CHAPTER EIGHT: SOCIAL WELFARE SPENDING

8.1 Introduction

This chapter presents an estimation of the determinants of social welfare spending. The chapter has three sections: Section 8.2 analyses the relationship between governance indices and social welfare spending, Section 8.3 contains the estimation results and Section 8.4 presents a summary of the main findings.

8.2 Relationship between social welfare spending and governance

Figure 36 shows the relationship between the corruption control index and social welfare spending. From the figure it is apparent that a positive relationship exists between the corruption control index and social welfare spending, which suggests that countries that are more corrupt devote a smaller share of their budgets to social welfare spending.

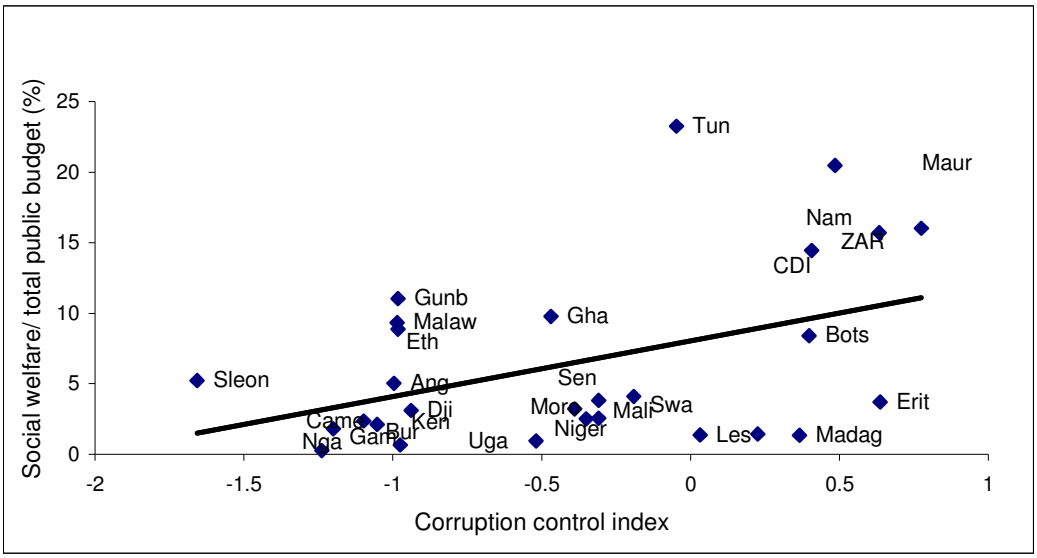

Figure 36: Corruption control index and social welfare spending as a ratio of the total budget

Notably, countries such as Sierra Leone, Nigeria, the Gambia and Cameroon are found to be the worst performers, while Tunisia, Mauritius, Namibia and South Africa appear to lead in allocating budget resources to social welfare.

