What is Happening with the Government Expenditure of Developing Countries - A Panel Data Study*

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Abstract

The paper focuses on the recent pattern of government expenditure in developing countries and estimates the determinants which have influenced government expenditure. Using a panel data set for 111 developing countries from 1984 to 2004, this study finds evidence that political and institutional variables as well as governance variables significantly influence government expenditure. Among other results, the paper finds new evidence of Wagner's law which states that peoples' demand for service and willingness to pay is income-elastic hence the expansion of public economy is influenced by the greater economic affluence of a nation (Cameron 1978). Corruption is found to be influential in explaining the public expenditure of developing countries. On the contrary, size of the economy and linguistic fractionalization are found to have significant negative association with government expenditure. In addition, the study finds evidence that public expenditure significantly shrinks under military dictatorship compared with other form of governance.

Keywords : Government expenditure; Panel data; Corruption; Fractionalization; Governance.

JEL Classification : E01, E02, E61, E62, H2, H4, H5, H6, O11, O5.

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1 Introduction

Since the end of the Second World War in 1945, governments have become more influential, even in capitalist countries, as they provide social services and income supplements as well as produce foods, manage the economy and invest in capital (Cameron 1978). In recent times, external shocks and internal structural failures have had an unavoidable effect on economies. Government intervention in such cases can play an important and effective role in adjusting adverse economic conditions. However, in choosing between monetary and fiscal policy, governments prefer the latter to ensure a confirmed quick recovery from the 'recessionary condition' and to reestablish the confidence of the private sector (Kandil 2005, pg. 269). In developing countries, in particular, fiscal policy has taken the lead in implementing and designing macroeconomic policies, while monetary policy has been subdued due to the need to stabilize a pegged exchange rate, or to accommodate budget deficits.

Fiscal spending by governments, especially for developing economies, is crucial since such expenditure provides channels for enhanced economic growth. Many notable studies such as Elias (1985), Fan et al. (2000, 2004) and Fan and Rao (2003) have contributed to the establishment of the positive linkage between government expenditure, production growth and poverty reduction. While these studies were concerned with the role of government in economic development, numerous studies have focused on the relationship between government expenditure and economic growth. Authors such as Barro (1990), Devarajan et al. (1996) and Bose et al. (2007) have found a positive relationship between government expenditure and growth.

Distinction, has been made between 'productive' and 'unproductive' utilization and the composition of public expenditure. It is generally agreed that larger government expenditure on health, education and public infrastructures increases economic growth, which further improves social welfare and effects a reduction in poverty. Such expenditure has a substantial impact on the aggregate productivity of an economy as demonstrated in the seminal paper by Aschauer (1989) in which he established a significant relationship between aggregate productivity and the stock and flow of different government spending variables. He argued that non-military public capital is more important for productivity and concluded that infrastructure spending (such as on streets, highways, mass transit and sewerage) has the most significant association with productivity. Aschauer's conclusions were particularly important for developing countries in which public expenditure symbolizes the 'wheels' – if not the engine – of economic activity (WorldBank 1994).

Interestingly, no consistent trend can be seen in Figure 1, in which government expenditure of developing countries over the last three decades has been plotted. By contrast, in the case of developed countries like the United States, the share of GDP devoted to government expenditure has demonstrated a steady and increasing trend since 1970 (Hyman 1993, pg. 14). Hence, concerns could arise about the existing variations in government expenditure among the developing countries. Given the financial constraints faced by these countries, it is important to understand the factors and determinants that have influenced government expenditure in developing countries. Only a handful of studies have dealt with these questions, since the major difficulties of such research is the paucity of data and the issue of data reliability, which may be an impediment to this type of research. There also exists no comprehensive theory that can explain the large variations in government expenditure, and different studies are quite independent and fragmented.

The aim of this study is to investigate the aforementioned research questions with the aid of a panel dataset. The approach taken is to test a number of different hypotheses which have been used and proposed in various literature. Using a panel dataset for the 111 developing countries over the period 1984-2004, this study has estimated models to find the possible determinants of government expenditures. In particular, this study examines the impact of the electoral politics of a nation (for example, the partisan composition and political structure of government), the institutional structure and the current state of governance on government expenditure. To facilitate this investigation, categorized variables have been used, namely: a) demographical variables, b) fractionalization variables, c) political variables and, d) governance and institutional variables. Statistical evidence confirms that all these sets of categorical variables have significant power in explaining government expenditure in developing countries, which is a noteworthy contribution to the literature.

According to the System of National Accounting (SNA) 1993, Government Final Consumption Expenditure (GFCE) is the current expenditure by general government bodies on services (for example, defence, education, public order, road maintenance, wages and salaries, office space and government-owned vehicles) and net outlays on goods and services for current use. Exception has been made in the case of defence expenditure, which is purchase of durable military equipment (such as ships and aircraft used as weapon platform) and outlays on construction works for military purposes. Consumption of fixed capital[1] and intermediate consumption of goods and services (e.g., maintenance and repair

[1] According to the SNA, consumption of fixed capital represents the reduction in the value of fixed assets used in production during the accounting period resulting from physical deterioration, normal obsolescence or normal accidental damage.

of fixed assets used in production, purchases of office supplies and the services of consultants) are included, whereas the value of goods and services sold by government to other sectors are excluded from such accounting. Transfer payments (e.g., interest payments for government debt securities and social assistance benefits) and subsidies are not included in this expenditure since the data is taken from the national income accounts. As described in the ABS (Australian Bureau of Statistics 2000, chapter 14 pg. 215, section 14.305), GFCE comprises the following:

Compensation paid to employees of general government bodies (other than producing capital goods) *plus,*

Intermediate consumption of goods and services (e.g., purchases of office supplies and the services of consultants) *less,*

The value of goods and services sold by government to other sectors *plus,*

Consumption of fixed capital *plus,*

The timing adjustments for overseas purchases of defence equipment.

Figure 1 shows the pattern of general government final consumption expenditure as a percentage of GDP for the 111 developing countries (using an unbalanced dataset) over the period 1994 to 2004. This figure illustrates the wild variability that exists with the pattern of GFCE as a percentage of GDP ratios for the developing economies. In the figure, one can easily observe that the ratios jump from 3% to more than 50% with barely any consistency or discernible trends over the period. The pattern of variability remains the same even for the balanced dataset.

[Figure 1 about here]

To understand the mean variation of government expenditures for developing countries, we first plot the simple arithmetic mean of government expenditures (as a percentage of GDP) over the years 1994 -2004 in Figure 2. However, this simple mean could be misleading, since it does not account for the difference in number of countries as well as the differences in the size of economies, size of the population and size of actual government expenditure for different economies in each year. To accommodate these features, we constructed weighted arithmetic means for population weight,[2] GDP weight,[3] and expenditure weight.[4] In addi-

[2] $\text{Population}_i / \sum_{i=1}^{n} \text{population}_i$

[3] $\text{GDP}_i / \sum_{i=1}^{n} \text{GDP}_i$

[4] $\text{GFCE}_i / \sum_{i=1}^{n} \text{GFCE}_i$

tion, the median of government expenditures has been constructed to account for the center location of the expenditure variation over the years. It is interesting to observe that all the share weighted means and arithmetic means follow almost the same upward trend. It is evident from the figure 1 that with the increasing share of population and GDP, developing countries increased their government expenditure. However, the median does not follow this trend at all. Quite oppositely, the median government expenditure over the years has a downward trend which may suggest that countries having a larger share in total government expenditure have decreased their share of spending at relatively faster rates than countries with a lower share.

[Figure 2 about here]

Comparing the same set of mean and weighted means for the OECD countries for the comparable periods, we can see that there is hardly any trend in the weighted arithmetic means of government expenditures over the years, although the arithmetic mean shows an upward trend. In contrast to our findings on median government expenditure in developing countries, the expenditure of OECD countries exhibit an upward trend which could be due to fact that countries with higher government expenditure actually increased their public expenditure share, over the years.

[Figure 3 about here]

In figure 4, different mean values of per capita income for developing countries with an unbalanced dataset have been constructed . All the measures have shown a consistent upward trend in the measure of per capita income, which is a proxy for welfare and the economic wellbeing of nations. Hence, from the figure 3, it is clear that these countries are improving over the years in terms of per capita income and welfare at aggregate level. Similarly, we plot the different mean values of government expenditures for the OECD countries of the comparable periods and find a strong upward trend in the per capita income.

[Figure 4 and figure 5 is about here]

It is compelling to observe that, on different average scales, the GFCE (as a percentage of GDP) fluctuates from around 17% to almost 20% for the OECD countries over the years 1994-2004. Using the same measuring tools, the fluctuation is a little over 10% to close to 15% for the developing countries, which shows that, on average, the government expenditure of developing countries (as a percentage of GDP) is lower than OECD countries. From the median analysis, it is also noticeable that countries having a larger share of government expenditure (as a percentage of GDP) have been reducing their public expenditure share whereas the trend is quite the opposite in the case of OECD countries. This observation is puzzling, as it has been argued in the literature that government expenditure plays a crucial role for any developing country in economic development, improvement in welfare, reduction in poverty and promotion of economic growth, due to the lack of a large private sector.

To understand what is happening with government expenditure in developing countries, it is essential to identify the factors that determine government expenditure and the scale of their impact. The use of panel data is an effective approach in this type of research and is a common practice in the economic growth literature, where a significant amount of growth analysis has been done with panel data estimations. However the paucity of the data and the correlation between the explanatory variables may present significant challenges to the estimation process.

