

Social Spending, Fiscal Space and Governance: An Analysis of Patterns over the Business Cycle

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Introduction

It is well known that market forces do not always work to achieve socially optimal resource allocations, often resulting in underinvestment in the social sectors. However, when efficiently and effectively deployed, public sector spending and investments in the social sectors could play a critical role, notably in fostering long-term human and economic development as well as poverty reduction (Baldacci and others, 2008; Fan, 2009; Moreno-Dodson and Wodon, 2008). In addition, during times of economic volatility, enhanced social spending could channel resources to households and sectors that are most vulnerable. This could be motivated by two main goals. First, they help ensure adequate social protection and other interventions that could mitigate the adverse human development implications of aggregate shocks, ensuring that crises do not generate long-term harm to children, women and poor families. Second, a surge in social spending could also form part of countries' countercyclical policy response, protecting and strengthening human capital and other investments, as well as fostering robust social and economic recovery.

Indeed, recent empirical studies focused on industrialized countries find evidence that countercyclical social spending not only could help smooth income shocks—these could also achieve it more effectively than government spending as a whole (Furceri, 2009). Nevertheless, crises in developing countries are often accompanied by public spending cuts. Often, social spending suffers the worst cut, and within social spending that part which is most pro-poor is most retrenched. Political economy considerations offer a possible explanation for this pattern: the poor are often those with weakest political voice, and the middle income segment of society often shoulder the brunt of the tax burden and are relatively more influential in political discourse. Inadequate access to external credit markets and poor macroeconomic and crisis response and recovery management could also be contributing factors. The cyclicity of social sector spending and investment is therefore an empirical issue.

The present paper contributes to the literature in this area in two ways. First, it analyzes the cyclicity of social spending using two data sets: one focused on Latin American and Caribbean countries published by ECLAC; and another focused on low income countries published by IFPRI. The principal aim is to examine the empirical link between growth and social spending (and its sub-components). Second, this paper also examines the possible factors that might help explain social spending patterns, focusing on indicators of fiscal space (e.g. reserves, tax base, access to external finance and foreign aid, etc.), governance (e.g. government stability, corruption, etc.) and other contextual variables (e.g. dummy indicators of conflict, crises, etc.). Hence the main empirical questions of interest include:

1. Is social spending countercyclical?
2. Does more fiscal space necessarily lead to more countercyclical social spending?
3. Are more stable and less corrupt governments more likely to undertake countercyclical social spending?
4. Are countries that are vulnerable to aggregate shocks (e.g. conflict, crises, etc.) more likely to implement countercyclical social spending?

The answers to these questions could help clarify whether and to what extent developing country governments allocate resources in ways that help to boost the social sectors when resources there are most needed. In what follows, section 1 briefly reviews the relevant empirical literature, while section 2 outlines the data and methodology for the empirical analysis in this paper. Section 3 then reviews the key empirical results. A final section contains the main conclusions, and tentative policy messages.

I. Brief Review of Empirical Literature

There is by now a rich literature examining the cyclicity of public spending in both industrial and developing countries. Typical empirical studies here use annual aggregate data in order to examine the link between some measure of government spending (e.g. the budget balance) and some measure of the business cycle (e.g. the output gap). Without elaborating in detail on this body of literature, suffice to say that the crux of the evidence suggests that in industrial countries, fiscal policy is countercyclical, while in developing countries, it is procyclical or acyclical. The two main theories explaining the main findings in this literature are that: a) international credit markets are imperfect and prevent countries from borrowing in bad times; and b) political economy issues amplify the tendency for fiscal profligacy and rent-seeking activities (e.g. Alesina and Tabellini, 2005; Gavin and Perotti, 1997; Talvi and Vegh, 2005).

Earlier approaches have been critiqued by Ilzetski and Vegh (2008) who outline possible problems of reverse causality in these earlier studies. That is, the expansionary effect of fiscal policy could be misidentified, leading to a spurious empirical finding. These authors address this issue through a battery of empirical tests and identification techniques, including instrumental variables,¹ GMM, simultaneous equations and time series methods (e.g. Granger causality and impulse response methods) using quarterly data for 49 (27 developing and 22 industrial) countries going as far back as 1960 for some countries. Their general finding is that developing countries do indeed exhibit procyclical fiscal policies, i.e. government spending is positively linked to an exogenous expansionary business cycle shock. However, for industrial countries, their findings are mixed.