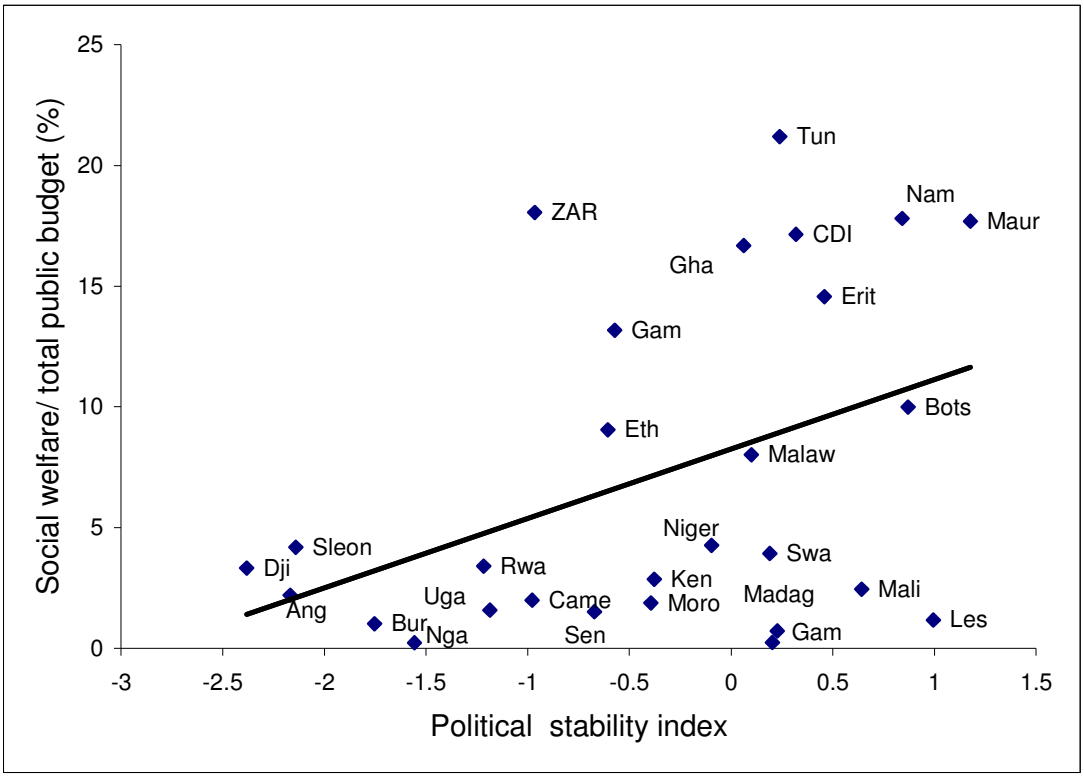

Figure 37: Political stability index and social welfare spending as a ratio of the total budget

Figure 37 clearly shows a positive relationship between the political stability index and social welfare spending, which suggests that countries that are politically stable tend to allocate a larger budget share to social welfare compared to less politically stable countries. In this case Djibouti, Angola, Sierra Leone and Burundi are the worst performers, while Mauritius, Namibia and Tunisia are found to exhibit high levels of political stability and social welfare spending.

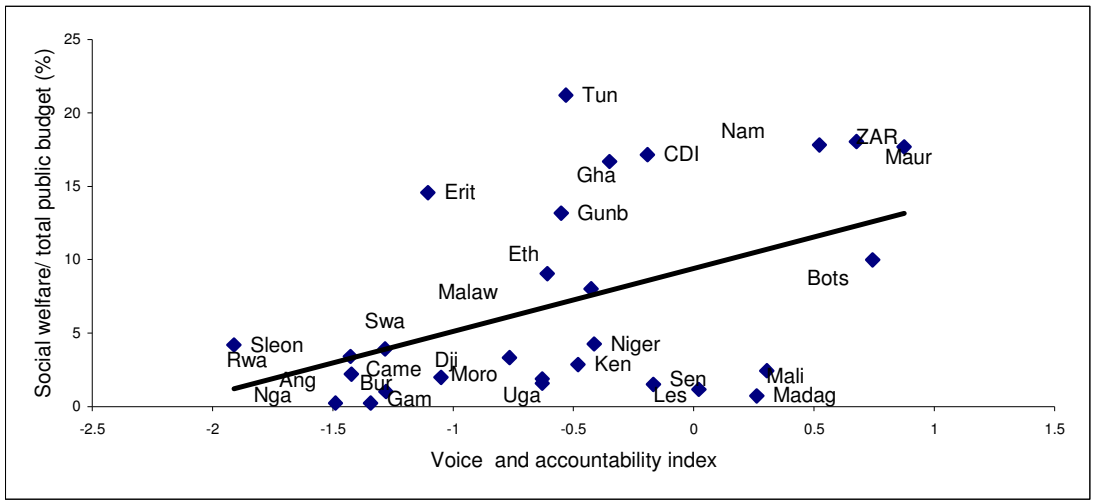

Figure 38: Voice and accountability index and social welfare spending as a ratio of the total budget

The role of voice and accountability in the allocation of the public budget to social welfare spending is shown in Figure 38. There seems to be a positive relationship between the level of voice and accountability and the budget allocation to social welfare. Further analysis is conducted by dividing the sample into more corrupt and less corrupt countries; the results are reported in Figures 39-42.