To the best of the author's knowledge, only a handful of works exist in the literature. An early work by De Haan et al. (1996) was conducted based on a panel data of OECD countries for 12 years. In their paper, the authors concluded that investment spending by governments is severely influenced by political decisions, and myopic governments will reduce government spending more than governments with a longer policy horizon. They also concluded that private investments complement government investments spending. On the other hand, Sturm (2001) investigated the determinants of public capital spending for less developed countries using panel data. He found 'Political-Institutional' variables (such as ideology, political cohesion, political stability and political business cycles) may not significantly influence government capital spending. However, instead of devising a model, he used the Sala-I-Martin (1997) extreme bound approach to test various hypotheses which might have influence over public capital spending. His approach has been criticized for omitted variable bias, multicollinearity and data mining problems (Hendry and Krolzig 2004), as a result of which conclusions drawn from the analysis could be misleading and questionable. Shelton (2007) tested several leading hypotheses of government expenditure using data from the Global Financial Statistics of the IMF and various other sources. He tested separate sectors of government expenditure and different levels of government, and concluded that 'preference heterogeneity leads to decentralization rather than outright decreases in expenditure' (Shelton 2007, pg. 2230). The method used in Shelton's analysis was a random effect model with strong assumption of cross-sectional independence, which is quite unusual for cross-country analysis. Moreover, Shelton used two demographic variables - the percentage of population under 15 years and over 65 years - in the same regression, which is known to have significant negative correlation. Furthermore, he used the trade openness variable, which is endogenous in nature, as an independent variable to explain contemporaneous government expenditures. This rendered his analysis questionable and the conclusions drawn in his paper could therefore be misleading. Other notable work on the determinants of public expenditure has been undertaken by Fan and Rao (2003), who found that the structural adjustment programs, much-discussed by the IMF, have increased government spending but that not all sectors received equal treatment. They provided evidence in their study of declining government spending for agriculture, education and infrastructure in Africa. Government spending on agriculture and health sectors in Asia, and education and infrastructure in Latin America, have also declined due to such adjustment programs.

2 Literature Review

2.1 Income

One of the earliest and probably most frequently-mentioned determinants of public spending is economic growth, which is famously known as Wagner's 'law'. Wagner's 'law of expanding state activity' (Wagner 1883, pp.1-8) has been elaborated on by many scholars of Public Economics (Bird 1971; Musgrave 1969; Gupta 1968). This law argues that people's demand for a service and their willingness to pay is income-elastic, hence the expansion of the public economy is influenced by the greater economic affluence of a nation (Cameron 1978). In other words, the scope of government tends to improve with the greater level of income and it is often implied that the income elasticity of demand for government is larger than unity (Flster and Henrekson 2001).

Several scholars have rejected Wagner's argument and found evidence against it (Bird 1971; Musgrave 1969; Gupta 1968). Peacock and Wiseman (1967) even rejected the 'historical determinism' argument of Wagner's law. Wildavsky (1975), on the other hand, provided a reverse argument which has been termed 'counter-Wagner' law by Cameron (1978). Wildavsky's argument predicts a negative relationship between growth and government expenditure, indicating greater expansion of public expenditure for low-growth countries. Cross-country studies, such as those of Wagner and Weber (1977), Abizadeh and Gray (1985), Ram (1987), Easterly and Rebelo (1994) and Shelton (2007) did not find one cohesive conclusion regarding Wagner's Law. Interestingly, all the aforementioned studies have examined the correlation of per capita income and the size of government in pursuit of evidence in favor of Wagner's Law. However, Henrekson (1993) remarked that since most of the work in support of Wagner's law has been done in levels of income, it could be spurious if there exists a cointegrated relationship between government expenditure and income, as suggested in Granger and Newbold (2001). In our present study, we will arrange tests for Wagner's law and its relationship with government expenditure by using per capita income as a regressor for GFCE.

2.2 Trade Openness

Cameron (1978) was the most influential among those who sought to establish a robust relationship between trade openness and government expenditure. Using the sample of 18 OECD countries, he found evidence that countries with greater trade openness experienced large increases in public expenditure during the period 1960 to 1975. He argued that more open economies will have higher rates of industrial concentration, leading to more unionized labor markets which, through collective bargaining, will influence public spending on social protection and social infrastructure. Improving on Cameron's work, which was limited to 18 wealth rich countries, Rodrik (1998) demonstrated a significant positive correlation between openness and government size using a 100-plus country sample. Rodrik argued that Cameron's explanation of collective bargaining and labor unionization was somewhat unlikely to explain the relationship, since labor organizations in developing countries are not well organized and are therefore less influential. Rodrik explained the correlation between openness and government expenditure as social insurance against external risk. More open economies are exposed to greater external risk, such as exchange rate fluctuation, supply or demand variability in the world market. Governments mitigate such exposure to risk through increasing 'the share of domestic output they consume' (Rodrik 1998, pg. 1028). For a developed country, with proper administrative capacity, such risk is mitigated through spending on social protection, while developing countries, lacking the administrative capacity, mitigate such risk through simpler solutions such as public employment, in-kind transfers or public work programs. Apart from these two major studies, scholars like Schmidt (1983) and Saunders and Klau (1985) have also found a correlation between trade openness and the size of the public sector; hence a positive correlation between openness and GFCE as a percentage of GDP has been hypothesized.

2.3 Aid

Foreign aid as an institution began in 1947, and by 1960 it extended across many developing countries in Asia and Africa. Advocates of aid argue that aid helps developing countries to release binding revenue constraints, strengthen domestic institutions, pay better salaries to public employees, assist with poverty-reducing spending, and improve the efficiency and effectiveness of governance (Brautigam and Knack 2004). Conversely, it is argued that higher aid inflows might promote rent-seeking behavior by domestic vested interests that demand tax exemptions or seek to avoid paying taxes, which leads to a decline in revenue (Clements et al. 2004). Critics also argue that aid can lead to increased public and private consumption rather than investment, contributing less to growth (Please 1967; Papanek 1973; Weisskopf 1972). In his classic paper, Heller (1975) showed that aid increases investment and simultaneously reduces domestic borrowing and taxes which eventually has an influence on public consumption. The magnitude of such an influence over public consumption, however, depends on the type of aid, as grants have a strong ‘pro-consumption’ bias whereas loans are more ‘pro-investment’. Expanding on Heller, Khan and Hoshino (1992) concluded that aid generally increases government consumption and the marginal propensity to consume out of foreign aid is less than one, which means that some public investment is also financed from aid. Many researchers (Otim 1996; Ouattara 2006; Remmer 2004) have found considerable linkage between aid and the expansion of government spending. Recent initiatives have called for a shift in aid towards grant-giving, in the belief that excessive lending has led to huge debt accumulation in many countries and has not contributed to them reaching their development objectives (Clements et al. 2004). A positive relationship between aid and GFCE as a percentage of GDP has therefore been hypothesized.

2.4 Debt

Due to rising interest rates, price hikes to oil imports and unfavorable conditions for the export of primary product, government revenues have been declining in many developing countries since 1979. During that period, expanded investment programs have been financed with foreign debt for many countries. These fiscal deficits further raise the external public debt through public borrowing. External borrowing usually encourages fiscal over-spending, which raises government expenditure. Similarly, the public debt burden may directly impact government expenditure because an increase in the burden of debt beyond a specific threshold level could generate disincentives for the public sector and investment or productive and adjustment efforts, which is known as the ‘debt-overhang’ hypothesis (Krugman 1988). In addition, over-valuation of official exchange rates has encouraged capital flight-driven external borrowing for these nations (Mahdavi 2004).[5]

The 1980s debt crisis forced highly indebted countries to reduce fiscal deficit and adjust expenditure as access to the foreign capital market became very constrained. The International Monetary Fund's (IMF) macroeconomic adjustment program compelled many indebted countries to reduce fiscal deficit as part of the condition for their debt restructuring and relief initiative. Efforts intended to reduce fiscal deficit have distribution issues between expending reduction and revenues increments. In general, the spending side of the budget is likely to bear a heavier toll as a result of the deficit lessening than the revenue side, as spending cuts are more quickly applicable than generating higher revenue through taxation. Since interest payments on the debt are relatively inflexible and constitute a significant component of the public expenditure, expenditure cuts may fall upon current income and on the consumption levels of the population, which will have an adverse welfare impact. In the case of developing countries, expenditures such as education and medical or social safety net programs that directly benefit low-income groups in the population should be protected to reduce the social cost of these adjustments (Cornia et al. 1987). Hicks and Kubisch (1984) and Hicks (1989) have found that unlike capital spending, social and defense spending appear to be protected, whereas capital intensive sectors such as infrastructure and the wages and salaries of public employees carry the major burden of expenditure reduction. Mahdavi (2004), in contrast, found that the politically sensitive category of wages and salaries of public employees might not be adversely affected by the debt burden. Hence, the impact of debt on GFCE will be an interesting outcome in this study.

2.5 Fractionalization

Many researchers have argued that cross-country difference in public policy, government expenditures and other economic factors could be better explained by investigating the ethnic diversity among countries. The main rationale for this argument is that an economy with a more ethnically fragmented population may find it difficult to agree on public expenditure and effective policies, which may lead to political instability. A polarized ethnic society weakens the centralized control of government (Shleifer and Vishny 1993), causes the deterioration of the check and balance (Persson et al. 1997) and encourages rent-seeking behavior

[5] See Ndikumana and Boyce (2003) for a discussion of the interaction between capital flight and external debt

(Mauro 1995). Easterly and Levine (1997) find a strong negative relationship between ethnic fragmentation and some public goods (such as telecommunication, transportation, electricity grids and education) in African countries. They conclude that, due to such high levels of ethnic division and conflict, African countries have largely adopted 'growth-retarding' policies over the years which could be a principal reason for Africa's recent growth tragedy. As a result of Easterly and Levine's (2007) paper, ethnic fragmentation became a standard control for the analysis of cross-country regressions. Alesina et al. (1999) showed that shares of spending on productive public goods like education and transportation are inversely related to a city's ethnic fragmentation. Using U.S. data, they concluded that preference of public policy is correlated with ethnicity and ethnic conflict is therefore an important determinant of public finance. It was suggested that ethnic polarization and interest groups politics would encourage 'patronage' spending and discourage non-excludable public goods. However, the effect of ethnic polarization on total government expenditure is ambiguous because of the reverse effect of the differences mentioned above in the spending patterns of the government. In a follow-up paper, Alesina et al. (2000) further demonstrated, using U.S. data, that greater ethnic fragmentation leads to higher public employment, since governments of an ethnically diverse economy tend to use public employment as an 'implicit subsidy' (Alesina et al. 2000, pg. 220) to ethnical interest groups who would otherwise receive transfer payments. Politicians are interested in such strategies to disguise their redistributive policies, to avoid opposition of precise tax-transfer schemes.

