للسلع العامة.

1. Introduction

Analysis of the impact of government performance on economic growth has received considerable attention in the recent literature. Several models have been devised to explain long term growth in which determining factors include government spending.

Government spending is a good representative of government activities in developed countries. In developing countries, however, in addition to the provision of public goods, the government is involved in the production of many private goods and services through its ownership of public enterprises. The government also intervenes in different markets through price controls and subsidies. This is specifically the case in oil exporting countries, where the government is relatively rich in comparison to the private sector and is hence financially capable of intervening in different markets.

In an overall classification, government activities could be divided into three groups of budgetary, non-budgetary (policies and regulatory) and government incumbencies through its ownership of enterprises. Most studies have merely analyzed the implications of government spending on economic growth. But in developing countries, where the role of the government in non-budgetary activities and incumbencies is high, the impact of government on growth should not be limited to budgetary functions. Here, reference is made to the countries endowed with natural resources – oil in particular.

In this paper, by using different indices introduced by the Heritage Institute, we construct an index for the government's non-budgetary activities. In addition, another index which measures the government spending and its ownership of public enterprises is derived. These indices are incorporated into an econometric model in order to explain the behavior of economic growth of oil exporting countries. Public activities in different forms are at the center of our analysis. In order to make a comparison, we use a sample of 132 countries and similar indices are constructed for each. Two sets of growth regression models for the two groups of countries provide us with the possibility of comparing the role of government in the determination of economic growth in two different political environments. The results, based on the assessment of the coefficients of regressions, provide intuitive explanations for the poor performance of the oil exporting countries. According to Nili and Rastad (2007), the average per capita income of the oil exporting countries has fallen by about %29 during the last 25 years, despite that, for the rest of the world the average per capita income has increased by %34 over the same period. The results indicate that government activities including interventions in the economy and ownership of enterprises are significant elements in creating such a performance.

In the next section we will introduce a conceptual framework for the relationship between government activities and economic growth. In section 3 the government performance in oil exporting countries will be compared with different groups of countries. From this comparison, it becomes clear that the governments of the oil economies are spending less in the provision of public goods and are investing more in physical capital. Another aspect of this comparison represents the fact that governments in oil exporting countries are intervening more heavily in their economies. In this section we will also provide two composite indices which cover different governmental activities in the areas of general spending, market intervention and ownership of SOEs. Section 4 begins with the introduction of a theoretical model which is an extension of Barro's (1990) model for the case of an oil exporting country. The section is followed by the results of our regressions of economic growth for the two groups of countries. The first group consists of 132 countries and the second contains 20 oil exporting countries. In the regressions of section 4, different indices of government activities are used to explain the behavior of economic growth in the two selected groups. Finally, section 5 presents conclusions.

2. A Conceptual Framework for the Growth-Government Relationship

Studies examining the impact of government activities on economic growth are primarily confined to studying the relationship between government size and economic growth. Although the results of these studies are applicable to economic conditions of developed economies, the application of their methods to analyze the impacts of government activities on economic growth in developing countries could be misleading. That is because in developing economies government is involved in different forms of non-budgetary interventions which can seriously affect economic growth. Incumbency and enforcing government ownership, public regulations and government bureaucracy are all but non-budgetary governmental interventions in the economy. For this reason, government size is not the only indicator by which to measure the scale of government activities. Figure 1 categorizes different government activities, each of which affects economic growth through different mechanisms. In this section we provide a brief explanation of these mechanisms.

2.1. Budgetary Role of Government

The government's budgetary role could be divided into three branches: government spending, income collection and management of budget disequilibrium. Providing public goods is the prime duty of any government and hence it is usually an important part of government spending. The government is an institution with the minimum transaction cost for the provision of public goods and elimination of the negative externalities (Mueller, 2003). Securing property rights and improving social and economic infrastructures are among the public goods which are expected to have a significant impact on economic growth. However, public spending requires financing which may negatively affect growth through taxation mechanism. Therefore, the effectiveness of the private sector might be weakened as a consequence of an increase in public spending. According to economic theory, the government's budgetary role is expected to affect economic growth within an inverted U-Curve framework.

2.2. Ownership and Incumbency Role of Government

Governments own different enterprises in many countries. Examples are railroads and water and electricity supply. In the oil exporting countries, however, involvement in commercial activities is not restricted to the development of infrastructures and thanks to the income coming in from the sale of oil, the government enters into many commercial activities. In general, there are benefits and costs associated with the investment of government in public enterprises in developing countries. The weakness of the private sector coupled with the weakness of financial institutions provides justifications for the government's involvement in the corporate sector. The inefficiency of government activities, corruption and rent-seeking activities plus a subsequent distortionary environment of the economy are the costs associated with the bigger size of the public corporate sector.

2.3. Non-Budgetary Role of Government

In a market economy, private firms, with the support of the public goods provided by the government, are the engines of economic growth. Research and development activities followed by technological innovations create market power for innovative firms and this is the main source of diversion from a competitive environment. Regulatory activities of the government are rationalized in such an environment by the attempts to move the economy towards a more competitive market structure.

However, in developing countries in general and in oil exporting countries in specific government interventions in labor, product, money and capital markets mainly originate for political power. Rent-seeking and corruption are the main sources of government interventions in the market mechanism. External earnings from government-owned oil exports arm it with sufficient instruments to intervene in the economy and distort the work of price mechanism. On this basis, when explaining the behavior of economic growth in oil exporting countries, one should take this interventionary aspect of the government seriously. In the following section we will provide a comparison between the oil economies and other specified groups of countries from the point of view of government interventions in different markets. In this comparison we will show that governments in oil exporting countries, on average, are intervening more heavily in the economy than the rest of the world.

3. Assessing the Performance of Government

3.1. Government Budget Performance

Figure 2 represents government spending as a portion of GDP for the two groups – the whole sample of the world (as it is reflected in Government Financial Statistics (GFS)) and oil exporting countries – for the period 1972-2001. As seen in the figure, the government size of oil exporting countries, on average, has not been greater than that of the rest of the world.

The composition of government expenditure, however, differs across the two groups. According to Figures 3 and 4, while there is a general increasing trend in both groups of countries, the current expenditure is less in oil exporting countries when measured in terms of its share in the total budget. Meanwhile, the downward trend in capital expenditure for the two groups of countries is apparent.

The quality of government expenditure, however, seems to be more important. Government spending on education and health for example is much lower in oil exporting countries, according to Figures 5 and 6.

3.2. Review of the Government Non-Budgetary Activities

In this section, we compare different indices of government non-budgetary activities of oil exporting countries with the three groups of the OECD, East Asian and the group of "all countries". These indices, in the next section, will be incorporated into an econometric model in order to evaluate the impact of government activities on economic growth. For this purpose, different distortions created by the government are first defined by using different criterion, and then they are measured in terms of values between zero and five with the bigger values representing heavier distortions[1]. At a subsequent stage, these indices will be used to construct a composite index of government policy distortion for the oil and an average of a sample of countries, representing the rest of the world.

3.2.1. Distortion of Trade Policy

This index shows the degree to which the government hinders access to the free flow of foreign commerce. Figure 7 compares the index of trade policy for the four groups of countries mentioned above during the period of 1995-2003. As can be seen from the figure, the government in oil exporting countries has taken a more distortionary direction in its trade policy.

3.2.2. Distortion of Monetary Policy

In empirical works, the distortions created by monetary policy are measured by different indices such as the rate of inflation, the standard deviation of inflation, the difference between

[1] For more details about definitions and factors of each index see Chapter 5 of "2005 Index of Economic Freedom".

the liquidity growth and economic growth and the inflationary tax. The Heritage Institute has scored the index by inflation rate. Figure 8 demonstrates the comparison between different groups. It is clear from the figure that the general trend is improving around the world but oil exporting countries appear as the weakest group.