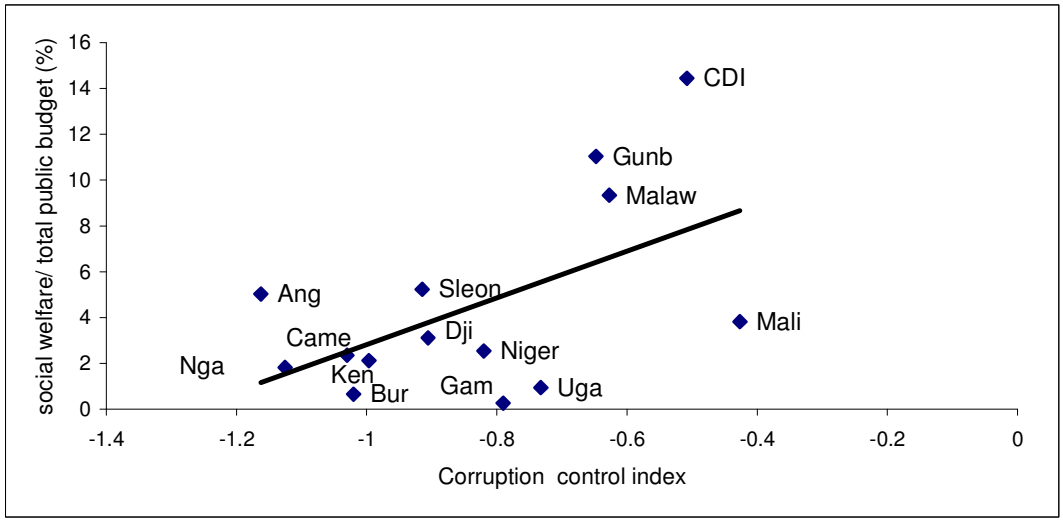

Figure 39: Corruption control index and social welfare spending as a ratio of the total budget: 'most corrupt' sub-sample

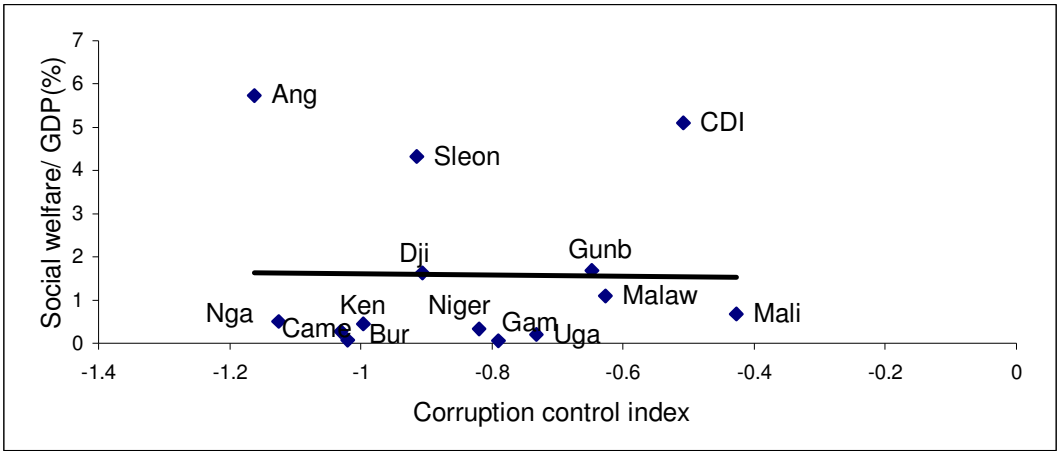

Figure 40: Corruption control index and social welfare spending as a ratio of the GDP: 'most corrupt' sub-sample

Figures 39 and 40 show the relationship between the corruption control index and social welfare as a share of the total public budget and of the GDP, respectively. While there appears to be a strong positive relationship between the corruption control index and social welfare spending as a share of the total public budget, there is very weak and negative relationship in the case where social welfare spending is expressed as a share of the GDP.