Interestingly, all the research mentioned above has used indices based on 'ethnolinguistic fractionalization' (ETF), which relies mainly on linguistic heterogeneity rather than racial or skin color distinctions. Alesina et al. (2003), devised a new measure of ethnic fragmentation based on a broader classification of groups. Their study took account of racial, language and religious characteristics within a country using different sources. The dataset provides measures for many more countries than those of ETF. This new dataset has three different indices of ethnicity, language and religion for each country. The authors found that ethnicity, language and religion lead to different results when they are entered to explain government quality, especially the quality of institutions and policies. Following the recent trend in cross-country regressions, therefore, we also look at the effect of ethnic, language and religious fractionalization on the GFCE as a percentage of GDP by using the Alesina et al. (2003) dataset.

2.6 Size of the Economy

An inverse relationship between government size and country size could arise from economics of scale in the provision of public goods (Shadbegian 1999, 1996; Owings and Borck 2000; Bradbury and Crain 2002; Remmer 2004). Recent studies on the literature of country formation (Alesina and Spolaore 1997; Alesina and Perotti 1997) have suggested that country size and government size are interconnected. Alesina and Wacziarg (1998) provided an explanation for their findings of negative relationship between country size and government consumption. They argued that expenditure related to non-rival public expenditures such as roads, parks and general administration, when shared over a large population, lowers the per capita costs for a given level of provision. Moreover, a larger population leads to increased heterogeneity of preferences over the provision of public goods which could lower the per capita expenditure on public outlays. The equation developed by Dao (1994) on per capita expenditure on government services shows a direct relationship between population and per capita expenditure. Dao (1995) demonstrated that the effect of population on government expenditure is non-linear since he found an ambiguous relationship between disaggregate government expenditures and population. Sanz and Velzquez (2002) presented a significant negative relationship on sector-specific government expenditure and population, especially in the case of pure public goods.

2.7 Demographic Pattern

Since government spending, especially health care and social security, tends to be related to the demographic structure of any economy, we need to take into account the variations of the dependency ratio of the population (Sanz and Velzquez 2002; Remmer 2004). The dependency ratio is measured as the percentage of the population that is 65 years of age or older. Similarly, a high degree of urbanization leads to a greater demand for services like education, roads and transportation and, greater urbanization will promote more government expenditure on infrastructure and public utilities.

3 Data and Hypothesis

3.1 Hypothesis

Numerous hypotheses have been proposed in various literature on the determinants of government expenditure. Unfortunately, there is no comprehensive theory, and different studies are quite independent and fragmented. The approach taken by this study is to test a number of different hypotheses which have been used or proposed in various literature. At times, an hypothesis may be conflicting in nature but at least this will shed light on the determinants of the government expenditure pattern of developing countries.

The method that cross-country panel studies typically use is to convert the data from level to some reference percentage since bigger economies tend to have bigger economic variables if captured in levels. However, rather than levels, we are particularly interested in percentage allocation of economic variables with respect to GDP. Similarly, for the demographic variables we converted all the variables as a percentage of total population. To capture the size of the country, we used the log of population for a better fit. Fractionalization variables are expressed in probability, whereas most of the political variables are expressed as dummy variables. The rest of the variables are expressed as indexes.

Hypotheses used in this study can be categorized as the following sets of explanatory variables:

Base variables: Aid per capita, Total debt (in % of GDP), Openness (in % of GDP), GDP per capita and Log of population.

Demographical variables: Elderly population, ages 65 and above (% of total population), Young population, ages 15 and below (% of total population), Urban population (% of total) and Population growth rate (annual).

Fractionalization variables: Ethnic fractionalization, Linguistic fractionalization and Religious fractionalization.

Political institutional variables: Years of office (number of years the chief executive of the nation has been in office), Number of government seats, Number of opposition seats, Military officer (1 if the chief executive is a military officer), Legislative election (1 if yes), Executive election (1 if yes), Nationalist party (1 if yes) Regional party (1 if yes) and polity index (a standard measure of governance on a 21-point scale ranging from -10 (dictatorial) to +10 (consolidated democracy)).

Governance variables: Voice and accountability (varies from -2.5 to +2.5), Political stability and absence of violence (varies from -2.5 to +2.5), Control of corruption (varies from -2.5 to +2.5), Government effectiveness (varies from -2.5 to +2.5), Regulatory quality (varies from -2.5 to +2.5) Rule of law (varies from -2.5 to +2.5) and Corruption perception index, CPI (varies from 0 to 145).

A detailed description of these variables is available in table 12 in appendix.

3.2 Data Issues

All the base variables and demographical variables have been taken from the World Bank Development Indicators CD-ROM 2008 (WDI 2008) published by the World Bank. The fractionalization data has been taken from Alesina et al. (2003). In this study, new measures of ethnic, linguistic and religious fractionalization for some 190 countries have been constructed. However, due to the high degree of multicolinierity in our models, we could not use more than one fractionalization variable at a time. The set of political variables has been taken from the Database of Political Institutions (DPI2004) provided by the Development Research Group of the World Bank. This dataset is constructed by Beck et al. (2001) and the index created in this series has been described in their appendix. In the case of institutional variables, the data was not available for the periods 1997, 1999 and 2001. For this set of variables, we have constructed the values of the missing years by using the means of the corresponding forward and backward years. Except for the CPI data, the institutional variables have been taken from the Worldwide Governance Indicators (WGI) project by the World Bank. This dataset is constructed by Kaufmann et al. (2005) which is only available for the $1996 - 2005$ period. The CPI index has been taken from Transparency International's website. The 'Polity Score' is a standard measure of governance on a 21-point scale ranging from -10 (dictatorial) to +10 (consolidated democracy).

4 Methodology

Various literatures of time-series-cross-section data analysis have used a country-specific fixed effect model as well as random effect models. Initially, we tested for the poolability estimation and the result suggested that significant individual country effect exists, implying that pooled OLS would be inappropriate. We then tested with the basic specification for the Hausman specification test (Hausman 1978) which could not reject the null hypothesis that a random effect model is inconsistent; hence we could use the random effect model which is also consistent with the work of Shelton (2007).

The problem with random effect estimation is the strong assumption about cross-sectional independence across panels. It is rare to find such an assumption of independent error terms across panels in cross-country studies. As stated in Beck (2001) the errors of time-series-cross-section models may have (a) panel level heteroscedasticity which means each country could have its own error variance i.e. $E(\epsilon_{i,t}\epsilon_{j,s}) = \sigma_i^2$ if $i = j$ and $s = t$ or 0 otherwise; (b) contemporaneous correlation of the errors which means error for one country may be correlated with the errors of the other countries in the same year i.e. $E(\epsilon_{i,t}\epsilon_{j,s}) = \sigma_{i,j}$ if $i \neq j$ and $s = t$ or 0 otherwise or (c) serial correlation which means errors for a given country are correlated with previous errors for that country i.e. $\epsilon_{i,t} = \rho\epsilon_{i,t-1} + v_{i,t}$. Hence, we would expect to observe panel heteroscedasticity, contemporaneous correlation and serial correlation in the error term of the time-series-cross-country regressions as error variance varies from nation to nation.

To test the hypothesis of cross-sectional independence in panel-data models with small T and large N we used semi-parametric tests proposed by Friedman (1937) and Frees (1995, 2004) as well as the parametric testing procedure proposed by Pesaran (2004).[6] In our study we found evidence of contemporaneous correlation across the units using the above-mentioned tests. We also tested the groupwise heteroscedasticity and autocorrelation in the panel data with the help of a modified Wald test and Wooldridge test respectively. Both the tests showed evidence of heteroscedasticity and autocorrelation in the dataset. As mentioned by Baltagi (2005, pg. 84) assuming homoscedasticity disturbances and ignoring serial correlation when heteroscedasticity and serial correlation are present will result in consistent but inefficient estimations and standard errors could be wrong. As a result, models needed to be corrected for such patterns of the error terms to obtain consistent and efficient estimates of the regressors.

Two standard methods used by the researchers to correct such problems in the data, are the Feasible Generalized Least Square (FGLS) method and the Prais-Winsten transformation procedure. Both estimates will produce consistent estimates as long as the conditional mean is correctly specified. In our study, we chose to use the FGLS procedure for its power to produce estimates with time invariant variables. Under FGLS, Beck and Katz (1995) have suggested using panel specific AR1 parameters over single AR parameters in case of time-series-cross-sectional models. Nonetheless, the quality of the national

[6] We used *xtcsd* routine in STATA which is developed by De Hoyos and Sarafidis (2006) to check such assumptions in STATA.

data of the developing countries, which we are using for the study, varies significantly among countries, which is also a potential source of heteroscedastic error structure in the model.

It is argued that current political, social and economical institutions for many countries are largely determined by their past history, geography, religion and climate. (Putman 1993; Acemoglu et al. 2001). To capture such time independent constant effect, we used continental dummies. All the regression estimations have year-specific dummies which have accommodated the year-specific variation in the model. We tested for panel unit root process in the dependent variable for both common and individual unit root process, and five out of six tests rejected the null of having a unit root process in the dependent variable. Government expenditure responses are likely to occur with a delay, thus to capture such a phenomenon as well as to tackle the endogenous nature of the economic variables, one year lagged variables have been used. Such lag independent variables in the estimations will control for any two-way causality between dependent and independent variables.

In order to test the robustness of the model, we imputed some missing variables of the countries to improve the degrees of freedom of the model and also to check the persistence of the estimations. There are some countries which have very good data but one or two years' data is missing for some variables. We have used linear trend imputation techniques to estimate the missing values for these countries.[7]

The basic specification for the model is

$$GFCE_{i,t} = \alpha + \beta * Base\ Variables_{i,t} + \gamma * Year_t + \delta * Continent\ Dummy_i + \epsilon_{i,t}.$$

Where i denotes the country and t denotes the year. For an extended specification we will keep the basic specification with an added set of new variables.

5 Estimation results

5.1 Basic Specifications

Table 1 reports the basic specifications using both a balanced and unbalanced dataset and the results are consistent in both regressions. Other than the co-

[7]The maximum number of imputations done for any country for any variable is two years. If the data for more than two years is missing, we have dropped the country. Imputation has been done only for the voice and accountability, political stability and control of corruption variables.

efficient of the total debt services, all other variables are highly statistically significant. Such results show evidence that public debt burden may not directly impact on government spending immediately. Another explanation could be that instead of cutting government expenditure to finance the debt burden, developing countries tend to generate higher revenues through taxation since raising revenues is quicker than cutting pre-planned government expenditure. The point estimates from Table 1 suggest that one standard deviation increase in income per capita (1543) in the last year will increase the GFCE of the current year by almost 1.31% of GDP by using an unbalanced dataset (0.96% of GDP in the case of the balanced dataset), suggesting the evidence is in favor of Wagner's Law. This result indicates that with the increase in the per capita income of the population, developing economies tend to expand their public spending due to the emerging pressure on the demand for publicly available goods and services.