The focus of the present paper is on a more specific strand of literature which examines social spending patterns, as a potentially distinct policy from the over-all fiscal stance. As briefly mentioned in the introduction to this paper, there are at least two possible rationales for maintaining a countercyclical social spending policy—one is rooted in social justice and/or human rights arguments to protect the most vulnerable (and often also least culpable); and the other is based on a human development and growth rationale:

- ***Protecting the poor.*** Essentially, the argument here is to boost resources in the social sectors at precisely the time that social services are most needed, in turn offering stronger social protection during economic downturns. During crises, for example, many households switch from private to public education, health and other services. This trend

¹ For instance, in addition to other possible instrumental variables, they use the weighted GDP growth of countries' trading partners as an instrument for GDP.

and other heightened risks faced by vulnerable population groups² tend to place a greater strain on public social services. It is also likely that pre-existing resource allocations are barely enough or are even inadequate, suggesting that inflation (often an accompanying symptom of financial crises) and rising demand due to more poor (and more severe poverty) could erode service providers' capabilities in real terms, if additional resources are not forthcoming.³

- ***Preserving long-term human and economic development prospects.*** Another set of arguments has to do with ensuring prompt economic recovery and preserving the country's human and economic development trajectory. Because crises could undermine human capital accumulation, it is possible to advance an argument that seeks to preserve if not boost investments in this area, under social and economic recovery grounds. The quality of recovery could also be much more effective if countercyclical policies target the poor and low income segments of the population. They are more likely to spend rather than save additional resources, and they are also more likely to face the greatest immediate need to boost their consumption, suggesting that the stimulus effect may be much larger and much more effective if targeted at this group.

Unlike the abovementioned literature on fiscal policies, the literature examining the cyclicity of social spending more specifically is less prolific. A recent paper by Darby and Melitz (2008) is among the first to formally analyze the pattern of government spending over the business cycle. They examined both aggregated and disaggregated government social spending data for OECD countries and find that age- and health- related social expenditures react to the business cycle in a stabilizing manner. Their empirical findings suggested an elasticity of total social spending to the output gap equal to 0.5, implying that social spending could act as part of the automatic stabilizer.

In addition, Furceri (2009) used data on 23 industrialized countries from 1980-2003 in order to examine the extent to which social spending could help absorb shocks to GDP. Essentially, they estimated the percentage of shocks to GDP smoothed through different channels (e.g. international net transfers of income factors, consumption smoothing and government spending) and, more specifically, items of social spending. They found evidence that social spending could be used to smooth anywhere from 12 percent to 23 percent of a shock to GDP (ibid:12). The stabilizing effect of social spending is also larger in countries with more extensive social spending. While this study did not examine this aspect, it is also possible that lower income families are more likely to spend rather than save, facilitating a more robust stimulus effect.

Nevertheless, evidence from past crises often point to a contraction in social spending at precisely the time when the need is greatest. For instance, during Mexico's *Tequila crisis* in the mid-1990s, Cutler and others (2002:280) noted a key policy paradox: "Countries experiencing economic crises have found that they reduce the ability to provide social services to the poor, just as the needs of the poor increase." Per capita public health expenditures in Mexico fell by about 15 percent during the period 1994-1996.

² For instance, there may be a greater need to offer child protection services to help prevent abuse and violence against children and youth during crises when there may be a greater risk of exploitation.

³ This could also form part of the argument to boost social protection by focusing on the supply side. On the other hand, demand side initiatives may include efforts to provide tax relief, subsidies or cash and in-kind transfers.

Ravallion (2002) examined Argentina's budget trends in the 1980s and 1990s—periods which were marked with economic volatility—and he found evidence that non-social sector spending tended to be better protected against cuts during downturns, when compared with social spending. Spending on targeted social assistance and employment programs was also much more vulnerable to aggregate spending cuts, compared to more universal social services. Social spending in general and social spending targeted at the poor in particular were typically cut during periods of fiscal austerity.

A political economy explanation would emphasize that programs that are targeted at the poor are vulnerable to cuts, because the poor are often those with weakest political voice, and the middle income segment of society often shoulder the brunt of the tax burden and are relatively more influential in political discourse. The latter group would tend to support protecting programs that benefit them more. To shed light on whether government programs targeted specifically at the poor were more vulnerable to cuts, Ravallion also examined the pattern of expansion and contraction in the funding for Argentina's *Trabajar* program, whose aim is to reduce poverty by providing relatively low wage work on community projects in poor areas.⁴ He found evidence that the program expanded into poor areas when the budget increased, but it retreated from poor areas when the program was cut (ibid: 119). Ravallion's analysis thus suggested a possible “catch-22” in terms of better targeted and explicitly pro-poor programs: while they clearly offer stronger benefits for the poor, these programs are also much more vulnerable to the vicissitudes of political deliberations, notably during periods of contraction.