3.2.3. Distortions Created by Credit Policy and Interventions in Financial Markets

This index is made up of two indices. The first represents the degree to which foreign investors have access to the credit market as compared to domestic investors. Restrictions on financial transactions, availability of different forms of financing for the activities of foreign companies and equal treatment of domestic and foreign firms are the main elements of this index. Figure 9 represents this index for oil exporting countries in comparison with the other three groups. It can be seen from the figure that oil exporting countries are putting more restrictions on foreign investors.

Another index within this category is related to the role of government in the activities of the banking system and financial institutions. The index represents the government's ownership of financial institutions, restrictions on the ability of foreign banks to open branches and subsidiaries, government influences over the allocation of credit freedom to offer all types of financial services, securities and insurance policies. Again, the comparison of the four groups represents a weaker quality of financial institutions in oil exporting countries as demonstrated by Figure 10.

3.2.4. Price Controls and Labor Market Interventions

This index measures the distortions created by the government through price controls and subsidies and also the degree of rigidities in the labor market caused by government regulations. Figure 11 represents the index for the four groups. The figure shows that oil exporting economies are heavily distorted and hence their governments behave in an intervening manner.

3.25. Property Rights

The ability to accumulate private property is the main motivating force in a market economy and the rule of law is vital for a fully functioning free market economy. Secure property rights give citizens the confidence to undertake commercial activities, save their income and make long-term plans because they know that their income and savings are safe from expropriation. Government influence over the judicial system, corruption within the judiciary and legally granted and protected private property are the main elements of the property rights index. Figure 12 shows the index for the four groups with the apparent result that the index is bigger in oil exporting countries (property rights are weakly defended in oil exporting countries).

3.2.6 Index of the Government Regulations

This index deals with the regulation intensity of the government and represents the extent to which the government affects the activities of the private sector through its official regulations. The necessary steps for receiving permissions for economic activities and the degree of bureaucratic complications are among the elements which are considered in the construction of this index. Comparison between the four groups of countries, as represented in Figure 13, indicates that the economies of oil exporting countries are heavily regulated by their governments.

3.2.7. The Informal Sector

The size of the informal sector is another indicator for assessing the quality of governance. Informal markets are the direct result of some government interventions in the marketplace. An informal market activity is one that the government has taxed heavily, regulated in a burdensome manner or simply outlawed in the past. This factor captures the effects of government interventions that are not always fully measured elsewhere. Smuggling, piracy of intellectual property in the informal market of agricultural production, transportation, services, manufacturing and labor supplied to the informal market are parts of this index.

3.2.8. The Overall Government Distortion Index (GDI)

Having considered different aspects of the quality of government in oil exporting countries, it has now become possible to calculate a composite index which represents the overall non-budget activities of the government. The Heritage Institute has calculated such an index by simply averaging the above indices. Since in our econometric model, we want to make a distinction between the impacts of government intervention in the economy and its ownership, we have not incorporated the measure of government ownership in this index. Instead, we have considered the index of government ownership along with government expenditure as a separate index which is named "Govint". This index has been incorporated into the model separately. Figure 15 demonstrates the composite index of the non-budgetary government activities for the four groups of countries and indicates that the government's non-budgetary involvement in the economy is greater in oil exporting countries.

In order to make sure that the difference between oil and non-oil economies is statistically significant, we provide a T-test for the comparison of the two groups. Table 1 shows that the overall index for oil exporting counties is significantly greater than that of the non-oil economies.

4. The Impacts of Government Activities on Economic Growth: Econometric Analysis

Barro (1990) analyzes the impact of government size on growth and suggests a non-linear relationship between the two. He considers a Cobb-Douglas production function for the whole economy to include three inputs of capital, labor and public goods. He assumes that the government solely produces public goods which enter as inputs in the production of private firms. Barro constructs his model within a balanced budget framework. As such, government spending is financed by collected tax.

The results of the Barro's model indicate that there is a nonlinear relationship in the form of an inverted U curve between government size and economic growth. On this basis, an optimal size for the government which maximizes economic growth can be calculated. A smaller-than-optimal size indicates that the provision of public goods can still increase economic growth. While, for the bigger size, the contractionary effect of tax can outweigh the positive effect of the provision of public goods.

4.1. Extension of Barro's Model to Oil Economies

Barro assumes a balanced budget for the government in which the only source of income is tax. Many of government activities in oil countries are financed through income derived from sales of oil. Therefore, government is not dependent on tax alone in order to finance its spending. This prevents full application of Barro's model to these countries. Here we extend the model for the case of oil exporting countries by considering the oil revenue as an exogenous variable which is mainly beyond the control of government. In this case, total government spending will equal the sum of oil and tax revenues:

$$G = \tau Y + Oil \tag{1}$$

In line with Barro's model, we assume that the firms' production function is in the form of: $Y_i = AL_i^{1-\alpha} K_i^{a} G^{1-\alpha}$. This means that the production of any firm is a function of its labor and capital and the overall government activities. Assuming that all firms act in the perfect competitive market, the rental rate of capital equals its after-tax marginal product and the wage rate equals the after-tax marginal product of labor. Also, if we set $K_i = K$:

$$r + \delta = (1-\tau)(\frac{\partial Y_i}{\partial K_i}) = \alpha(1-\tau) A L^{1-\alpha} K^{\alpha-1} G^{1-\alpha} \tag{2}$$

where r is interest rate, and δ is capital depreciation and τ is the tax rate. The logarithmic forms of the above equations along with the log-linearized form of equation (1) result in the following equations:

$$\log(G) = \log(\tau Y + Oil) \approx \log(2) + \frac{1}{2}(\log(\tau Y) + \log(Oil))$$

$$\log(Y) = \log(A L^{1-\alpha}) + \alpha \log(K) + (1-\alpha)\log(G) \tag{3}$$

$$\begin{aligned}&\log(r+\delta) = \log(\alpha) + \log(1-\tau) + \log(A) + (1-\alpha)\log(L)\\ &-(1-\alpha)\log(K) + (1-\alpha)\log G\end{aligned} \tag{4}$$

After eliminating log (Y) from equations (3) and (4), we will have:

$$\begin{aligned}&\frac{1}{2}(1-\alpha)\log(G) = \log(2) + \frac{1}{2}\log(A) + \frac{1}{2}\log(\tau) + \frac{1}{2}\log(Oil)\\ &+\frac{1}{2}(1-\alpha)\log(L) + \frac{1}{2}\log(k)\end{aligned} \tag{5}$$

From this phase on, all the assumptions are the same as in Barro's. We modify the consumption growth rate $\gamma_c \equiv \frac{c^{\bullet}}{c} = (\frac{1}{\theta})(r-\rho)$ to a logarithmic form which results in the following equation:

$$\log(\gamma_c) = \log(\frac{1}{\theta}) + \log(r-\rho) \tag{6}$$

Taking into consideration relations (4) to (6), the economic growth will eventually be in form of a function of oil and tax revenues:

$$\log(\gamma) = \alpha_1(\log(1-\tau) + \log(\tau)) + \alpha_2 \log(Oil) \qquad \alpha_2 > 0 \tag{7}$$

Equation 7 shows that while the relationship between the tax rate and economic growth is still within an inverted U curve framework, there is a bigger ground for government expenditure in oil economies, without outweighing economic growth[2]. This result is justified by the fact that the oil income, unlike the tax revenue, does not reduce the individuals disposable income and hence, the government might become bigger without imposing the contractionary effect of tax collection on economic growth.