[Table 1 about here]

The results in Table 1 indicate that a strong association exists between past years' trade openness and current government expenditure for the developing countries, which confirms the results of Cameron (1978), Rodrik (1998) and Shelton (2007). The association between exposure to external risk through trade openness increases government expenditure since governments need to provide more resources for the people to mitigate the external shocks which may occur in the world economy. This extra expenditure could be used for social security and welfare spending purposes, or could be directed towards creating more jobs through larger public work programs. Moreover, greater trade openness leads to greater demand for transport facilities, institutes, administrative supports and infrastructures which could also lead to bigger expenditure for governments.

Table 1 also reveals a strong positive affiliation between past years' per capita aid with current government expenditure. The point estimates suggest that one standard deviation increase in per capita aid during the previous year could lead to an increase in GFCE of 0.19% of GDP (using the unbalanced dataset). As mentioned in Clements et al. (2004), an increase in financial aid could provide several choices for a government such as reducing revenues, increasing expenditure, reducing domestic borrowing or a combination of all three options. The result in the regression supports the hypothesis that aid actually increases government expenditure significantly for developing countries. This finding is not surprising, since financial assistance provided by donors and international agencies is mostly in the form of non-fungible project assistance which requires matched spending from the recipient government.

We further find that a one standard deviation increase in the log of population leads to a decrease in GFCE by 2.3 % of GDP. This result shows evidence of large preference heterogeneity-led reduction in government expenditure as hypothesized by Alesina and Wacziarg (1998). Among the continental dummies, we can observe that on average, GFCE as a % of GDP is higher in European countries than other continents, which is quite consistent with other extended specifications. On the other hand, Latin American countries have a relatively smaller share of GFCE as a % of GDP than other continents. This particular result confirms that European countries tend to accommodate a greater degree of publicly-provided goods and services such as social security and health care than other continents, which has increased the relative size of their government expenditures.

5.2 Demographic Variables

Tables 2 and 3 present the extended specifications of base variables with a set of demographic variables which reveal the association of government expenditure with demographic variables. Comparing the base variables of Table 1 with those of tables 2 and 3 demonstrates the consistency across the estimations. Model 1 in tables 2 and 3 presents that, with a increasing fraction of the population over 65, developing countries tend to have smaller government expenditure as a % of GDP. The reason for this finding is two-fold. Firstly, analyzing from the demand side, developing countries tend to have a demographic pattern which is higher in young population than richer countries, hence their expenditure on senior citizens is relatively smaller. Moreover, in most developing countries, it is very difficult to find an adequate and established pension and social security system for the aging population. Due to the lack of resources, these governments mostly prioritize their expenditure towards revenue generating sectors rather than spending on an older population. Hence, in developing countries, elders are mostly looked after by their immediate family members. Secondly, analyzing from the supply side, a population aged over 65 contributes less to the economy, which eventually reduces the revenue collected through taxation. As a result, with the growing fraction of the population aged over 65, governments will have less revenue and will have less allocation for government expenditure as a share of GDP.

[Table 2 and 3 about here]

By contrast, a strong and positive association has been found between a population aged less than 15 and government expenditure as a percentage of GDP, and this finding is consistent even in the balanced panel. This result reveals that developing countries on average allocate more expenditure to the growing fraction of younger population. A one standard deviation increase in the fraction of population less than 15 is associated with an increase of GFCE by 0.66% of GDP. Such a rise in expenditure is mostly directed towards the education and health sectors of the economy to fulfil the emerging demand for these services with the greater fraction of young population. Similarly, strong positive association between the degree of urbanization and public expenditure has also been found in both the balanced and unbalanced dataset, showing the emerging demand for public utilities and services in urban areas as the fraction of population living in urban areas increases. Internal rural to urban migration is a common phenomenon in developing countries, since the expected income in urban areas is higher than in the rural areas. As the degree of urbanization increases, governments need to spend more on transportation, public utilities and amenities to fulfil the rising demand for such services.

No significant correlation between government expenditure and population growth could be found in the regression, which is quite a puzzling result. One of the recent policy developments in developing countries has been a population reduction program to restrict population growth. As a result, very small variations for the population growth variables exist in the panel dataset which could lead to an insignificant relationship between population growth and public expenditure.

5.3 Fractionalization variables

Three different measures of fractionalization: ethnic, language and religion, have been used with the base variables to test the association of fractionalization with government expenditure. The results of such regressions are reported in tables 4 and 5 by using both the balanced and unbalanced dataset. Both the tables 4 and 5 show that base variables demonstrate consistency with appropriate signs and significance level. The coefficient of ethnic fractionalization shows no significant power in explaining the variation in government expenditure in the case of the unbalanced dataset, whereas the variable is highly statistically significant in the case of the balanced dataset. One possible explanation for such difference in estimation could be the loss of degrees of freedom in the balanced dataset. The data reveals that on average, ethnic fractionalization, is remarkably higher in the African nations than in other continents. To be specific, the average probability that two randomly selected people do not belong to the same ethnic group in African countries is 0.25 whereas the average is only 0.06 in European nations. In our data, eighteen out of twenty most ethnically heterogenous countries belong to Africa, demonstrating the degree of ethnic diversity in Africa. Therefore, instead of using ethnicity to explore the cross-country difference in government expenditure, it would be more sensible and interesting to explore the association between ethnic diversity and GFCE in African nations. Model 2 in table 4 and 5 reveals that ethnic fractionalization is significantly negatively correlated with government expenditure and has an economically large coefficient in both the balanced and unbalanced dataset. Ethnic diversity influences the economic performance of any nation and has a direct influence over growth performance (Easterly and Levine (1997)). The estimation confirms that with a greater degree of ethnic heterogeneity, nations in Africa tend to reduce the size of government expenditure. A high degree of ethnic fractionalization leads to under-provision of publicly available services like education, transportation and infrastructure, which has a negative impact on the economic growth of the continent and could be used to explain the recent growth tragedy of Africa.

[Table 4 and 5 about here]

Linguistic fractionalization, on the other hand, is more or less a common phenomenon in any continent and has significant explanatory power to address the variation of government expenditure in cross-country regression. Linguistic fractionalization could be quite high in countries where ethnic fractionalization is not extreme. For example, India has an ethnic fractionalization of 0.41, although linguistic fractionalization is almost 0.81 and can be seen as an extreme case. Furthermore, linguistic heterogeneity is intense even in Latin American countries as well as in Asia and Africa. Regression on unbalanced data reports that a one standard deviation increase in linguistic fractionalization is associated with a decrease of GFCE by 1.07% of GDP. However, religious fractionalization does not seem to be correlated with government expenditure. The difference in the result between religious and other heterogeneity is quite notable since religious fractionalization is mostly endogenous in nature (Alesina et al. 2003). Individuals and families can convert to another religion quite easily, and a high degree of religious heterogeneity could be a sign of tolerance and harmony rather than conflict, which could also explain the reason for not getting any statistical significance of religious fractionalization and government expenditure. Our results broadly remain the same even when we use the extended specification to understand the role of fractionalization in explaining government expenditure (see table 10 in appendix at the end of this chapter).

5.4 Political institutional variables

Political institutions play a pivotal role in deciding the shape and size of the government, and it is necessary to understand the determinants of government expenditure through the lens of political institutions. However, inadequate data on the political institutions of countries, especially for developing countries, has made the cross-country empirical work handicapped. We used a recent dataset, the Database of Political Institutes (DPI), which has been developed by the Development Research Group at the World Bank. DPI contains numbers of variables for the period we are interested in and has many dimensions to enable better understanding of the political economy on government expenditure.

One of the most discussed issues in political economy is the role of an incumbent government in artificially boosting the economy before election, pioneered by the scholarly contributions of Nordhaus (1975) and Tufte (1980). The desire to be re-elected leads incumbents to increase expenditure by district-specific spending and social welfare spending to stimulate the economy. Persson and Tabellini (2002) and Pesaran (2004) in their influential work demonstrated how political institutions systematically shape the policy incentives for governments during elections. Such manipulation of budgetary policy for electoral gain varies across different electoral systems and veto structures (Chang 2008; Milesi-Ferretti et al. 2002). In order to capture the impact of an election on government expenditure, two dummy variables of executive and legislative election have been used. Tables 6 and 7 report that legislative election has significant positive association with government expenditure and shows evidence of an incumbent government's desire to amplify the economy during an election. This tendency of governments is found to be true in the case of executive election by using a balanced dataset. However, the relationship between executive election and GFCE, though positive, becomes statistically less powerful when using an unbalanced dataset.

[Table 6 and 7 about here]

Different political regimes may also play a determinative role in explaining the cross-country variation in government expenditure. The literature mainly focuses on the public good provision of different forms of government and different forms of democracy (Persson and Tabellini 1999; Pesaran 2004; Milesi-Ferretti et al. 2002; Besley and Case 2003; Baqir 2002). It is found in the literature that dictatorships provide fewer public goods than democracies since dictators have different objectives when providing public goods than democracies. McGuire and Olson (1996) theoretically proved that democratic governments do more redistribution than autocratic governments since the latter maximize the welfare of an elite subset rather than the whole population. Niskanen (1997) showed that democratic governments produce substantially higher outcomes, income and transfer payments by maximizing the welfare of the median income voter. Lake and Baum (2001) and Bueno de Mesquita et al. (2003) demonstrated empirical evidence in support of lower public good provision (in the case of public health and education) under a dictatorship. To capture the impact of different political regimes, the Polity Index has been converted to regime categories as suggested in Marshall and Jaggers (2003). The categories used are basically dummy variable where the categorization of 'autocracies' (-10 to -6), 'anocracies' (-5 to +5), and 'democracies' (+6 to +10) have been used. Our regression reveals strong association of autocracy and democracy with the variation of government expenditures when compared with anocracies. When a government moves from anocracy to democracy, or from anocracy to autocracy, the shift in political regime significantly increases the size of the government. However, the choice of public good provision under different political regimes could be completely different. Democratic governments mostly spend excess funds on providing better health care, education, environmental protection and transfer payments (Deacon 2009). By contrast, autocratic government might focus expenditure on the expansion of law enforcement or providing better facilities to the elite to keep them satisfied. In a democratic regime, governments usually have a short-term fiscal horizon in contrast to autocratic governments, for which the policy horizon is mostly long-term. As a result, autocratic governments can be aggressive in terms of expenditure and can continue to make expensive bad policy choices.