Finally, one strand of literature has begun to focus on analyzing policy instruments that could enhance the capacity of governments to undertake countercyclical social spending.⁵ Gonzales and Paqueo (2003), for example, examined the functioning of rainy day funds in the United States (US)—funds designed to provide resources for social spending during times of need—to see whether these instruments could help stabilize social spending. Between the period spanning the early 1980s and into the mid-1990s, rainy day funds were introduced by a growing number of states in order to achieve budget and social spending stabilization objectives. Rainy day funds increased from only a handful of states in the beginning of this period to over 45 states by the end of it (Gold, 1984; Knight and Levinson, 1999). Gonzales and Paqueo used annual data on US states with rainy day funds and analyzed the empirical link between the volatility of social spending (e.g. elementary and higher education, Medicaid, and cash assistance programs) as the dependent variable, and as independent variables, the volatility of gross state product, the rainy day fund balance and other state fixed effects. They found evidence that one additional dollar in the rainy day fund balance is associated with a decreased volatility in social sector spending by about 34 cents (ibid:1). Rainy day funds, however, were not associated with more stable over-all budgets, suggesting that broader fiscal policy strategies are necessary in order to achieve that goal.

⁴ Under the *Trabajar* program, the central government covers the wage costs, while other costs are covered by local or provincial governments.

⁵ For a comprehensive review of the policy instruments for achieving macroeconomic stabilization in emerging market economies—including some which promote countercyclical social spending—see Mendoza (2009b).

II. Data and Methodology

Data

Our primary data source is the World Development Indicators dataset (World Bank 2008), which provides information on 209 countries for the time period from 1980 through 2008. Countries are classified into four groups according to World Bank classification: low income; lower middle income; upper middle income; and high income countries (outlined in Table 7). We supplement this dataset with social expenditure data from the Economic Commission for Latin America and the Caribbean (ECLAC 2009). For measurements of governance quality and other political risk indicators, we use the International Country Risk Guide data (Political Risk Group 2009). The International Country Risk Guide (ICRG) rating is based upon three categories of risk: political, financial and economic. A separate index is constructed for each of the three categories. For purposes of our analysis, we focus on the first risk group, political risks.

Methodology

In order to analyze the cyclicity and dynamic pattern of public social spending, we estimate the following empirical model:

$$s_{it}^k = \beta_0 + \beta_1 g_{i,t-1} + \beta_2 g_{i,t-1} q_{i,t-1}^j + \beta_3 x_{it} + \beta_4 D^t + \mu_i + \varepsilon_{it}$$
$$\mu_i \sim i.i.d.(0, \sigma_{\mu}), \varepsilon_{it} \sim i.i.d.(0, \sigma_{\varepsilon}), \text{ and } E[\mu_i \varepsilon_{it}] = 0$$

where s_{it} is public social expenditures, $g_{i,t-1}$ is the lagged growth rate of income per capita in constant year 2000 prices. The term $g_{i,t-1} q_{i,t-1}^j$ is a cross term of the lagged GDP per capita growth rate $g_{i,t-1}$ and a quality of governance variable. The superscript k stands for a *social expenditure index* (k =public spending on education and healthcare), the superscript j stands for a quality of governance index (government stability; control of corruption; bureaucracy quality; and religion I politics) and the subscripts $i= 1, \dots, 209$ and $t= 1, \dots, 29$ describe, the cross-sectional and time dimensions of the panel data, respectively. The row vector x_{it} consists of the most commonly used control variables in social spending literature, comprising a quality of governance variable; foreign aid as a share of GDP; net transfers from abroad as a share of GDP, foreign portfolio investment (an aggregate for equity and bond investment) as a share of GDP and tax revenue as a share of GDP. D^t is a row vector of 29 year-dummy variables and μ_i is a country fixed effect term.

We are using and reporting OLS as a bench mark method. Technically, this method pools all observations together without accounting for the time-series dimension of data and for the unobserved country-specific heterogeneity in the data. These country-specific fixed effects that cause an omitted variable bias, which then is picked up by the error term. Therefore the method of fixed effects (FE) is more appropriate for our analysis. The model is also run with a lagged growth rate of GDP to control for the problem of reverse causality and endogeneity, which exists in the data by construction.

The method of *fixed effects* is designed to control for the unobserved country-specific time-invariant effects in the data. It corrects for the possible correlation between these effects

and some of the independent variables, conditioning them out by taking deviations from time-averaged sample means. The result of applying such a procedure is that the dependent variable is stripped of its long-run variation – an approach which may be appropriate for studying fluctuations in social expenditures around their growth trend. The conceptual issue with the method is whether social expenditure fluctuations are more similar within than across countries. If so, the within-country variation may not be enough to capture the full effect (Pritchett, 2000a). The within estimator also faces some limitations when the dependant variable has little time variation. The lost long-run variation is alternatively captured by the “between” estimator.

Variables of Interest

Economic growth

This is our key variable of interest, which is measured by the annual growth rate of real GDP for each country. The estimated effect of economic growth on public social spending can help us answer the empirical question whether developing countries tend to have procyclical public social spending whereas the developed countries tend to have countercyclical public social spending. We use lagged real GDP growth rates as an index for our main variable in order to address the potential reverse causality between public spending and economic performance, since expansionary fiscal policy may have a positive impact on economic growth.