4.2. Government and Growth in Empirical Models

There are many empirical studies on the impact of government activities on growth, but none of them has studied the case of oil exporting countries. In most of these works only the government's budgetary impact on growth has been evaluated. A few of the empirical studies estimate a positive and significant relationship between the government size and growth. In contrast, numerous studies show an adverse relationship between the government size and growth. Empirical studies made on the basis of cross-sectional data for advanced and

[2] Oil incomes in the short-term have positive effect on the economic growth. But according to the studies undertaken by Sachs and Warner (1995), countries with natural resources do not experience a desirable growth due to effects of Dutch Disease, lack of attention to education, etc.

developing countries show an adverse relationship between government spending and growth[3]. Table 2 summarizes the results of these studies. The outcomes show that in most empirical analysis the relationship between government consumption and growth is negative or in an adverse U shape. The relationship between government investment and economic growth are positive in some studies and negative in others. Government spending on defense, education and health has been evaluated as positive.

4.3. Government Activities and Economic Growth: An Econometric Analysis

4.3.1. The Sample of All Countries

In this section attempts are made to investigate the impacts of the government's budgetary and non-budgetary activities on economic growth for oil exporting countries based on the incorporation of the indices calculated above and within the framework of Barro's model and its extension for oil exporting countries introduced in the Section 4.1.

In order to make a comparison we use data for 132 countries (including 20 oil exporting countries) for the period 1995-2002. Sources of the data used in our regressions are: WDI, GFS and the Heritage Institute. Variables used in this analysis are divided into two groups. The first group includes a lag of GDP per capita (lgdp), human capital (hum_cap), life expectancy (lifeexp), openness as measured by the ratio of total trade to GDP (t_y) and investment rate. According to Nili and Rastad (2007), since the development of financial markets is important for the effectiveness of investment, we have multiplied the investment rate by the ratio of bank credit to private sector as an indicator for financial development (lidcps_y). According to many growth models, inclusion of these variables is necessary in order to explain the behavior of economic growth. The second group enters the model to explain government activities. These include the ratio of total government expenditure and current expenditure both divided by GDP, in the simple and quadratic forms (tot_exp, tot_exp2, cur_exp^2, cur_exp^2), government capital expenditure (cap_exp), the index of the government's non-budgetary activities (index), and the index of the government expenditure and its ownership of SOEs in the simple and quadratic form (Govint, Govint^2).[4]

We begin our econometric analysis by focusing on the sample of 132 countries (named as: "all countries" from here on). Table 3 represents the different characteristics of the variables used in our regressions.

Table 4 shows the results of five different econometric growth equations, each of which containing standard variables that explain growth, and specific variables that represent different aspects of government activities.

Results of specification tests such as Hausman, Chow and LM for all models specify that the fixed effect model is appropriate. On the other hand results of the misspecification test indicate that there is autocorrelation and heteroskedasticity between groups. Therefore we used the Generalized Least Square fixed effect model with autocorrelation one.

In the first regression, total expenditure and the index of restriction on government intervention are added to the ordinary explanatory variables. Total expenditure appears with a negative sign and government intervention has its expected sign with a dampening effect on growth.

[3] For example see Grier & Tullock (1989), Barro (1991), Easterly & Rebelo (1993)

[4] It should be noted that, there is literature in economic growth which distinguish between direct and indirect taxes. Limitations of data for oil producing countries does not let us to see the effect of indirect and direct tax on economic growth.

In our second equation, we consider a nonlinear relationship between government expenditure and growth. According to the results appearing in the second column of Table 4, a quadratic relationship between the two is justified. This indicates that on average, there is an optimal size for the government which might be calculated based on the results of the model. We obtain a size of 13.8% as the optimal value which is significantly smaller than the actual value appearing in Table 3. Another interesting result in our second model is that when government spending appears in quadratic form, the coefficient of government intervention becomes bigger. This indicates that there is a stronger negative impact of government intervention on growth.

In the third regression, in addition to total expenditure, we use the multiplication of the government intervention index and the total expenditure as another explanatory variable. The rationale behind using this variable is the assumption that government intervention has a negative externality on the effectiveness of government expenditure on economic growth. The result indicates that due to the distortionary environment on the economy created by government intervention, the impact of government spending on economic growth becomes weaker.

In the forth regression, we consider the composition of government expenditure in the form of the capital and current spending. Here again we consider a quadratic form for the current expenditure. Government investment is in favor of economic growth and there is an optimal size for the current expenditure. When we compare the results of this regression with the previous three equations, it becomes clear that the coefficient of the government expenditure gets bigger as the regression becomes more accurate.

In the final equation we incorporate the government ownership of enterprises along with government spending and its intervention in the economy. As mentioned earlier a nonlinear relationship, not only between the government expenditure and economic growth but also between the government ownership and growth, might be justified. In this equation a quadratic relationship between the variable named Govint and economic growth is statistically significant. Since this variable covers both functions of government in the provision of public goods and the ownership of SOEs, the resulting quadratic form indicates that there is an optimal involvement of government in the economy which maximizes economic growth. The coefficient of government intervention is smaller in this equation but this might be due to the incorporation of government ownership of SOEs in our estimation.

4.3.2. The Oil Exporting Countries

In this section we consider the sample of oil exporting economies, consisting of 20 countries. The data covers the period from 1995 to 2002. The method of estimation, similar to the previous model, is Generalized Least Square panel data. Table 5 represents the statistical characteristics of the variables of the sample.

Similar to the sample of "all countries", results of specification and misspecification tests show that the Generalized Least Square fixed effect model with autocorrelation one should be used in the sample of oil countries.

Table 6 contains the results of estimations. The first equation considers a quadratic form for the total expenditure and incorporates the index of restrictions on government intervention. The optimal value of government size for sample of oil exporting countries is obtained from this quadratic estimation which is 14 percent. It is considerably less than the average of actual value, 24.5. Also the result shows that the coefficient of government intervention is significantly bigger for oil exporting countries as compared with the sample of "all countries". The bigger coefficient indicates that for a given value of the government intervention, the negative impact in oil exporting countries is stronger in comparison with the “all countries” sample. This might be due to the fact that the oil income owned by the government would increase the sensitivity of economic performance to official decisions. The more an economy is run by official resource allocation, the more the economy is affected by government decisions. This result is important because of its policy implications. Having considered the poor performance of oil economies, lowering the level of government intervention and moving towards liberalization of the economy would be more effective in stimulating economic growth.

In the second regression we focus on the indirect impact of government intervention on economic growth through its effect on the efficiency of government expenditure. Provision of public goods represented by government spending would stimulate private firms' activities. But when the economic environment is disturbed by government interventions, the efficacy of the provision of public goods might be lower. Multiplication of total expenditure and the index of the restriction of government intervention are reported in the second column of Table 6 as a significant explanatory variable. The comparison of the magnitude of the coefficient of this variable for oil exporting countries with the sample of "all countries", again indicates that the dampening effect of government intervention on economic growth through its effect on government expenditure effectiveness is much stronger in the oil exporting countries.

The third equation considers a quadratic form for the relationship between growth and current expenditure. In the first version of this equation the capital expenditure of the government is also considered. This variable appears with a negative sign for its coefficient which is not significant.

In the forth equation, similar to the one used for "all countries", the government ownership of SOEs and its expenditure are considered together in the form of “Govint” variable. The results are in line with Barro’s extended model introduced in the previous section. The optimal size of government expenditure and incumbencies is greater for oil exporting countries.