One extreme form of dictatorship is military dictatorship, in which the dictator comes from a military background. Our regressions suggest that public expenditure shrinks significantly under military dictatorship. This finding is not surprising since a military dictatorship historically has high entry and exit costs; entry may require the overthrowing of a powerful ruler, or mass killing through a military coup, or even civil war, whereas exit might involve the imprisonment or death of the military dictator. As a result, military dictators would be unable to implement any effective fiscal policy because of the uncertain span of the government. This uncertainty might then influence military dictators to cut down on government expenditure and as well as make them very reluctant to undertake ambitious projects which require further expenditure. In most cases, countries under the rule of a military dictatorship do not receive any foreign aid from international donors, and international trade with such countries becomes restricted, which may also reduce government expenditure in these countries.

Other than political regime variables, 'Years of office' and 'Number of government' variables are found to be highly significant and positive in influencing government expenditure. ‘Years of office’ explains how a government increases its confidence in large investments and long-term fiscal decisions, if the same government remains in power and runs a country for a long time, whereas the ‘Number of government’ variable shows how influential a government can be if one political party has an absolute majority in the parliament.

5.5 Governance variables

There is a growing consensus among scholars, policymakers and donors that good governance is one of the keys to achieve sustainable economic development. There is evidence in the literature that good governance contributes significantly to economic development (North 1981; Shleifer and Vishny 1993) as well as to economic growth (Mauro 1995; Easterly and Levine 1997); hence this appears to be a well-established economic proposition. However empirical measures of governance are very difficult because such measures have to be comparable across countries and free from measurement errors. Only a handful of governance measurement indices are available in the literature and we selected the Worldwide Governance Indicators (WGI) dataset of the World bank for its wide coverage and comparability features across countries.[8] Such indices are subjective and highly unlikely to create endogeneity-bias as it is highly unlikely that the indices of governance quality can be influenced by the variation of government expenditure. In addition, the direction of causality could be an issue, as one might wonder whether the variation of government expenditure drives the quality of governance, or the existing quality of governance affects the public expenditure. The direction of causality is perhaps more plausible from governance to government expenditure, that is, it seems reasonable to argue that the existing level of governance influences government expenditure rather than the current level of government expenditure being responsible for the quality of governance (Mauro 1995).

[Table 8 and 9 about here]

WGI have six different variables to capture the quality of the governance in any nation. Table 8 reveals that other than voice and accountability and regulatory quality variables, all WGI variables have highly significant and positive association with government expenditure. The first significant variable among the WGI is the political stability variable, where the data captures ‘the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and

[8] Details of WGI indicators as well as the disaggregated underlying indicators are available at Kaufmann et al. (2009) and www.govindicators.org

terrorism' (Kaufmann et al. 2009, pg. 6). More politically stable governments can implement long-term fiscal policies and can provide better publicly-available goods and services which perhaps explains the positive impact of political stability on public expenditure. On the other hand, the 'Government effectiveness' variable captures the perception of the quality and degree of independence of the public and civil services. It also captures the quality of policy formulation and implementation, and the credibility of a government's commitment. As a result, a superior government effectiveness index means the civil and public services exercise a higher degree of independence and quality, and the government is also credible and effective in terms of policy implementation. Achieving such effectiveness demands a more decentralized public authority system, which in turn requires higher government expenditure; hence, such a demand might have driven the association of government expenditure with government effectiveness. Similarly, the variable 'Rule of law' measures the quality of contract enforcements, the police, and the courts, as well as the likelihood of crime and violence. As mentioned in Kaufmann (2005, pg. 83), 'For improvements in rule of law, a one standard deviation difference would constitute the improvement from the level of Somalia to those of Laos, from Laos to Lebanon, Lebanon to Italy, or Italy to Canada'. Hence, improving the 'Rule of law' requires governments to increase their current expenditure on law enforcement (by, for example, hiring more police) as well as on judiciary spending.

Corruption is another very important indicator of the quality of governance and it is a persistent feature of countries over time and space (Aidt 2003). Corruption is both pervasive, consistent and significant around the world, even in developed countries. Though some studies have concluded that some level of corruption might be desirable (Leff 1964), most studies suggest that corruption is quite harmful for the development process of any economy (Gould and Amaro-Reyes 1983; Klitgaard 1991), and is a particularly crucial issue for poor countries. Countries in Africa and Latin America which are infamous for corruption are also severely poverty stricken, in contrast with developed countries which have lower levels of corruption. Pioneering a systemic empirical analysis on corruption and composition of government expenditure, Mauro (1998) found that corrupt countries have more frequently been associated with low spending on public education and health, possibly because such spending does not provide many rent-seeking opportunities for government officials compared to other components of spending. Corruption within countries has also been linked to poor quality roads and inadequate electric distribution (Tanzi and Davoodi 1997) and poor environmental protection outcomes (Welsch 2004). Countries with a high level of corruption will spend a bigger fraction of their limited resources on infrastructure projects, military equipment and high-technology goods produced by a limited number of oligopolistic firms (Hines 1995). Such governments spend high in these avenues which are more susceptible to corruption, rather than spending on education, health, welfare and transfer payments, and repair and maintenance, where the scope for corruption is very limited. As explained in Mauro (1998), public officials may have 'little room for maneuver' for corruption in relation to old-age pensions or salaries for nurses or teachers. Therefore on a priori grounds, it would be reasonable to argue that a high level of corruption reduces government consumption expenditure since such expenditure is focused on services and consumption rather than on investments. Corruption may also have a supply side effect on government expenditure. Highly corrupt countries may collect lesser tax revenues; voters may well think very negatively about paying tax if they believe that their money will eventually go to the pockets of corrupt bureaucrats. Reduced tax revenue clearly gives governments less to spend on current consumption and expenditure.

We used two variables to understand the impact of corruption on GFCE. The first is the Corruption Perception Index (CPI) which measures the perceived level of public-sector corruption based on 13 different expert and business surveys.[9] In our CPI variable, instead of corruption scores, we used the rank of countries to provide better variation in the variable. The higher the rank of a country in the CPI, the higher the perception of corruption for that country. Our regression confirms the prior assumption that corruption has considerable negative bearing on government consumption expenditure and the result is significant even with 1% level of significance (Model 7). To test the robustness of our findings, we used a second corruption variable known as 'Control of corruption' from the WGI dataset where the variable measures the exercise of public power for private gain, including both petty and grand corruption and state corruption measured on a scale between +2.5 to -2.5. The lower the score for 'control of corruption' in a country, the higher the corruption for that country. Similar to our previous findings, we find that the more corrupt countries spend less on current government consumption expenditure and this result is highly statistically significant. The result stays the same even when using the balanced panel data for the regression (see table 9).

[9]Details of CPI is available at www.transparency.org

6 Conclusion

This study has identified the factors that have influenced recent patterns of government expenditure in developing countries. We used data from the World Development Indicators 2008, Worldwide Governance Indicators (WGI), Database of Political Institutions (DPI2004) and Transparency International for 111 developing countries from 1984-2004. However, the research has been affected by the unavailability of data of some important economic variables over the period we examined. Some developing countries are still unable to provide important economic data as they have poor institutional facilities for providing up-to-date indexes.

Using both the balanced and unbalanced panel dataset for developing countries, we found evidence that political and institutional variables significantly influence government expenditure, which contradicts Strum's (2001) conclusion. Among other results, we found new evidence of Wagner's law which is true in the case of lagged estimation. Corruption has been found to be influential in the case of developing countries. Equally, fractionalization and demographic variables have been found to have significant negative association with government expenditure. Furthermore, our results suggest that autocratic governments with military rule are not particularly accommodative towards government expenditures. In developing countries, this form of governance is likely to hold little appeal for those who directly depend on publicly provided utilities and spending.

Some policy implications we would suggest in view of this study are the improvement and restructure of the composition of government expenditure by increasing the share of those spending categories that are less susceptible to corruption (such as education). Since greater fractionalization decreases government consumption expenditure by a significant margin, adequate care should be taken by governments to reduce the conflicts associated with fractionalization within the public sphere of the economy.

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Appendix

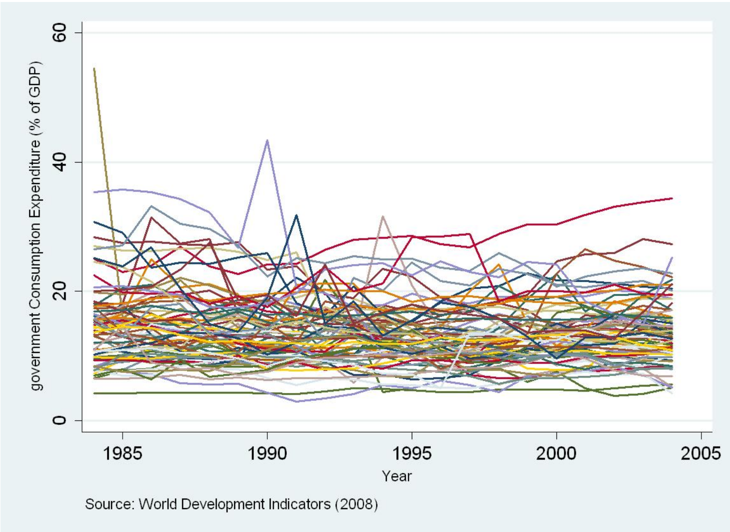

Figure 1: Government consumption Expenditure as % of GDP for Developing countries (Unbalanced Panel.)