Quality of Governance

Both stylized facts and empirical evidence (Gupta et al 2001) suggest that the quality of governance may affect the fiscal decision made by the government. For example, public expenditure tends to be biased towards military sector and away from the social sector in poorly governed countries (Mendoza 2009). Weak institutional capacity and corruption can also diminish the resources allocated to the social sector. Even if the public resources are allocated for social services, social spending may fail to be realized due to inappropriate execution and monitoring of the public budgeting process (Deles et al 2009).

We measure the quality of governance based on the indicators provided by the Inter-Country Risk Guide (Political Risk Group 2009). In general, better quality of governance is represented by a higher value taken by the indicator. For example, a higher value of the corruption indicator implies better control of corruption by the government. Likewise, a higher value of the “religious in politics” indicator stands for less political risks imposed by religious tension. The following indicators are used:

- **Quality of Bureaucracy and Control of Corruption.** In countries with weak institutions, there is no guarantee that all the allocated resources will be channelled most effectively through the government bureaucracy and into social investment items such as textbooks, school construction, medical supplies, etc.
- **Religion in Politics.** There is survey evidence that religious beliefs are associated with individual decisions to participate in social policy making. An empirical analysis by Huber (2005) implies that in countries with more religious participation in politics, the individuals may be more able to act as a cohesive “interest group” on social policy

issues. Thus religious participation in politics may also affect the governments' decision on their social spending policies.

- **Government Stability.** The government stability index has three components: government unit, legislative strength and popular support. The higher the index, the stronger is the ability of a government to implement programs and stay in office. We expect that a government will be more willing to invest more public resources on social services if it expects to stay in office in future. In fact, previous empirical studies have found evidence to support the argument that political conditions such as legislative stability and voter volatility significantly affect taxing and public spending (Crain and Oakley 1995; Cadot et al 2006).

Determinants Related to Fiscal Space

We control for other economic factors that affect the ability of governments to implement their fiscal policies. These factors include: foreign aid as share of GDP, portfolio investment in bond and equity as share of GDP, net foreign transfers from abroad as share of GDP, and tax revenue as share of GDP. Among these control variables, foreign transfers may not only have an income effect on the fiscal capabilities of the recipient country, but also influence the prioritization of public spending. Therefore, such variables related to fiscal space are potential determinants of public social spending. For instance, Hagen and Hatlebakk (2002) find that the most generous bilateral donors have a significant impact on the budget shares of social sectors using targeted aid.

Apart from the above factors, we also consider other economic or political determinants of fiscal choice, such as regime and political transitions. We use year dummies among income groups as proxies for these determinants. The following tables show descriptive statistics on all of our variables of interest.

III. Empirical Results

Tables 3-6 present summaries of the key variables impact coefficients: the coefficient of the economic growth term and the coefficient of the interaction term between growth and a respective quality of governance variable: bureaucracy quality; control of corruption; government stability; religion in politics. Different categories of countries are presented in columns and models employing different quality of governance variables are presented in rows, in four blocks. Results from OLS and Fixed Effects regressions are presented in separate tables. The significant negative results (countercyclical spending) are in bold black; the significant positive results (pro-cyclical spending) are in bold red.

Tables 3 and 4 discuss the impact of the business cycle on public education spending. Table 3 presents the OLS regression results. A general overview of the table points out to the fact most significant positive results (pro-cyclical spending) occur in the groups of low and middle income countries (the three middle columns). When the sample of all 209 countries is examined as a whole the four models with different quality of governance variables do not display much evidence in support that in many countries public spending tends to be not counter-cyclical, but pro-cyclical. To the contrary- the mix up of countries with different levels of development dilutes the evidence and

conceals the true nature of the effects. Stratifying the sample of all countries based on level of development shows a different picture- for low and especially for middle income economies public spending on education is pro-cyclical.

Table 4 portrays the examination the cyclicity of education spending through the method of fixed effects. The method of fixed effects, as previously discussed, allows us to control for the heterogeneity of countries in the sample of “all countries” and in the sub-samples of countries based on income. The fixed effects results show the differences across different groups of countries with even more contrast. Whereas the results for the entire sample are mixed, for the group of the low middle income countries (middle column) almost all coefficients are significant and almost all of them positive- strong evidence of pro-cyclical public education spending. At the same time the other three groups are displaying evidence of counter-cyclical public education spending.

The results from the healthcare spending regressions (Tables 5 and 6) are less of a clear cut. It is worth noting that the healthcare spending data set as of now suffers from some limitations (missing points). Overall, there are fewer significant results, with the familiar mixer of results for the group of all countries and evidence of counter-cyclical spending for the group of the high income economies (Table 4).