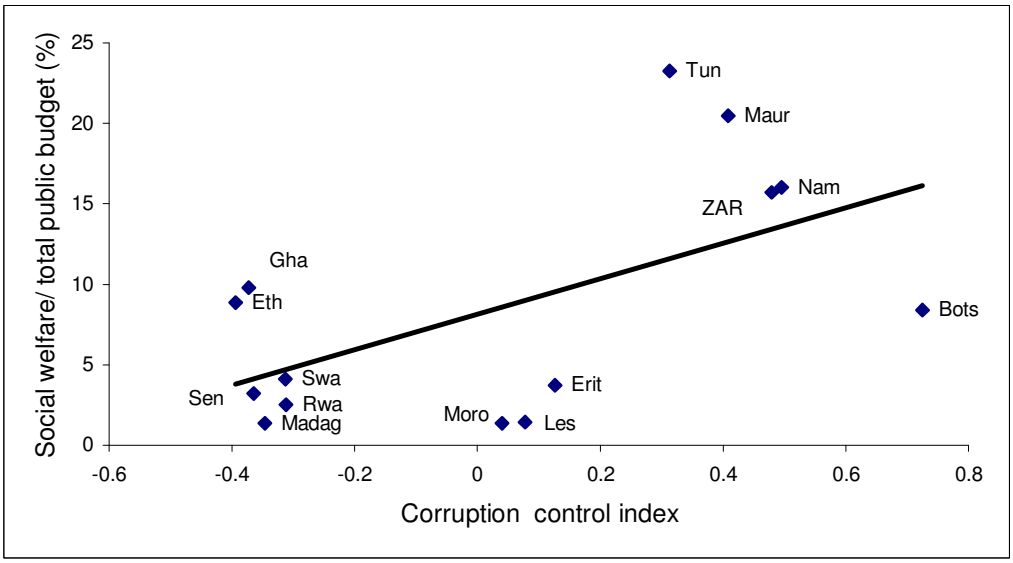

Figure 41: Corruption control index and social welfare spending as a ratio of the total budget: 'less corrupt' sub-sample

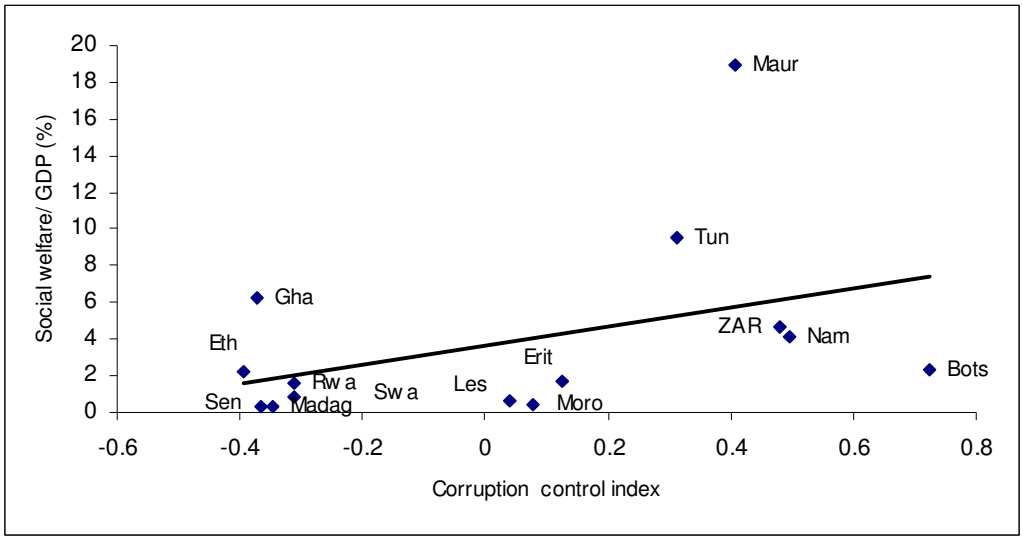

Figure 42: Corruption control index and social welfare spending as a ratio of the GDP: 'less corrupt' sub-sample

In the 'less corrupt' sub-sample, a strong positive relationship exists between social welfare spending and the corruption control index, both when social welfare spending is expressed as a share of total budget and as a share of the GDP. This result suggests that among less corrupt countries, social welfare spending is affected negatively by the magnitude of corruption in a country.