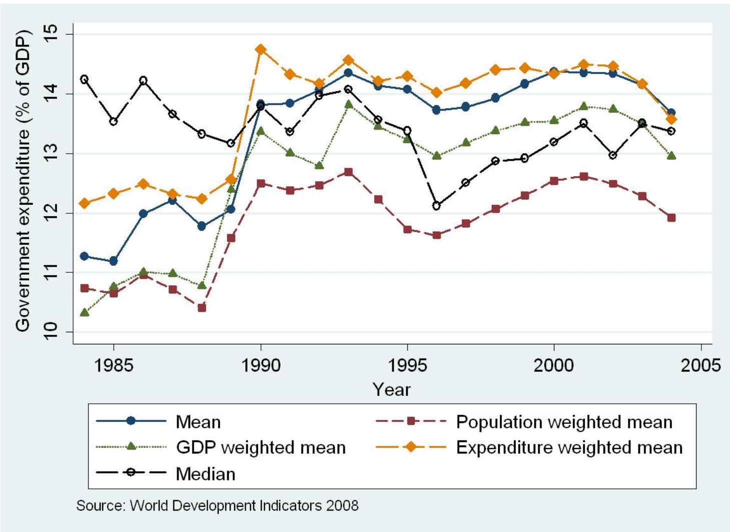

Figure 2: Various means of Government consumption Expenditure as % of GDP for Developing countries (Unbalanced Panel.)

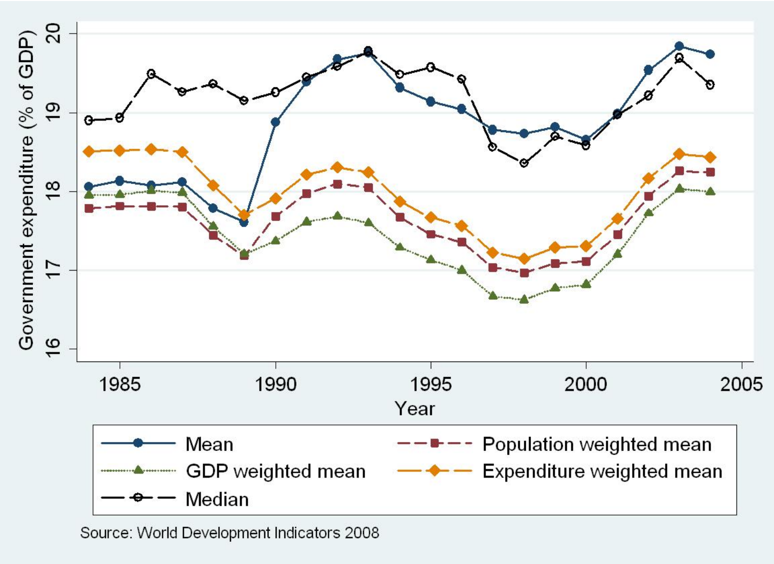

Figure 3: Various means of Government consumption Expenditure as % of GDP for OECD countries (Unbalanced Panel.)

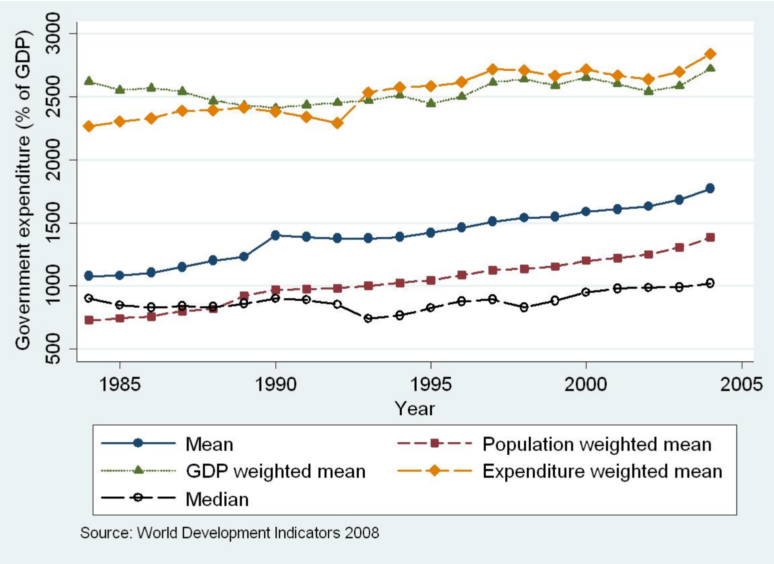

Figure 4: Per capita Income (in Constant 200US$) for Developing countries (Unbalanced Panel.)

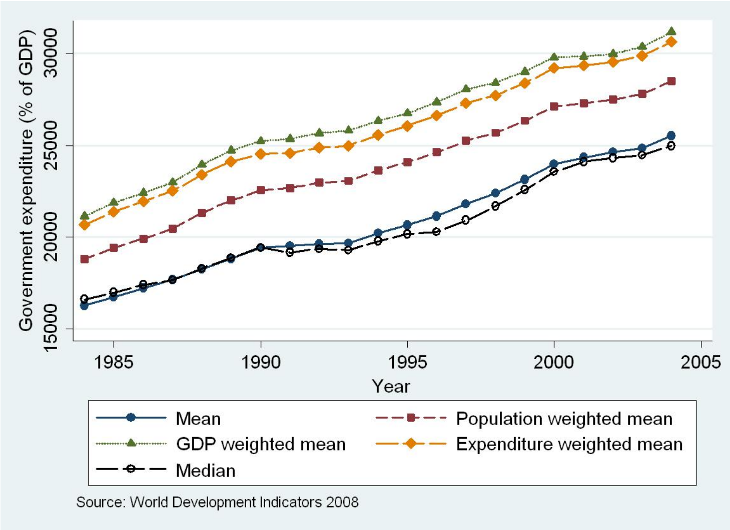

Figure 5: Per capita Income (in constant 2000 US$) for OECD countries (Unbalanced Panel.)

Table 1: Determinants of government consumption expenditure: basic specifications (1984-2004).

	Unbalanced Panel	Balanced Panel
Aid per capita$_{(t-1)}$	0.005***	0.007***
	(0.002)	(0.002)
Total debt service$_{(t-1)}$	0.003	0.005
	(0.013)	(0.014)
Openness$_{(t-1)}$	0.009***	0.012***
	(0.003)	(0.004)
GDP per capita$_{(t-1)}$	0.001***	0.001***
	(0.000)	(0.000)
Log of Population	-1.385***	-1.332***
	(0.134)	(0.158)
America	31.67***	30.47***
	(2.210)	(2.640)
Africa	35.33***	33.48***
	(2.210)	(2.669)
Asia	35.30***	32.78***
	(2.357)	(2.963)
Europe	38.56***	32.22***
	(2.235)	(3.495)
No. of. observations	1948	1440
No. of. countries	111	72
Year-specific dummies	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%
Source: World Development Indicator 2008.

Table 2: Determinants of government consumption expenditure: basic specifications with demographic variables, unbalanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4
Aid per capita$_{(t-1)}$	0.005***	0.005**	0.005**	0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	0.004	0.004	0.001	0.004
	(0.013)	(0.013)	(0.013)	(0.013)
Openness$_{(t-1)}$	0.010***	0.009***	0.009***	0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Log of Population	-1.344***	-1.348***	-1.439***	-1.415***
	(0.135)	(0.137)	(0.138)	(0.134)
America	32.26***	28.22***	31.38***	32.14***
	(2.301)	(2.859)	(2.218)	(2.222)
Africa	35.60***	31.42***	35.41***	35.85***
	(2.284)	(2.955)	(2.231)	(2.227)
Asia	35.70***	31.72***	35.31***	35.69***
	(2.426)	(2.989)	(2.385)	(2.361)
Europe	41.37***	36.38***	38.12***	39.09***
	(2.466)	(2.642)	(2.239)	(2.233)
Population aged 65+	-0.345***			
	(0.070)			
Population ages 0-14		0.087**		
		(0.035)		
Urban population			0.028**	
			(0.011)	
Population growth				0.005
				(0.065)
Observations	1948	1948	1948	1948
No. of. countries	111	111	111	111
Year-specific dummies	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%.
Source: World Development Indicator 2008.

Table 3: Determinants of government consumption expenditure: basic specifications with demographic variables, balanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4
Aid per capita$_{(t-1)}$	0.006***	0.006***	0.006***	0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	0.006	0.006	0.003	0.005
	(0.014)	(0.014)	(0.014)	(0.014)
Openness$_{(t-1)}$	0.013***	0.014***	0.010**	0.011***
	(0.004)	(0.004)	(0.004)	(0.004)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***
	(0.001)	(0.001)	(0.001)	(0.001)
Log of Population	-1.389***	-1.303***	-1.455***	-1.341***
	(0.162)	(0.159)	(0.167)	(0.158)
America	32.75***	26.69***	30.75***	30.68***
	(2.837)	(3.259)	(2.676)	(2.637)
Africa	35.49***	29.19***	34.31***	33.75***
	(2.85)	(3.356)	(2.735)	(2.671)
Asia	34.92***	29.06***	33.66***	33.02***
	(3.154)	(3.428)	(3.031)	(2.963)
Europe	34.40***	28.49***	32.725***	32.352***
	(3.636)	(3.995)	(3.528)	(3.506)
Population aged 65+	-0.345***			
	(0.091)			
Population ages 0-14		0.088**		
		(0.0415)		
Urban population			0.038***	
			(0.013)	
Population growth				-0.055
				(0.073)
No. of observations	1440	1440	1440	1440
No. of. countries	72	72	72	72
Year-specific dummies	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%.
Source: World Development Indicator 2008.

Table 4: Determinants of government consumption expenditure: basic specifications with fractionalization variables, unbalanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4
Aid per capita$_{(t-1)}$	0.006***	0.007***	0.008***	0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	0.004	0.002	-0.004	0.002
	(0.013)	(0.013)	(0.013)	(0.013)
Openness$_{(t-1)}$	0.010***	0.008***	0.006**	0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Log of Population	-1.248***	-1.184***	-1.289***	-1.246***
	(0.145)	(0.144)	(0.137)	(0.146)
America	27.494***	27.356***	31.759***	30.116***
	(2.459)	(2.432)	(2.280)	(2.442)
Africa	31.499***	33.081***	36.031***	33.879***
	(2.49)	(2.455)	(2.296)	(2.451)
Asia	30.992***	30.504***	35.840***	33.611***
	(2.653)	(2.614)	(2.472)	(2.626)
Europe	34.731***	34.492***	39.164***	37.2***
	(2.47)	(2.45)	(2.313)	(2.496)
Ethnic	0.421			
	(0.69)			
(Africa)x(Ethnic)		-3.43***		
		(0.92)		
Language			-3.345***	
			(0.581)	
Religion				-0.224
				(0.678)
No. of observations	1879	1879	1816	1893
No. of. countries	107	107	104	108
Year-specific dummies	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%.