IV. Conclusions

The evidence points out that there is no one-way answer to the question whether social spending is countercyclical world-wide or not. The answer depends on the level of development of the country. Whereas high income economies and lowest income economies are able to implement the policies of counter-cyclical social spending, the countries of the lower middle income group are not. One potential explanation for that is the lack of sufficient fiscal space for countercyclical social spending. The evidence from the quality of governance indicators shows that bureaucracy quality, control of corruption, and government stability work in favour of promoting counter-cyclical spending. The message from of paper, therefore, is a message advocating for increased fiscal space for public social spending for the countries, classified as lower middle income by the World Bank and promoting quality of governance across all country-groups.

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VI. Tables and regression results

Table 1. Descriptive Statistics of Main Variables

Variable		Mean	Std. Dev.	Observations
Education Spending as % of GDP	overall	4.528332	2.31458	N = 3281
	between		2.292998	n = 191
	within		1.31346	T-bar = 17.178
Growth Rates of GDP per Capita	overall	1.762998	6.107265	N = 5016
	between		2.807636	n = 198
	within		5.710954	T-bar = 25.3333
Revenue as % of GDP	overall	24.94648	10.58906	N = 1470
	between		10.35771	n = 146
	within		3.346165	T-bar = 10.0685
Net Transfers from Abroad as % of GDP	overall	.0520937	.0923796	N = 3532
	between		.1136086	n = 168
	within		.0463107	T-bar = 21.0238
Portfolio Investment as % of GDP	overall	-.0000661	.1151851	N = 2715
	between		.1358427	n = 159
	within		.0716904	T-bar = 17.0755
Foreign Aid as % of GDP	overall	5.44e-08	2.17e-07	N = 3563
	between		1.62e-07	n = 181
	within		1.39e-07	T-bar = 19.6851

Source: World Development Indicators (World Bank 2008)

Table 2 Descriptive Statistics of Governance Indicators

Variable		Mean	Std. Dev.	Observations
Quality of Bureaucracy	overall	2.131345	1.192682	N = 3307
	between		1.063759	n = 141
	within		.5179212	T-bar = 23.4539
Government Stability	overall	7.562332	2.272082	N = 3306
	between		1.095395	n = 141
	within		2.017218	T-bar = 23.4468
Control of Corruption	overall	3.05346	1.374248	N = 3307
	between		1.137338	n = 141
	within		.7565623	T-bar = 23.4539
Religion in Politics	overall	4.570595	1.353182	N = 3307
	between		1.150821	n = 141
	within		.6841729	T-bar = 23.4539
Democratic Accountability	overall	3.677893	1.66092	N = 3332
	between		1.400687	n = 142
	within		.8980652	T-bar = 23.4648

Source: Inter-Country Risk Guide (Political Risk Group 2009)

Table 3. The Impact of Business Cycles on Public Education Spending: Results from OLS Regressions.

Dependent variable: Public Education Expenditures			All Countries	Low income countries	Lower Middle Income Countries	Upper Middle income Countries	High Income Countries
			OLS	Model with bureaucracy quality	growth rate	-0.04 (0.023)**	-0.02 -0.857
growth rate	0.072 (0.094)*	0.089 -0.583			0.078 -0.436	-0.134 -0.149	0.256 -0.292
interaction term of growth and bureaucracy quality	-0.059 (0.002)**	-0.096 -0.308			-0.015 -0.805	0.057 -0.185	-0.093 -0.232
Model with control of corruption	growth rate	-0.026 -0.145		0.096 -0.282	0.06 -0.12	-0.027 -0.297	-0.022 -0.599
	growth rate	0.079 -0.121		-0.313 -0.205	0.094 -0.439	-0.225 (0.003)**	0.149 -0.24
	interaction term of growth and control of corruption	-0.036 (0.017)**		0.168 (0.064*)	-0.012 -0.727	0.071 (0.008)**	-0.043 -0.231
Model with government stability	growth rate	-0.049 (0.015)**		-0.11 -0.296	0.081 (0.029)**	-0.021 -0.46	-0.09 (0.086)*
	growth rate	-0.058 -0.361		-0.54 -0.127	-0.134 -0.195	-0.021 -0.802	-0.5 (0.032)**
	interaction term of growth and government stability	0.001 -0.895		0.051 -0.209	0.029 (0.047)**	0 -0.996	0.05 (0.078)*
Model with religion in politics	growth rate	-0.055 (0.005)**		-0.012 -0.888	0.039 -0.3	-0.026 -0.318	-0.093 (0.073)*
	growth rate	-0.012 -0.573		0.007 -0.944	0.112 (0.051)*	-0.005 -0.846	-0.179 -0.128
	interaction term of growth and religion in politics	-0.007 (0.005)**		-0.004 -0.716	-0.008 -0.204	-0.006 (0.013)**	0.016 -0.325

†The first entry in each cell is the estimate of GDP per capita growth rate or its interaction term with a quality of governance indicator on public education spending. Figures in parentheses are p-values. The coefficients and the p-values are robust to heteroscedasticity. ** and * represent marginal significance levels with less than 5% ,

and with equal or less than 10%, respectively. The coefficients in bold black indicate countercyclical social expenditures; the coefficients in bold red indicate procyclical social expenditures.