8.3 Estimation results of social welfare spending

This section reports estimation results of social welfare spending as a share of the total public budget and of the GDP. The estimation results are reported in Tables 15-17.

The estimated coefficients of the corruption control index are positive and largely significant in the full sample and the sub-sample cases. This suggests that corruption has a negative effect on the provision of social welfare. Put another way, as the level of corruption declines the budgetary resources allocated to social welfare increases; conversely, if corruption increases, the country's contribution to social welfare services declines. An explanation could be that

social welfare spending does not offer viable avenues for corruption. The positive signs obtained in all the estimations suggest that social welfare spending does not offer viable avenues for corruption, so corrupt activities may not be able to cause substantial changes in the overall budget.

The estimated coefficients of the political stability index are positively related to social welfare spending in the full sample estimations. However, in the sub-samples the results are mixed. In those cases where the dependent variable is the share of the public budget, the estimated coefficients for the 'most corrupt' sub-sample are positive and insignificant and for the 'less corrupt' sub-sample are positive and significant at the conventional levels of testing. Only the results for the 'less corrupt' sub-sample are therefore consistent with those obtained for the full sample. This suggests that higher levels of political instability are associated with lower levels of resource allocation to social sectors. This result agrees with previous results indicating that political instability causes a transfer of funds away from non-military expenditure.

In the full sample estimations, the coefficients for the voice and accountability index are positive, although some are not significant at the conventional levels of testing. In the sub-samples, in all cases in the 'most corrupt' sub-sample, the estimated coefficients are negative and largely significant at the conventional levels of testing. In the 'less corrupt' sub-sample the coefficients have mixed signs but are significant at the conventional levels of testing. These results are, therefore, not conclusive regarding the role of accountability in shifting the budget to social welfare. These results do however suggest that as the level of democracy and accountability increases, governments tend to structure their budgets in favour of social welfare, perhaps to increase their popularity. Again, the results confirm Niskanen's bureaucratic failure model (Rosen 2005: 127).

In the full sample estimations, the coefficients for government size have mixed signs and are not significant at the conventional levels of testing. In the 'most

corrupt' sub-sample, the coefficients are negative and significant in 50% of the cases, and have mixed signs in the 'less corrupt' sub-sample. This, therefore, suggests that the size of the government is not very instrumental in the internal allocation of the budget in favour of social welfare.