Source: World Development Indicator 2008 and Alesina et al. 2003.

Table 5: Determinants of government consumption expenditure: basic specifications with fractionalization variables, balanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4
Aid per capita$_{(t-1)}$	0.011***	0.011***	0.011***	0.011***
	(0.003)	(0.003)	(0.003)	(0.003)
Total debt service$_{(t-1)}$	0.001	-0.001	-0.001	-0.002
	(0.0147)	(0.015)	(0.015)	(0.015)
Openness$_{(t-1)}$	0.016***	0.013***	0.015***	0.017***
	(0.003)	(0.004)	(0.004)	(0.004)
GDP per capita$_{(t-1)}$	0.001	0.001	0.001	0.001**
	(0.001)	(0.001)	(0.001)	(0.000)
Log of population	-0.676***	-0.714***	-0.737***	-0.83***
	(0.176)	(0.185)	(0.174)	(0.192)
America	22.265***	21.712***	22.833***	23.155***
	(2.979)	(3.120)	(2.983)	(3.285)
Africa	24.77***	27.121***	26.247***	25.582***
	(2.978)	(3.095)	(2.99)	(3.273)
Asia	22.308***	21.524***	24.364***	23.249***
	(3.321)	(3.45)	(3.343)	(3.609)
Europe	22.735***	22.579***	24.066***	24.097***
	(3.847)	(3.973)	(3.87)	(4.098)
Ethnic	-2.977***			
	(0.609)			
(Africa)x(Ethnic)		-5.566***		
		(1.091)		
Language			-3.92***	
			(0.638)	
Religion				-0.682
				(0.824)
No. of observations	1280	1280	1280	1280
No. of. countries	67	67	67	67
Year-specific dummies	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%.

Source: World Development Indicator 2008 and Alesina et al. 2003.

Table 6: Determinants of government consumption expenditure: basic specifications with political variables, unbalanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Aid per capita$_{(t-1)}$	0.004**	0.004**	0.004**	0.004**	0.004**	0.012***	0.005**	0.005**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	0.007	0.007	0.004	0.006	0.006	-0.001	0.005	0.006
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)
Openness$_{(t-1)}$	0.009***	0.009***	0.009***	0.009***	0.009***	0.011***	0.009***	0.009***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of Population	-1.279***	-1.525***	-1.238***	-1.289***	-1.289***	-1.421***	-1.295***	-1.296***
	(0.138)	(0.152)	(0.138)	(0.144)	(0.143)	(0.126)	(0.143)	(0.144)
America	28.646***	32.523***	28.032***	28.785***	28.808***	30.411***	28.929***	28.831***
	(2.366)	(2.562)	(2.336)	(2.436)	(2.417)	(2.154)	(2.422)	(2.434)
Africa	32.499***	36.414***	31.906***	32.689***	32.719***	34.449***	32.869***	32.877***
	(2.342)	(2.536)	(2.323)	(2.423)	(2.405)	(2.150)	(2.410)	(2.426)
Asia	32.308***	35.994***	31.831***	32.548***	32.679***	34.114***	32.691***	32.736***
	(2.484)	(2.683)	(2.502)	(2.591)	(2.578)	(2.275)	(2.572)	(2.599)
Europe	35.513***	39.034***	34.825***	35.434***	35.515***	37.836***	35.636***	35.566***
	(2.479)	(2.650)	(2.437)	(2.549)	(2.529)	(2.262)	(2.528)	(2.547)
Years in Office$^{\sharp}$	0.011							
	(0.007)							
No.of Govt. Seats		0.002***						
		(0.001)						
No. of Opposition Seats			-0.001					
			(0.001)					
Executive election (1 if yes)				0.076				
				(0.058)				
Legislative election (1 if yes)					0.079*			
					(0.042)			
Autocracy						0.537***		
						(0.160)		
Democracy						0.332**		
						(0.156)		
(Autocracy)x(Military)‡						-0.551**		
						(0.226)		
Nationalist (1 if yes)							-0.047	
							(0.201)	
Regional (1 if yes)								-0.498
								(0.746)
No. of observations	1899	1899	1899	1899	1899	1754	1879	1885
No. of. countries	108	108	108	108	108	100	108	108
Year-specific dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. $^{\sharp}$indicates chief executive of the country. ‡ Indicates the chief executive is military personnel (1 if yes). Significance code: ***1%, ** 5%, * 10%. *Source:* World Development Indicator 2008, Database of Political Institutions 2004 and Polity IV: Regime Authority Characteristics and Transitions Dataset 2008.

Table 7: Determinants of government consumption expenditure: basic specifications with political variables, balanced panel (1984-2004).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Aid per capita$_{(t-1)}$	0.012***	0.01***	0.011***	0.011***	0.011***	0.015***	0.011***	0.011***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Total debt service$_{(t-1)}$	0.006	0.007	0.002	0.005	0.005	-0.000	0.002	0.001
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)	(0.015)
Openness$_{(t-1)}$	0.017***	0.015***	0.017***	0.016***	0.016***	0.017***	0.016***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
GDP per capita$_{(t-1)}$	0.0003**	0.0004**	0.0003**	0.0003**	0.0003**	0.0003**	0.0003**	0.0003**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of Population	-0.957***	-1.236***	-0.899***	-0.936***	-0.935***	-0.761***	-0.915***	-0.903***
	(0.190)	(0.203)	(0.189)	(0.195)	(0.193)	(0.168)	(0.191)	(0.191)
America	24.532***	29.092***	23.771***	24.358***	24.323***	21.255***	24.153***	23.922***
	(3.251)	(3.455)	(3.236)	(3.346)	(3.306)	(2.939)	(3.281)	(3.281)
Africa	27.365***	32.03***	26.725***	27.32***	27.327***	23.772***	26.917***	26.936***
	(3.197)	(3.392)	(3.182)	(3.285)	(3.247)	(2.875)	(3.229)	(3.220)
Asia	25.407***	29.886***	24.477***	25.149***	25.138***	21.785***	24.898***	24.615***
	(3.546)	(3.743)	(3.539)	(3.655)	(3.614)	(3.210)	(3.588)	(3.583)
Europe	26.041***	30.577***	25.083***	25.745***	25.705***	22.272***	25.458***	25.236***
	(4.058)	(4.248)	(4.038)	(4.156)	(4.109)	(3.813)	(4.093)	(4.086)
Years in office$^{\sharp}$	0.018**							
	(0.008)							
No. of Govt. Seats		0.002*						
		(0.001)						
No. of Opposition Seats			-0.000					
			(0.001)					
Executive election (1 if yes)				0.155**				
				(0.073)				
Legislative election (1 if yes)					0.088*			
					(0.049)			
Autocracy						0.776***		
						(0.245)		
Democracy						0.344*		
						(0.189)		
(Autocracy)x(Military)‡						-0.62**		
						(0.305)		
Nationalist (1 if yes)							0.11	
							(0.245)	
Regional (1 if yes)								-1.775
								(1.171)
No. of observations	1220	1220	1220	1220	1220	1140	1220	1220
No. of. countries	66	66	66	66	66	57	66	66
Year-specific dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. $^{\sharp}$indicates chief executive of the country. ‡ Indicates the chief executive is military personnel (1 if yes). Significance code: ***1%, ** 5%, * 10%. *Source:* World Development Indicator 2008, Database of Political Institutions 2004 and Polity IV: Regime Authority Characteristics and Transitions Dataset 2008.

Table 8: Determinants of government consumption expenditure: basic specifications with Worldwide Governance Indicators, unbalanced panel (1996-2004).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Aid per capita$_{(t-1)}$	0.002	0.002	0.002	0.002	0.003	0.002	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	-0.017	-0.014	-0.022*	-0.018	-0.039**	-0.019	-0.067***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.019)	(0.013)	(0.014)
Openness$_{(t-1)}$	0.008***	0.009***	0.009***	0.009***	0.019***	0.011***	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of Population	-0.837***	-0.798***	-0.909***	-0.831***	-0.675***	-0.959***	0.013
	(0.115)	(0.126)	(0.126)	(0.116)	(0.097)	(0.121)	(0.158)
America	21.7***	21.252***	23.874***	21.68***	19.777***	24.356***	9.63***
	(1.98)	(2.142)	(2.21)	(2.008)	(1.746)	(2.098)	(2.689)
Africa	25.65***	25.313***	27.314***	25.728***	23.114***	28.119***	13.379***
	(1.924)	(2.109)	(2.135)	(1.958)	(1.627)	(2.014)	(2.851)
Asia	24.394***	24.166***	26.534***	24.689***	22.125***	27.599***	9.837***
	(2.092)	(2.296)	(2.359)	(2.148)	(1.865)	(2.243)	(3.096)
Europe	28.739***	27.843***	30.249***	28.419***	25.911***	31.223***	15.813***
	(2.068)	(2.226)	(2.256)	(2.088)	(1.805)	(2.141)	(2.925)
Voice and Accountability	-0.161						
	(0.149)						
Political stability		0.344***					
		(0.132)					
Government effectiveness			0.634***				
			(0.177)				
Regulatory Quality				0.237			
				(0.152)			
Rule Of law					0.742***		
					(0.213)		
Control of Corruption						1.0963***	
						(0.190)	
Corruption perception Index							-0.019***
							(0.004)
No. of observations	960	945	960	960	636	945	471
No. of. countries	107	107	107	107	107	107	75
Year-specific dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%. *Source:* World Development Indicator 2008, Corruption Perception Index 2007 and Worldwide Governance Indicators 2007.

Table 9: Determinants of government consumption expenditure: basic specifications with Worldwide Governance Indicators, balanced panel (1996-2004).

	Model 1	Model 2	Model 3
Aid per capita$_{(t-1)}$	0.003	0.002	0.003*
	(0.002)	(0.002)	(0.002)
Total debt service$_{(t-1)}$	-0.029*	-0.02	-0.027
	(0.017)	(0.017)	(0.017)
Openness$_{(t-1)}$	0.01**	0.011***	0.011***
	(0.004)	(0.004)	(0.004)
GDP per capita$_{(t-1)}$	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
Log of Population	-0.397***	-0.263*	-0.309**
	(0.135)	(0.139)	(0.135)
America	14.364***	12.443***	13.012***
	(2.374)	(2.396)	(2.370)
Africa	18.112***	16.396***	17.083***
	(2.361)	(2.396)	(2.355)
Asia	16.939***	14.465***	15.149***
	(2.644)	(2.677)	(2.640)
Europe	20.975***	18.954***	19.510***
	(2.505)	(2.479)	(2.446)
Political stability	0.178		
	(0.143)		
Control of Corruption		0.872***	
		(0.191)	
Government effectiveness			0.571***
			(0.160)
No. of observations	728	728	728
No. of. countries	91	91	91
Year-specific dummies	Yes	Yes	Yes

Note: Values in parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%.