Table 4. The Impact of Business Cycles on Public Education Spending: Results from Fixed Effects Regressions.

Dependent variable:		All Countries	Low income countries	Lower Middle Income Countries	Upper Middle income Countries	High Income Countries	
Public Education Expenditures							
OLS	Model with bureaucracy quality	growth rate	-0.04 <i>(0.023)**</i>	-0.02 <i>-0.857</i>	0.054 <i>-0.187</i>	-0.023 <i>-0.347</i>	-0.057 <i>-0.26</i>
		growth rate	0.072 <i>(0.094)*</i>	0.089 <i>-0.583</i>	0.078 <i>-0.436</i>	-0.134 <i>-0.149</i>	0.256 <i>-0.292</i>
		interaction term of growth and bureaucracy quality	-0.059 <i>(0.002)**</i>	-0.096 <i>-0.308</i>	-0.015 <i>-0.805</i>	0.057 <i>-0.185</i>	-0.093 <i>-0.232</i>
	Model with control of corruption	growth rate	-0.026 <i>-0.145</i>	0.096 <i>-0.282</i>	0.06 <i>-0.12</i>	-0.027 <i>-0.297</i>	-0.022 <i>-0.599</i>
		growth rate	0.079 <i>-0.121</i>	-0.313 <i>-0.205</i>	0.094 <i>-0.439</i>	-0.225 <i>(0.003)**</i>	0.149 <i>-0.24</i>
		interaction term of growth and control of corruption	-0.036 <i>(0.017)**</i>	0.168 <i>(0.064*)</i>	-0.012 <i>-0.727</i>	0.071 <i>(0.008)**</i>	-0.043 <i>-0.231</i>
	Model with government stability	growth rate	-0.049 <i>(0.015)**</i>	-0.11 <i>-0.296</i>	0.081 <i>(0.029)**</i>	-0.021 <i>-0.46</i>	-0.09 <i>(0.086)*</i>
		growth rate	-0.058 <i>-0.361</i>	-0.54 <i>-0.127</i>	-0.134 <i>-0.195</i>	-0.021 <i>-0.802</i>	-0.5 <i>(0.032)**</i>
		interaction term of growth and government stability	0.001 <i>-0.895</i>	0.051 <i>-0.209</i>	0.029 <i>(0.047)**</i>	0 <i>-0.996</i>	0.05 <i>(0.078)*</i>
	Model with religion in politics	growth rate	-0.055 <i>(0.005)**</i>	-0.012 <i>-0.888</i>	0.039 <i>-0.3</i>	-0.026 <i>-0.318</i>	-0.093 <i>(0.073)*</i>
		growth rate	-0.012 <i>-0.573</i>	0.007 <i>-0.944</i>	0.112 <i>(0.051)*</i>	-0.005 <i>-0.846</i>	-0.179 <i>-0.128</i>
		interaction term of growth and religion in politics	-0.007 <i>(0.005)**</i>	-0.004 <i>-0.716</i>	-0.008 <i>-0.204</i>	-0.006 <i>(0.013)**</i>	0.016 <i>-0.325</i>

†The first entry in each cell is the estimate of GDP per capita growth rate or its interaction term with a quality of governance indicator on public education spending. Figures in parentheses are p-values. The coefficients and the p-values are robust to heteroscedasticity. ** and * represent marginal significance levels with less than 5% ,

and with equal or less than 10%, respectively. The coefficients in bold black indicate countercyclical social expenditures; the coefficients in bold red indicate procyclical social expenditures.

Table 5. The Impact of Business Cycles on Public Healthcare Spending: Results from OLS Regressions.