In the final equation we enter the variations of oil prices as an explanatory variable for economic growth. This variable might be considered as a proxy for the variations of oil income introduced in our extension to Barro's model. Another justification for using this variable is the common acknowledgement of the impacts of trade shocks on growth in oil exporting countries. Here, the only difference between equation 4 and 5 is the variation of oil price shocks. A comparison between the estimated coefficients of the two equations indicates that the index of the restrictions on government intervention becomes stronger in the latter equation. Another point which is consistent with our extended model is that the optimal size of government becomes bigger when compared with equation 4 and when compared with the sample of "all countries".

5. Conclusion

In this paper we focus on the role of government activities – in its broadest term – on economic growth. Empirical works on economic growth consider the size of government to represent government activities. This is at best appropriate for the advanced economies where all activities are reflected in a modern and transparent budget system for government spending. In developing countries, however, government activities are not limited to its budget figures and the government involvement in the ownership of SOEs and also its intervention in different markets are not fully reflected into the budget. Yet these activities have significant impacts on economic growth. Some empirical studies on economic growth have used proxies to capture these effects. For example, Barro (1991) uses the exchange rate premium to measure distortions created by the government. Hakura (2004) considers inflation rate and exchange rate premium in order to capture the impacts of a distorted economic environment.

The current study approaches the issue of measuring government activities in a more formal way. By using different indices published by the Heritage Institute, we provide quantitative measures of government activities in three categories. The first is the standard measure represented by government spending as a portion of GDP. The second deals with different distortions created by the government on the workings of the market mechanism. Finally, the third measures the ownership of enterprises by the government. Incorporating these three variables in the growth regression equations, using a sample of 132 countries, leads to intuitive results with policy implications of how government activities may affect economic growth.

In our empirical study, we examine the significance of government intervention in the economy and its ownership of SOEs in explaining the growth failure of oil economies. A comparison between the sample of world countries and oil economies confirms that sensitivity of economic growth to government intervention is much higher in oil exporting countries. Other things being equal, an equal degree of government intervention in the economy would result in a lower growth rate in oil economies.

Extending Barro's model to include the case of an oil economy, where government spending is not fully dependent on tax, we conclude that there is more room for government spending without outweighing economic growth in comparison to non-oil economies. However, the results of our regressions indicate that the government in oil exporting countries is significantly bigger than its optimal size which results in a low growth rate for the economy. In general, a heavy governmental intervention in the economy, in addition to a government size which is much greater than its optimal size, has significantly contributed to the observed phenomena of growth failure in oil exporting countries.

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Figure 1: Categories of Government Activities

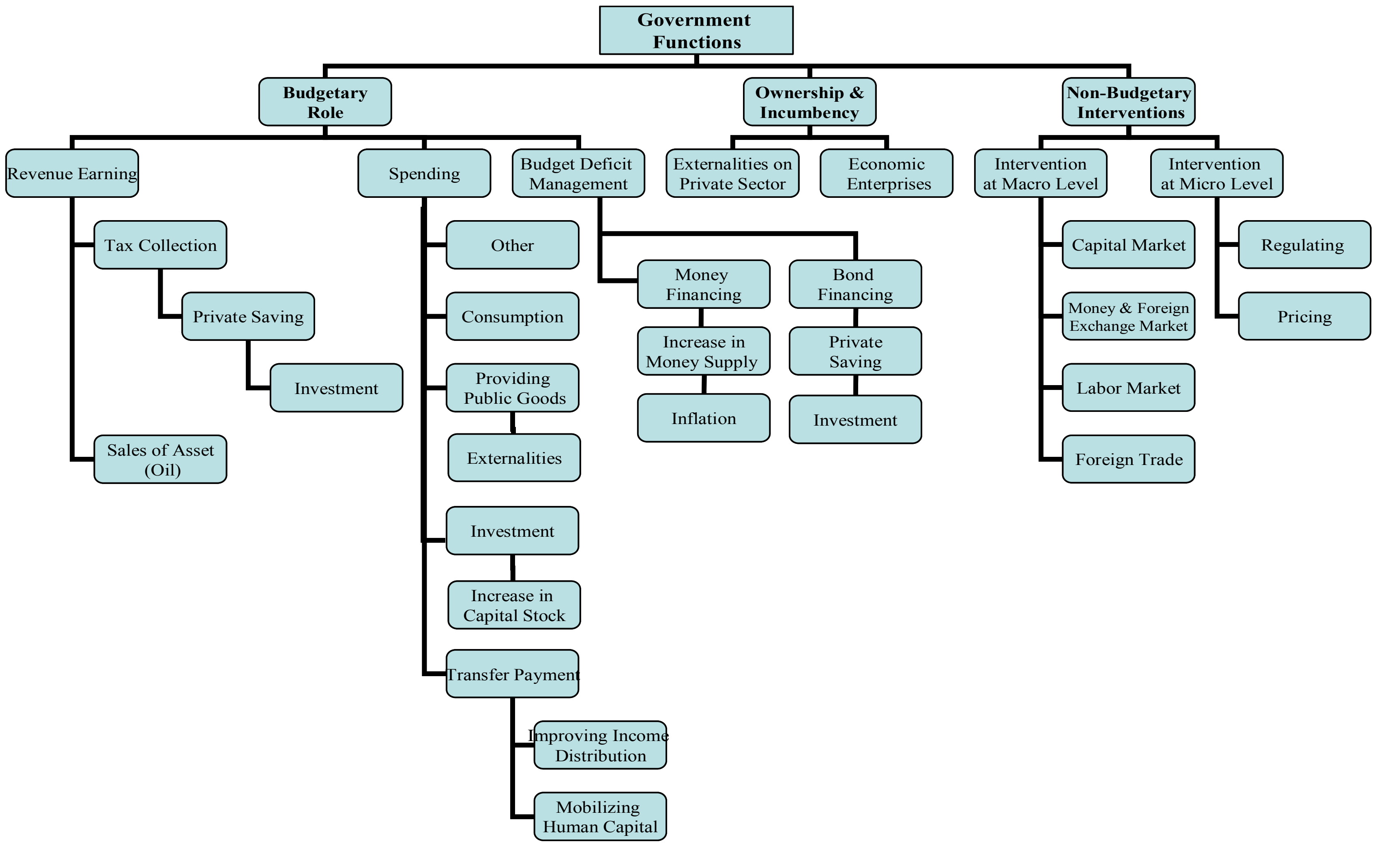
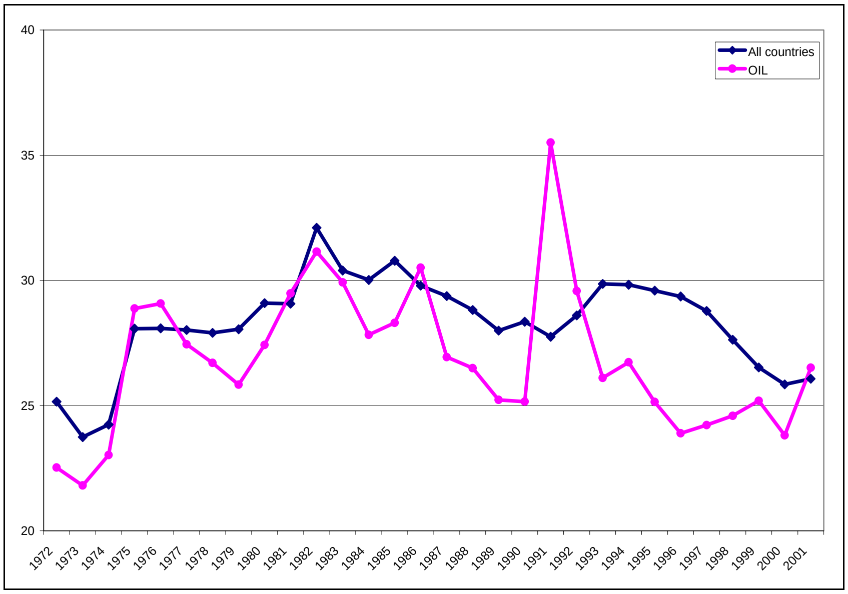
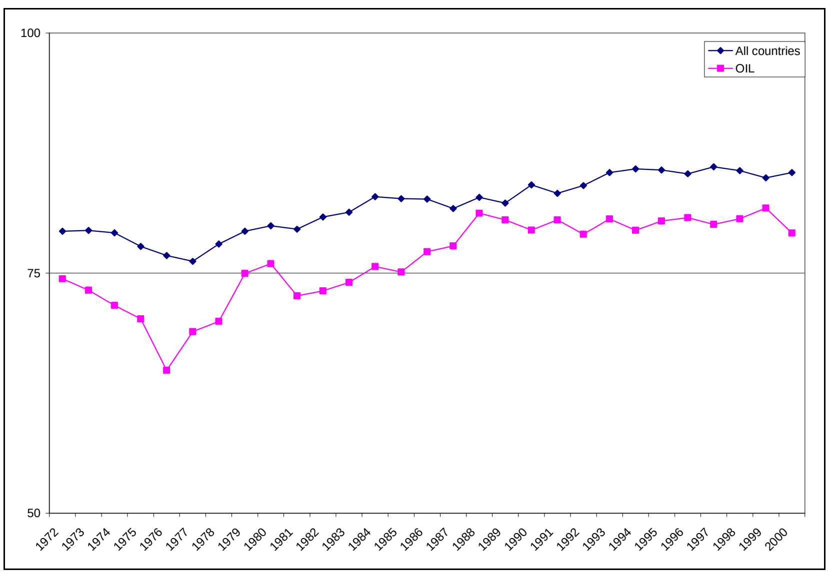