Source: World Development Indicator 2008 and and Worldwide Governance Indicators 2007.

Table 10: Extended specifications, Unbalanced panel.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Aid per capita$_{(t-1)}$	0.00547**	0.00563***	0.00682***	0.00184	0.00318*	0.00182
	(0.00218)	(0.00218)	(0.00229)	(0.00175)	(0.00176)	(0.00166)
Total debt service$_{(t-1)}$	0.00564	0.00388	-0.00077	-0.01937	-0.02312*	-0.01919
	(0.01337)	(0.01334)	(0.01364)	(0.01407)	(0.01391)	(0.01382)
Openness$_{(t-1)}$	0.01151***	0.01149***	0.00862***	0.00521	0.00346	0.00570
	(0.00316)	(0.00317)	(0.00320)	(0.00362)	(0.00363)	(0.00359)
GDP per capita$_{(t-1)}$	0.00077***	0.00076***	0.00064***	0.00079***	0.00086***	0.00083***
	(0.00016)	(0.00015)	(0.00016)	(0.00012)	(0.00010)	(0.00011)
Log of Population	-1.41728***	-1.43102***	-1.39332***	-0.77778***	-0.76469***	-0.81074***
	(0.16491)	(0.16459)	(0.16051)	(0.15841)	(0.14204)	(0.14083)
Population aged 65+	-0.18916*	-0.21128*	-0.08375	-0.04403	-0.24619**	-0.13644
	(0.11338)	(0.11339)	(0.12605)	(0.12390)	(0.10954)	(0.12219)
Urban population	0.03772***	0.03985***	0.02443**	0.01460	0.02024**	0.02309***
	(0.01049)	(0.01003)	(0.01116)	(0.01186)	(0.00881)	(0.00874)
Population ages 0-14	0.10067***	0.07443*	0.11474***	0.04167	-0.01837	0.02489
	(0.03795)	(0.03799)	(0.04110)	(0.04872)	(0.04184)	(0.04326)
Years in office	0.00728	0.00668	0.00563	0.01203*	0.01684**	0.01872***
	(0.00747)	(0.00746)	(0.00763)	(0.00678)	(0.00683)	(0.00616)
No. of Govt. Seats	0.00201***	0.00224***	0.00174***	0.00199*	0.00086**	0.00108***
	(0.00058)	(0.00046)	(0.00055)	(0.00113)	(0.00034)	(0.00033)
No. of Opposition Seats	0.00137	0.00126	0.00079	-0.00097	-0.00125	-0.00112
	(0.00104)	(0.00102)	(0.00105)	(0.00153)	(0.00137)	(0.00139)
Executive election?	0.10692*	0.10529*	0.10999*	0.09000*	0.10339*	0.09186*
	(0.06125)	(0.06130)	(0.06353)	(0.05385)	(0.05537)	(0.05359)
Military officer	-0.14960	-0.17672	-0.22265	-0.54769**	-0.74004***	-0.64831***

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... table 10 continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	(0.15267)	(0.15142)	(0.15882)	(0.25048)	(0.25532)	(0.24775)
Nationalist (1 if yes)	0.02675	-0.00014	0.03576	-1.08950***	-1.47747***	-1.25085***
	(0.19548)	(0.19503)	(0.20012)	(0.27356)	(0.26698)	(0.28829)
Regional (1 if yes)	-0.47409	-0.37156	0.36024	-0.03442	0.77399	0.54667
	(0.77886)	(0.77357)	(0.97853)	(1.26171)	(1.21781)	(1.32732)
America	25.82066***	26.84114***	26.85230***	19.53477***	21.89488***	20.42403***
	(3.79720)	(3.74772)	(3.71733)	(3.80476)	(3.26591)	(3.60412)
Africa	29.98524***	31.20493***	31.00904***	23.87500***	26.47089***	25.01023***
	(3.86703)	(3.83357)	(3.76844)	(3.72424)	(3.30774)	(3.55034)
Asia	29.84811***	30.79074***	30.97909***	23.11510***	25.77124***	23.97923***
	(3.86027)	(3.84068)	(3.79765)	(3.80570)	(3.35498)	(3.63661)
Europe	35.00066***	35.90244***	35.42279***	27.24366***	30.23618***	28.45038***
	(4.01203)	(3.98523)	(3.96558)	(3.84694)	(3.28068)	(3.65120)
Religion Fractionalization	-0.03267					
	(0.83035)					
Ethnic Fractionalization		0.14483				
		(0.66951)				
Language Fractionalization			-2.54261***			
			(0.68133)			
Control of Corruption				0.91838***		
				(0.19379)		
Political Stability					0.33579**	
					(0.13690)	
Government effectiveness						0.59248***
						(0.17966)
No. of observations	1857	1843	1779	916	916	931

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... table 10 continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
No. of countries	91	105	102	106	106	106
Average no. of years	91	17.52	17.44	8.64	8.64	8.78
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: Values in the parentheses are the reported standard errors of the estimation. Significance code: ***1%, ** 5%, * 10%. *Source:* World Development Indicator 2008, Corruption Perception Index 2007 and Worldwide Governance Indicators 2007.

Table 11: Summary statistics

Variable	Mean	Std. Dev. (Panel)	Std. Dev. (Between)	Std. Dev. (Within)	Min.	Max.	N
Government Expenditure	13.716	5.333	4.28	3.21	2.9	54.515	1617
Aid per capita	36.601	39.487	31.42	23.85	-23.743	421.675	1578
GDP per capita	1443.382	1543.131	1521.91	306.12	81.009	9497.559	1617
log of population	16.181	1.616	1.62	0.14	11.547	20.983	1617
Total debt service	6.216	5.8	3.99	4.22	0	107.374	1576
Openness	67.957	38.706	35.71	15.33	10.831	280.361	1607
Urban population	42.963	19.735	19.48	3.82	4.95	92.75	1617
Old population	4.378	2.577	2.54	0.52	1.888	16.759	1617
Population Growth	2.053	1.262	0.95	0.84	-8.140	11.181	1617
Population ages 0-14	39.167	7.621	7.32	2.27	14.07	51.348	1617
Ethnic	0.537	0.243	0.24	0	0	0.930	1596
Language	0.463	0.315	0.32	0	0.01	0.923	1554
Religion	0.432	0.25	0.25	0	0.004	0.86	1596
Voice and Accountability	-0.332	0.733	0.71	0.2	-1.96	1.32	675
Political Stability	-0.509	0.832	0.79	0.28	-3.3	1.05	672
Government Effectiveness	-0.347	0.609	0.58	0.18	-1.96	1.31	675
Regulatory Quality	-0.172	0.676	0.63	0.25	-2.72	1.52	675
Rule Of law	-0.428	0.615	0.59	0.18	-2.04	1.23	449
Control of Corruption	-0.417	0.568	0.54	0.19	-2.13	1.51	666
Years in office?	7.957	8.426	5.57	0.19	1	46	1580
Military officer?	0.285	0.451	0.34	0.29	0	1	1578
Nationalist (1 if yes)	0.138	0.345	0.28	0.19	0	1	1569
Regional (1 if yes)	0.015	0.12	0.09	0.08	0	1	1569
No. of Govt. Seats	152.091	341.417	338.10	60.69	0	2978	1596

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... table 11 continued

Variable	**Mean**	**Std. Dev.** (Panel)	**Std. Dev.** (Between)	**Std. Dev.** (Within)	**Min.**	**Max.**	**N**
No. of Opposition Seats	44.461	60.185	50.56	33.13	0	354	1596
Legislative election?	0.194	0.395	0.07	0.39	0	1	1579
Executive election?	0.116	0.32	0.08	0.30	0	1	1579
CPI rank	63.190	27.272	25.58	15.37	17	145	358
Asia	0.169	0.375	0.38	0	0	1	1617
Africa	0.494	0.5	0.50	0	0	1	1617
America	0.247	0.431	0.43	0	0	1	1617
Europe	0.091	0.288	0.29	0	0	1	1617

Table 12: Variable description.

Variable Name	**Details**	**Source**
Fractionalization (Ethnic, Linguistics and Religious fractionalization)	Average value of three different indices of ethonolinguistic fractionalization. Its value ranges from 0 to 1. The three component indices are: (1) index of ethnic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethnic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) probability of two randomly selected individuals speaking different languages; (3) probability of two randomly selected individuals belong to two different religious background.	Alesina et. al.
General government final consumption expenditure (% of GDP)	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defence and security, but excludes government military expenditures that are part of government capital formation.	WDI 2006
Per Capita Income (current US$)	Annual per capita income on current US currency. Per capita income is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	WDI 2006
Aid per capita (current US$)	Aid per capita includes both official development assistance (ODA) and official aid, and is calculated by dividing total aid by the midyear population estimate.	WDI 2006
Total debt service (% of GNI)	Total debt service is the sum of principal repayments and interest actually paid in foreign currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF.	WDI 2006
Openness (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	WDI 2006
Population ages 65 and above (% of total)	Population ages 65 and above is the percentage of the total population that is 65 or older.	WDI 2006
Population ages 0 to 14 (% of total)	Population ages 0 to 14 is the percentage of the total population that is 14 or younger.	WDI 2006
Urban Population (% of total)	Population living in the urban areas as a percentage of total population.	WDI 2006
Population Growth	Annual population growth rate.	WDI 2006
Voice and Accountability	capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media..	WGI 2005

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... table 12 continued

Variable Name	**Details**	**Source**
Political Stability and Absence of Violence	capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.	WGI 2005
Control of Corruption	capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	WGI 2005
Government Effectiveness	capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	WGI 2005
Regulatory Quality	capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	WGI 2005
Rule of Law	capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	WGI 2005
Polity Index	a standard measure of governance on a 21-point scale ranging from -10 (dictatorial) to +10 (consolidated democracy).	Polity Score 2008