Dependent variable: Public Healthcare Expenditures		All Countries	Low income countries	Lower Middle Income Countries	Upper Middle income Countries	High Income Countries	
OLS	Model with bureaucracy quality	growth rate	-0.071 <i>(0.000)**</i>	-0.026 <i>(0.650)</i>	-0.016 <i>(0.575)</i>	-0.056 <i>(0.073)*</i>	-0.331 <i>(0.000)**</i>
		growth rate	0.121 <i>(0.001)**</i>	0.102 <i>(0.059)*</i>	0.019 <i>(0.791)</i>	-0.045 <i>(0.642)</i>	-0.728 <i>(0.000)**</i>
		interaction term of growth and bureaucracy quality	-0.101 <i>(0.000)**</i>	-0.112 <i>(0.010)*</i>	-0.021 <i>(0.613)</i>	-0.006 <i>(0.898)</i>	0.119 <i>(0.035)**</i>
	Model with control of corruption	growth rate	-0.034 <i>(0.091)*</i>	-0.023 <i>(0.683)</i>	-0.018 <i>(0.506)</i>	-0.062 <i>(0.048)**</i>	-0.316 <i>(0.000)**</i>
		growth rate	0.148 <i>(0.002)**</i>	-0.156 <i>(0.377)</i>	0.011 <i>(0.866)</i>	-0.086 <i>(0.350)</i>	-0.63 <i>(0.000)**</i>
		interaction term of growth and control of corruption	-0.064 <i>(0.000)**</i>	0.058 <i>(0.344)</i>	-0.01 <i>(0.594)</i>	0.008 <i>(0.790)</i>	0.078 <i>(0.011)**</i>
	Model with government stability	growth rate	-0.06 <i>(0.011)**</i>	-0.028 <i>(0.579)</i>	-0.004 <i>(0.883)</i>	0.002 <i>(0.954)</i>	-0.353 <i>(0.000)**</i>
		growth rate	-0.112 <i>(0.103)</i>	-0.12 <i>(0.309)</i>	-0.055 <i>(0.473)</i>	0.042 <i>(0.642)</i>	-0.757 <i>(0.000)**</i>
		interaction term of growth and government stability	0.006 <i>(0.462)</i>	0.011 <i>(0.452)</i>	0.007 <i>(0.455)</i>	-0.005 <i>(0.626)</i>	0.049 <i>(0.032)**</i>
	Model with religion in politics	growth rate	-0.087 <i>(0.000)**</i>	-0.035 <i>(0.517)</i>	-0.024 <i>(0.348)</i>	-0.057 <i>(0.070)*</i>	-0.35 <i>(0.000)**</i>
		growth rate	-0.023 <i>(0.431)</i>	-0.052 <i>(0.451)</i>	-0.039 <i>(0.363)</i>	-0.04 <i>(0.213)</i>	-0.257 <i>(0.000)**</i>
		interaction term of growth and religion in politics	-0.011 <i>(0.000)**</i>	0.004 <i>(0.467)</i>	0.002 <i>(0.649)</i>	-0.007 <i>(0.071)*</i>	-0.016 <i>(0.113)</i>

†The first entry in each cell is the estimate of GDP per capita growth rate or its interaction term with a quality of governance indicator on public education spending. Figures in parentheses are p-values. The coefficients and the p-values are robust to heteroscedasticity. ** and * represent marginal significance levels with less than 5% , and with equal or less than 10%, respectively. The coefficients in bold black indicate countercyclical social expenditures; the coefficients in bold red indicate procyclical social expenditures.

Table 6. The Impact of Business Cycles on Public Healthcare Spending: Results from Fixed Effects Regressions.

Dependent variable: Public Healthcare Expenditures		All Countries	Low income countries	Lower Middle Income Countries	Upper Middle income Countries	High Income Countries	
FE	Model with bureaucracy quality	growth rate	-0.024 <i>(0.091)*</i>	0.003 <i>(0.893)</i>	0.013 <i>(0.335)</i>	0.006 <i>(0.687)</i>	-0.109 <i>(0.000)**</i>
		growth rate	0.04 <i>(0.071)*</i>	0.001 <i>(0.973)</i>	0.002 <i>(0.944)</i>	-0.021 <i>(0.522)</i>	-0.106 <i>(0.184)</i>
		interaction term of growth and bureaucracy quality	-0.033 <i>(0.000)**</i>	0.001 <i>(0.959)</i>	0.009 <i>(0.645)</i>	0.014 <i>(0.477)</i>	0.000 <i>(0.999)</i>
	Model with control of corruption	growth rate	-0.025 <i>(0.077)*</i>	0.022 <i>(0.266)</i>	0.011 <i>(0.429)</i>	-0.001 <i>(0.990)</i>	-0.114 <i>(0.000)**</i>
		growth rate	0.008 <i>(0.788)</i>	0.033 <i>(0.332)</i>	-0.023 <i>(0.392)</i>	0.039 <i>(0.479)</i>	-0.192 <i>(0.002)**</i>
		interaction term of growth and control of corruption	-0.011 <i>(0.216)</i>	-0.005 <i>(0.624)</i>	0.013 <i>(0.067)*</i>	-0.013 <i>(0.431)</i>	0.019 <i>(0.185)</i>
	Model with government stability	growth rate	-0.022 <i>(0.096)*</i>	-0.008 <i>(0.639)</i>	0.018 <i>(0.242)</i>	0.007 <i>(0.639)</i>	-0.118 <i>(0.000)**</i>
		growth rate	-0.032 <i>(0.305)</i>	-0.067 <i>(0.099)*</i>	0.008 <i>(0.875)</i>	-0.016 <i>(0.796)</i>	-0.4 <i>(0.011)*</i>
		interaction term of growth and government stability	0.001 <i>(0.760)</i>	0.007 <i>(0.178)</i>	0.001 <i>(0.835)</i>	0.003 <i>(0.680)</i>	0.033 <i>(0.047)**</i>
	Model with religion in politics	growth rate	-0.025 <i>(0.083)*</i>	0.011 <i>(0.553)</i>	0.015 <i>(0.323)</i>	0.006 <i>(0.701)</i>	-0.112 <i>(0.000)**</i>
		growth rate	-0.017 <i>(0.377)</i>	0.014 <i>(0.408)</i>	-0.003 <i>(0.892)</i>	0.008 <i>(0.682)</i>	-0.103 <i>(0.022)**</i>
		interaction term of growth and religion in politics	-0.002 <i>(0.382)</i>	-0.005 <i>(0.365)</i>	0.002 <i>(0.097)*</i>	-0.002 <i>(0.572)</i>	-0.002 <i>(0.762)</i>