Figure 2: A Comparison of Government Size for the Oil and the World Economy



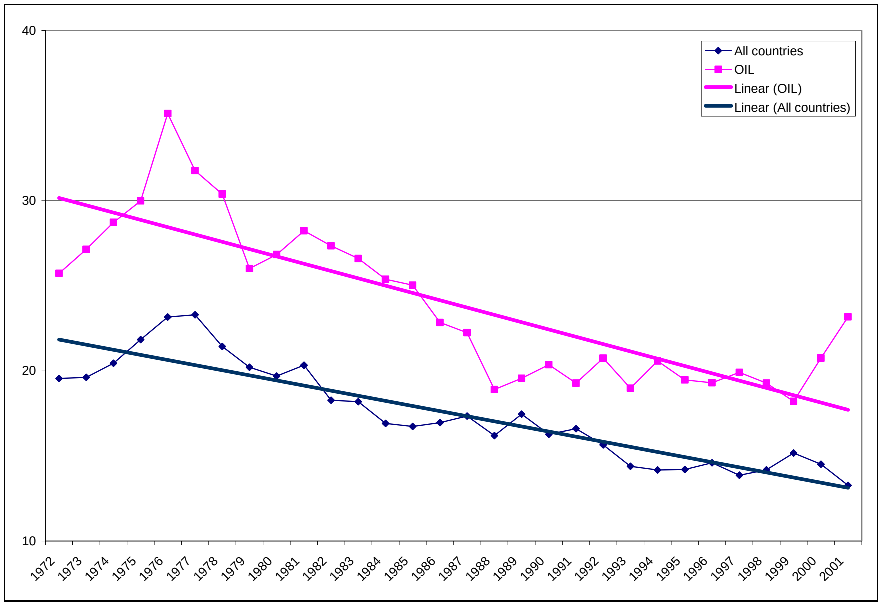
Source: Government Financial Statistics (2003)

Figure 3: Comparison of the Current Expenditure for the Two Groups of Countries



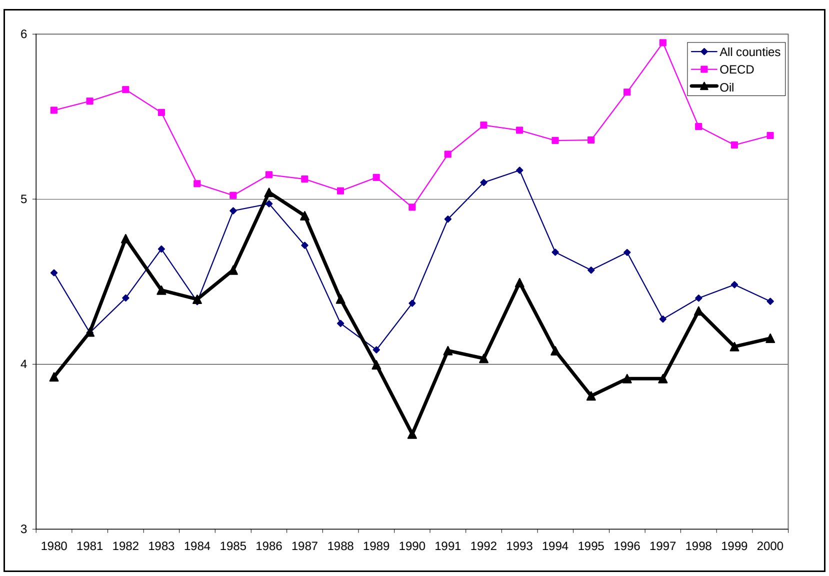
Source: Government Financial Statistics (2003)

Figure 4: Comparison of the Capital Expenditure for the Two Groups of Countries



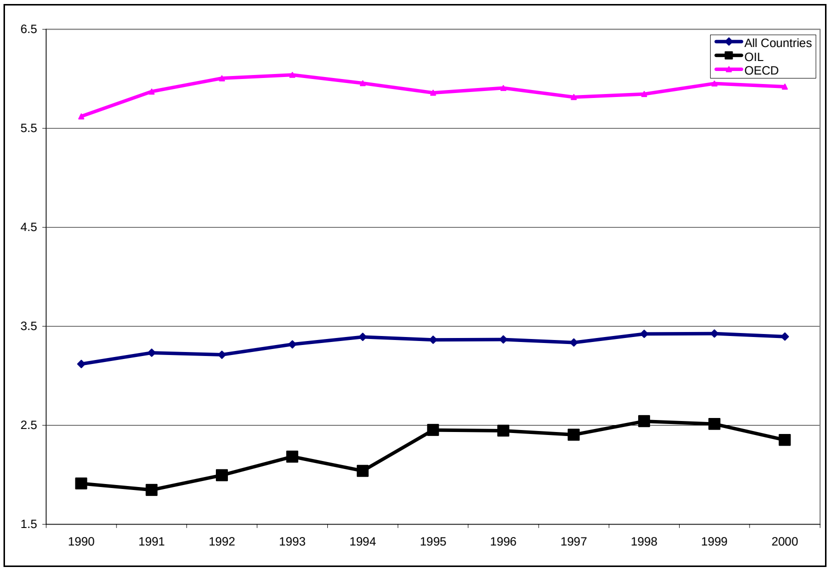
Source: Government Financial Statistics (2003)