†The first entry in each cell is the estimate of GDP per capita growth rate or its interaction term with a quality of governance indicator on public education spending. Figures in parentheses are p-values. The coefficients and the p-values are robust to heteroscedasticity. ** and * represent marginal significance levels with less than 5% , and with equal or less than 10%, respectively. The coefficients in bold black indicate countercyclical social expenditures; the coefficients in bold red indicate procyclical social expenditures.

Table 7. Country classifications**Low-income economies (53)**

Afghanistan	India	Rwanda
Bangladesh	Kenya	São Tomé and Príncipe
Benin	Korea, Dem Rep.	Senegal
Burkina Faso	Kyrgyz Republic	Sierra Leone
Burundi	Lao PDR	Solomon Islands
Cambodia	Liberia	Somalia
Central African Republic	Madagascar	Sudan
Chad	Malawi	Tajikistan
Comoros	Mali	Tanzania
Congo, Dem. Rep	Mauritania	Timor-Leste
Côte d'Ivoire	Mongolia	Togo
Eritrea	Mozambique	Uganda
Ethiopia	Myanmar	Uzbekistan
Gambia, The	Nepal	Vietnam
Ghana	Niger	Yemen, Rep.
Guinea	Nigeria	Zambia
Guinea-Bissau	Pakistan	Zimbabwe
Haiti		

Lower-middle-income economies (55)

Albania	El Salvador	Namibia
Algeria	Fiji	Nicaragua
Angola	Georgia	Paraguay
Armenia	Guatemala	Peru
Azerbaijan	Guyana	Philippines
Belarus	Honduras	Samoa
Bhutan	Indonesia	Sri Lanka
Bolivia	Iran, Islamic Rep.	Suriname
Bosnia and Herzegovina	Iraq	Swaziland
Cameroon	Jamaica	Syrian Arab Republic
Cape Verde	Jordan	Thailand
China	Kiribati	Tonga
Colombia	Lesotho	Tunisia
Congo, Rep.	Macedonia, FYR	Turkmenistan
Cuba	Maldives	Ukraine
Djibouti	Marshall Islands	Vanuatu
Dominican Republic	Micronesia, Fed. Sts.	West Bank and Gaza
Ecuador	Moldova	
Egypt, Arab Rep.	Morocco	

Upper-middle-income economies (41)

American Samoa	Kazakhstan	Poland
Argentina	Latvia	Romania
Belize	Lebanon	Russian Federation

Botswana	Libya	Serbia
Brazil	Lithuania	Seychelles
Bulgaria	Malaysia	Slovak Republic
Chile	Mauritius	South Africa
Costa Rica	Mayotte	St. Kitts and Nevis
Croatia	Mexico	St. Lucia
Dominica	Montenegro	St. Vincent and the Grenadines
Equatorial Guinea	Northern Mariana Islands	Turkey
Gabon	Oman	Uruguay
Grenada	Palau	Venezuela, RB
Hungary	Panama	

High-income economies (60)

Andorra	France	Netherlands
Antigua and Barbuda	French Polynesia	Netherlands Antilles
Aruba	Germany	New Caledonia
Australia	Greece	New Zealand
Austria	Greenland	Norway
Bahamas, The	Guam	Portugal
Bahrain	Hong Kong, China	Puerto Rico
Barbados	Iceland	Qatar
Belgium	Ireland	San Marino
Bermuda	Isle of Man	Saudi Arabia
Brunei Darussalam	Israel	Singapore
Canada	Italy	Slovenia
Cayman Islands	Japan	Spain
Channel Islands	Korea, Rep.	Sweden
Cyprus	Kuwait	Switzerland
Czech Republic	Liechtenstein	Trinidad and Tobago
Denmark	Luxembourg	United Arab Emirates
Estonia	Macao, China	United Kingdom
Faeroe Islands	Malta	United States
Finland	Monaco	Virgin Islands (U.S.)

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