Figure 5: Government Expenditure on Education



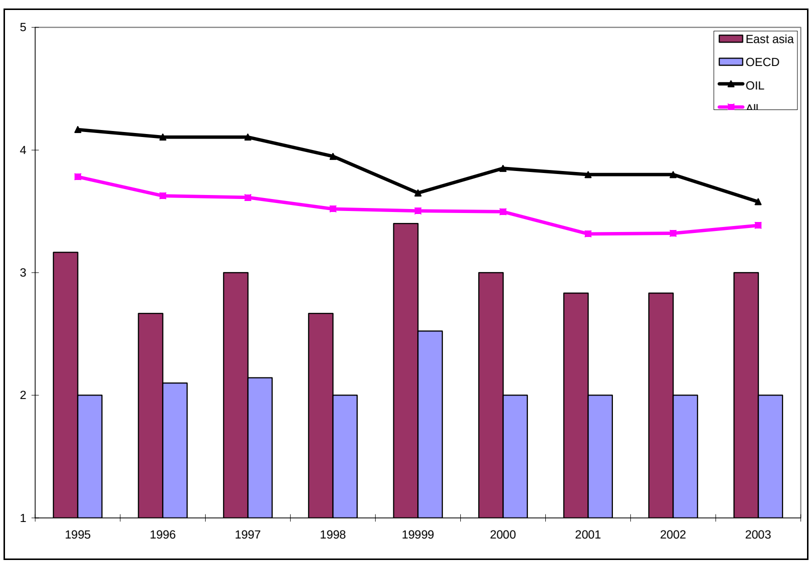
Source: Government Financial Statistics (2003)

Figure 6: Government Expenditure on Health



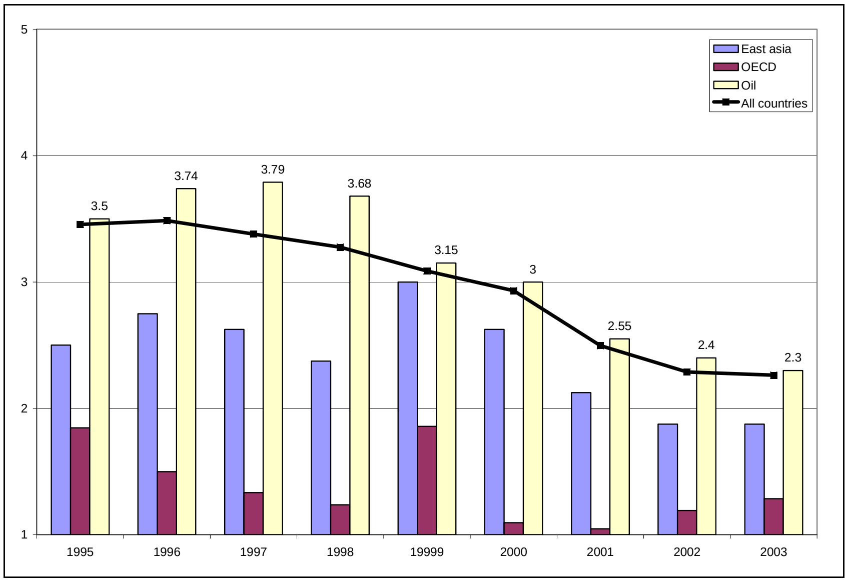
Source: Government Financial Statistics (2003)

Figure 7: The Index of Distortions in Trade Policy



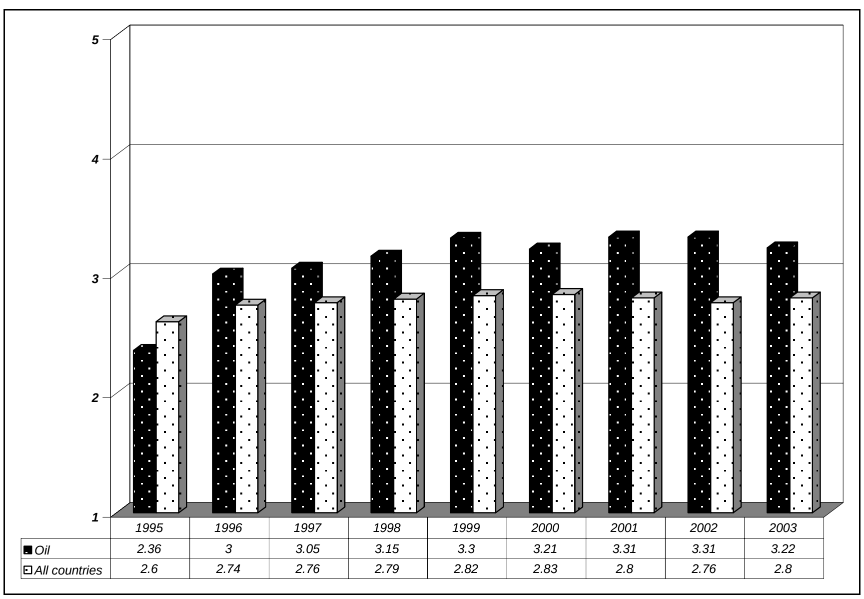
Source: Heritage Institute (2005)

Figure 8: Trend in the Monetary Policy Distortion Index



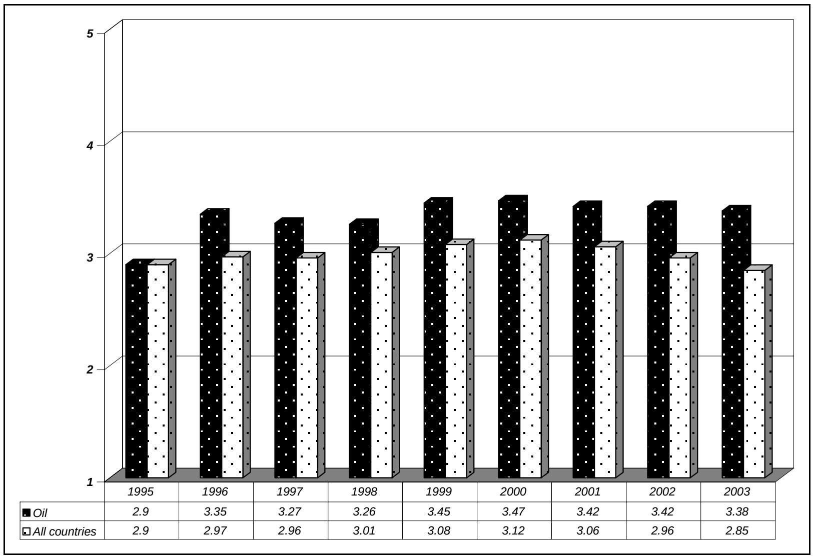
Source: Heritage Institute (2005)

Figure 9: Trend in the Credit Policy Distortion Index



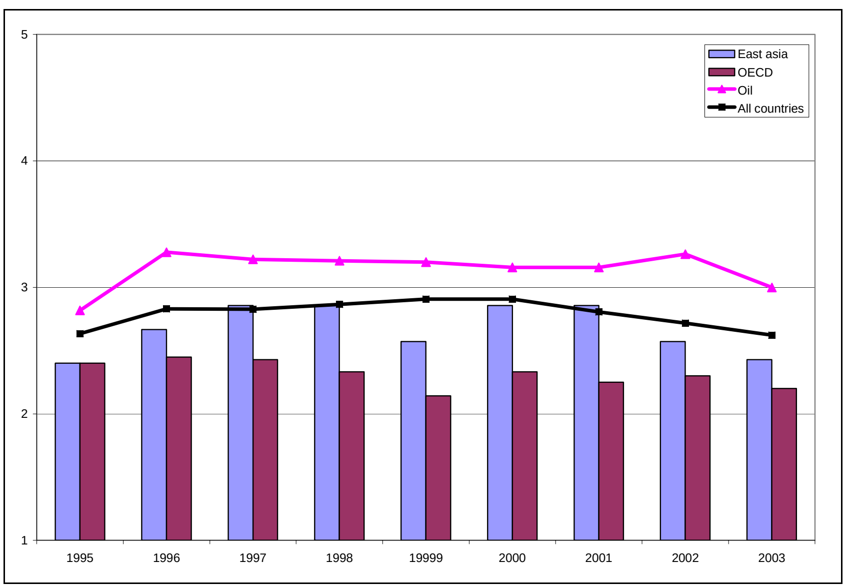
Source: Heritage Institute (2005)

Figure 10: Government Interventions in the Functioning of the Banks and Financial Institutions



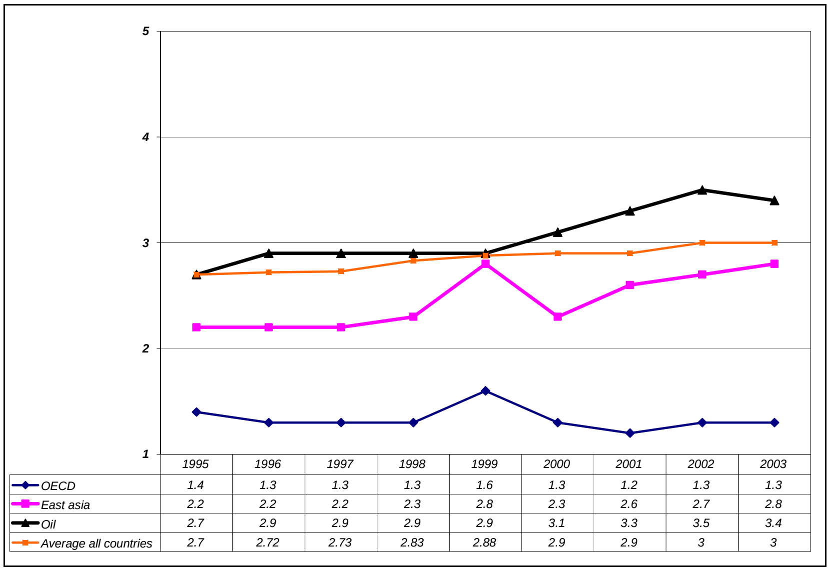
Source: Heritage Institute (2005)

Figure 11: Price Controls and Labor Market Interventions



Source: Heritage Institute (2005)

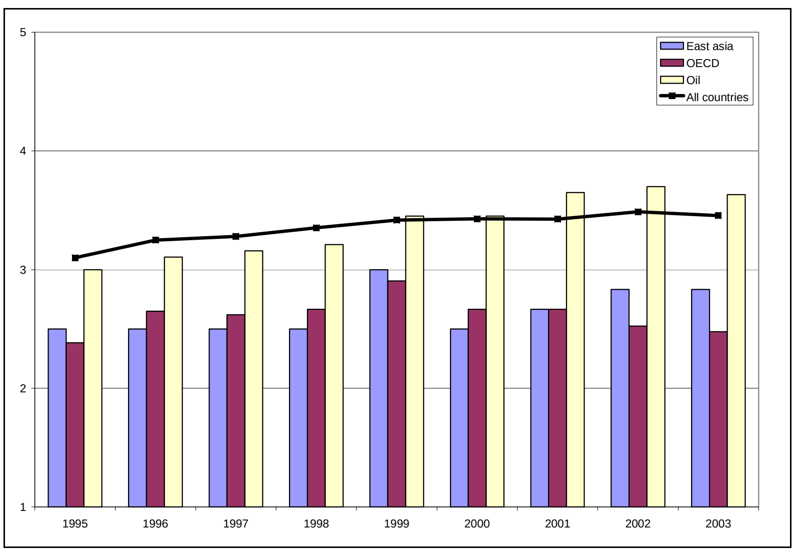
Figure 12: The Index of Property Rights



	1995	1996	1997	1998	1999	2000	2001	2002	2003
OECD	1.4	1.3	1.3	1.3	1.6	1.3	1.2	1.3	1.3
East asia	2.2	2.2	2.2	2.3	2.8	2.3	2.6	2.7	2.8
Oil	2.7	2.9	2.9	2.9	2.9	3.1	3.3	3.5	3.4
Average all countries	2.7	2.72	2.73	2.83	2.88	2.9	2.9	3	3

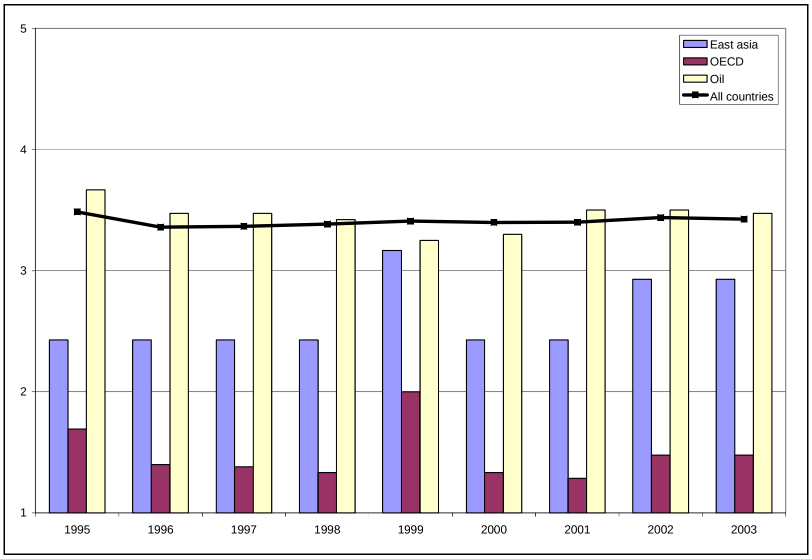
Source: Heritage Institute (2005)

Figure 13: The Index of Government Regulations



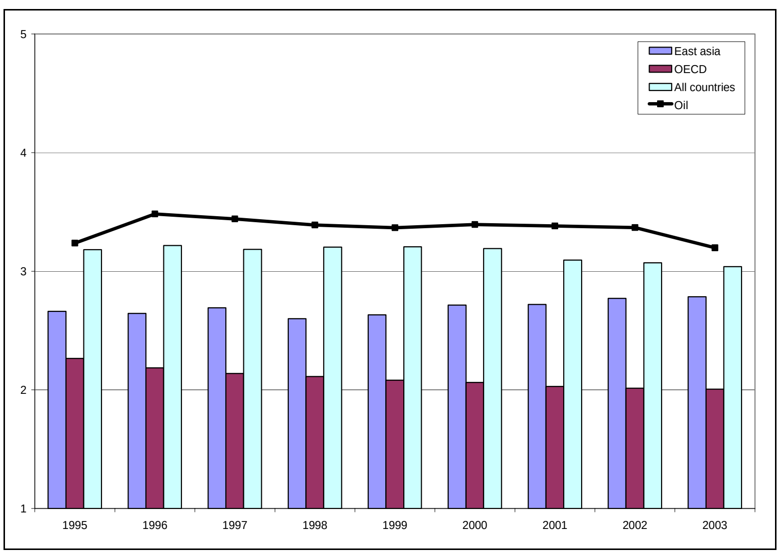
Source: Heritage Institute (2005)

Figure 14: The Index of the Size of Informal Sector



Source: Heritage Institute (2005)

Figure 15: The Average of the Index of Government Intervention



Source: Heritage Institute (2005)

Table 1: T-test for the Comparison of the Index of Government Intervention across Countries

	Oil	Non-oil	Oil	All
Mean	3.390313	3.117231	3.390313	3.162839
t-statistic	-4.0830		-3.4354	
probability	0.0001		0.0007	

$H_0 : diff = 0, H_1 : diff \neq 0$

Table 2: Empirical Studies of the Impact of Government Spending on Economic Growth

Results	Variables Used in Model	Sample	Author
GC has a negative impact	G	Panel, 27 LDCs	Landau (1983)
GC insignificant	GC	Panel, N=47	Kormendi & Mequire (1985)
GC and GI significantly negative. Education is insignificant	G and various depending variables	Panel, 65 LDCs (1960-80)	Landau (1986)
G has positive effect, especially in developing countries	Private investment, labor force, GC	Panel,115 countries (1960-80)	Ram (1986)
GC significantly negative, but positive for Asian sub-sample	GC	Panel, 113 countries (1951-80)	Grier & Tullock (1989)
G has a negative impact, GI has a positive impact	G, GC, GI, human capital	Panel, 112 countries (1960-85)	Romer (1990)
GC has a negative impact, U shaped relation between G and economic growth	GC	Panel,98 countries (1960-85)	Barro (1991)
Health and transportation have positive impact, education &defense have Negative impact	G and depending variables, health, education, transportation	Panel, 14 OECD (1970-90)	Devarajan, etal (1993)
G and GC have negative impact	GI, GC, tax, human capital	100 cross section LDCs ADCs (1970-88)	Easterly and Rebello (1993)
GC is insignificant in DCs but significant in LDCs	Labor force, G, I	Panel, 62 countries (1960-85)	Lin (1994)
No causality	G, private investment	G7, time series (1885-1987)	Hsieh and Lai (1994)
GI has a negative impact in DCs and LDCs	GC, GI	Panel, 43 LDC (1970-90)	Devarajan etal (1996)
GI has a positive effect, GC has a negative impact	GC, GI, I, tax	Panel, 22 OECD (1970-95)	Kneller etal (1998)
Defense exp. has negative effect, GC is insignificant	GC, defense expenditures	Greece, time series (1960-96)	Dunne and Nikolaidou(1999)
GC & Social security have positive impact	I, G, inequality	Panel, 52 countries (1970-92)	Tanninen(1999)
G has a negative impact	G, tax	23 OECD (1970-95)	Fölster & Henrekson(1999)
Gov. exp. on public goods has a positive impact, Gov. over spending has a negative impact	Consumption exp., investment	Panel, OECD (1960-2000)	Heitger (2001)
GC has a negative impact	GC	MENA, 16 countries (1980-2001)	Hakura (2004)

Explanatory variables measured as shares of GDP unless otherwise indicated: G is total government expenditure, GC consumption/non-productive; GI investment/productive, I total investment.

Table 3: Statistical Characteristics of the Variables of the "all countries" Sample.

variable	Mean	St. Dev.	Min.	Max.
GDPGrowth	2.295919	6.109893	-30.0447	100.8401
Lgdp	7.534668	1.581796	3.898392	10.98386
hum_cap	5.699811	2.786206	.687	12.2606
lifeexp	65.95875	11.60022	36.04781	81.56342
lidcps_y	6.269181	1.222808	1.237321	8.828884
tot_exp	26.70497	11.72398	0	59.80322
t_y	83.98577	44.3113	1.530677	296.0161
index	3.162839	.815901	1.21	5
Index*tot_exp	76.77865	35.86379	0	200.5307
Oil_dum*tot_exp	3.932033	9.830469	0	51.59621
Cap_exp	3.95427	3.407178	0	25.22956
Cur_exp	22.97027	10.94823	0	50.99592
Govint	3.270923	1.047627	1	5
$Govint^2$	11.79551	7.109086	1	25
Index*govint	10.72868	5.308841	1.44	25
dum_oil	.1428571	.3500473	0	1
z				

Table 4: Estimation Results for the Sample of "all countries" Using GLS Method. Dependent Variable GDP Growth 132 Countries and for the Period of 1995-2002.

	Model(1)	Model(2)	Model(3)	Model(4)	Model(5)
lgdp	-24.04 (0.00)	-25.6 (0.00)	-23.67 (0.00)	-26.73 (0.00)	-21.5 (0.00)
hum-cap	3.31 (0.00)	2.7 (0.11)	3.51 (0.00)	3.63 (0.00)	3.84 (0.00)
life exp	0.01 (0.07)	0.042 (0.18)		0.081 (0.00)	0.12 (0.00)
lidcps -y	2.72 (0.00)	2.57 (0.00)	3.089 (0.00)	2.58 (0.00)	2.55 (0.00)
t-y	0.11 (0.00)	0.096 (0.00)	0.0075 (0.00)	0.09 (0.00)	0.08 (0.00)
tot-exp	-0.03 (0.04)	0.18 (0.00)	-0.32 (0.00)		
$tot\text{-}exp^2$		-0.0065 (0.00)			
cur-exp				0.19 (0.00)	
$cur\text{-}exp^2$				-0.0073 (0.00)	
index	1.43 (0.00)	1.61 (0.00)		1.87 (0.00)	1.09 (0.00)
index*tot. exp			0.06 (0.26)		
cap-exp				0.086 (0.04)	
Govint					2.51 (0.00)
$Govint^2$					-0.39 (0.00)
const	108.83 (0.00)	122.1 (0.00)	116.51 (0.00)	121.8 (0.00)	083.71 (0.00)
Number of Groups	87	87	101	85	124

Table 5: Statistical Characteristics of the Variables Related to the Oil Exporting Countries

Variable	Mean	St. dev.	Min.	Max.
GDPgrowth	1.62468	4.072894	-14.2961	12.0135
Lgdp	7.744454	1.29385	5.548002	10.59377
hum_cap	5.485338	2.060502	1.572201	11.8686
lidcps_y	6.013415	1.052025	2.920514	8.828884
tot_exp	24.54864	9.860579	0	51.59621
index	3.390313	.8552853	1	4.94
Index*tot_exp	80.64779	35.65959	0	200.5307
Cap_exp	4.50727	2.621794	0	9.472569
Cur_exp	20.01489	8.994418	0	44.34431
Cur_exp^2	480.7533	408.8718	0	1966.418
Govint	3.776042	.9374964	1.5	5
Govint^2	15.13281	6.824842	2.2	25

Table 6: Estimation Results for the Sample of Oil Economies, using GLS Method.

	Model(1)	Model(2)	Model(3)	Model(4)	Model(5)
lgdp	-34.03 (0.00)	-34.77 (0.00)	-32.85 (0.00)	-25.55 (0.00)	-24.72 (0.00)
hum-cap	4.41 (0.00)	4.56 (0.00)	4.26 (0.00)	3.67 (0.00)	1.91 (0.08)
lidps-y	2.76 (0.00)	2.81 (0.00)	2.71 (0.00)	1.94 (0.00)	4.25 (0.01)
tot-exp	0.28 (0.00)	-0.49 (0.00)			
tot-exp^2	-0.01 (0.00)				
index	6.22 (0.00)		5.30 (0.00)	0.97 (0.03)	3.27 (0.08)
t-y	0.024 (0.11)	0.02 (0.03)	0.02 (0.07)	0.022 (0.15)	
index*tot. exp		0.12 (0.00)			
cur-exp			0.27 (0.00)		
cur-exp^2			-0.01 (0.00)		
Govint				3.78 (0.10)	4.48 (0.1)
Govint^2				-0.56 (0.06)	-0.57 (0.1)
Delta price oil					0.12 (0.00)
const	156.95 (0.00)	178.95 (0.00)	157.89 (0.00)	121.95 (0.00)	-10.10 (0.04)
Number of Groups	17	17	17	20	13