Table 15: Estimation results of social welfare spending: full sample

	Dependent variable expressed as share of the public budget				Dependent variable expressed as share of the GDP			
	PM	PM	PM	PM	REM	REM	REM	REM
Cor	0.288*** (6.430)			0.278*** (3.797)	0.177*** (2.818)			0.082 (1.236)
Pol		0.127*** (5.706)		0.553** (2.024)		0.124*** (2.849)		0.036 (0.753)
Acc			0.161*** (4.230)	0.238 (0.508)			0.306*** (4.781)	0.256*** (3.575)
Lden	-0.716* (-1.785)	-0.339 (-0.800)	-0.056 (-0.121)	-0.405 (-0.870)	0.489*** (2.301)	0.535** (2.479)	0.562*** (2.605)	0.576*** (2.697)
Ldebt	-1.020*** (-3.732)	-1.539*** (-5.556)	-1.236*** (-4.568)	-1.337*** (-4.668)	-0.183* (-1.664)	-0.265** (-2.449)	-0.172* (-1.616)	-0.165 (-1.498)
Lgov	0.232 (0.148)	-0.1027 (-0.648)	-0.299 (-1.684)	-0.134 (-0.075)				
Lpop65	0.704*** (6.748)	0.783*** (9.920)	0.901*** (8.976)	0.637*** (7.138)	0.858** (2.359)	-0.919** (2.498)	0.896** (2.492)	0.977*** (2.699)
Lypc	0.614*** (9.667)	0.747*** (13.271)	0.711*** (10.404)	0.588*** (8.409)	0.152 (0.684)	0.139 (0.619)	0.087 (0.389)	0.062 (0.282)
IMF	0.720*** (4.273)	0.822*** (5.027)	0.473** (2.371)	0.705*** (3.912)	0.004 (0.089)	0.010 (0.230)	-0.030 (-0.714)	-0.020 (-0.468)
IMF*Lgov	-1.368*** (-4.129)	-1.294*** (-4.677)	-2.438** (-2.377)	-1.122*** (-3.782)				
Lurb	-0.452*** (-4.443)	-0.441*** (-5.662)	-0.665*** (-6.928)	-0.372*** (-4.095)	1.258*** (3.852)	1.340*** (4.042)	1.244*** (3.874)	1.331*** (4.075)
C	-16.714*** (-7.818)	-22.476*** (-9.878)	15.830 (-5.769)	-17.345*** (-6.320)				
R^2	0.86	0.76	0.84	0.80	0.11	0.11	0.15	0.16
Adj. R^2	0.86	0.75	0.83	0.79	0.08	0.9	0.13	0.13
N	28	28	28	28	28	28	28	28
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	2.487	2.763	2.847	2.985	20.123	23.876	22.563	23.987
Hausman test	30.67 [0.0003]	10.46 [0.3145]	8.40 [0.5900]	41.26 [0.0001]	23.99 [0.0005]	58.62 [0.0001]	30.65 [0.0001]	95.07 [<0.0001]

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model and REM is the random effects model.

Table 16: Estimation results of social welfare spending as a ratio of the total public budget

	'Most corrupt' sub-sample				'Less corrupt' sub-sample			
	PM	PM	PM	PM	PM	PM	PM	PM
Cor	0.362*** (3.026)			0.503*** (3.642)	0.102*** (3.035)			0.170*** (3.024)
Pol		0.032 (0.816)		0.022 (0.385)		0.202*** (5.618)		0.228*** (5.384)
Acc			-0.005 (-0.067)	-0.207*** (-2.078)			0.102*** (3.035)	-0.075* (-1.827)
Lden	-0.232** (-2.611)	-0.219** (-2.532)	-0.274** (-2.470)	-0.330*** (-3.303)	0.004 (0.071)	0.026 (0.546)	0.004 (0.071)	0.039 (0.805)
Ldebt	0.171** (2.521)	0.194*** (3.226)	0.194*** (2.797)	0.083 (1.042)	-0.091*** (-3.059)	-0.127*** (-3.989)	-0.091*** (-3.059)	-0.143*** (-4.497)
Lgov	-0.621** (-2.080)	-0.493* (-1.776)	-0.379 (-1.244)	-0.477 (-1.516)	-0.115 (-0.487)	0.019 (0.075)	-0.115 (-0.487)	0.406 (1.504)
Lpop65	0.596*** (2.688)	0.774*** (4.010)	0.677*** (3.115)	0.527** (2.290)	0.551*** (2.806)	0.661*** (3.449)	0.551*** (2.806)	0.555*** (2.873)
Lypc	-0.152 (-0.935)	-0.338** (-2.540)	-0.311** (-2.201)	-0.162 (-1.022)	0.453*** (3.954)	0.485*** (5.021)	0.453*** (3.954)	0.405*** (3.686)
IMF	0.280 (1.015)	0.388* (1.677)	0.468* (1.832)	0.334 (1.013)	0.767** (2.232)	0.734** (2.304)	0.767** (2.232)	0.842*** (2.651)
IMF*Lgov	-0.462 (-1.003)	-0.584 (-1.520)	-0.717* (-1.708)	-0.502 (-0.951)	-1.294** (-2.351)	-1.160** (-2.230)	-1.294** (-2.351)	-1.366*** (-2.618)
Lurb	0.594*** (3.055)	0.729*** (4.172)	0.651*** (3.399)	0.598*** (2.998)	-0.397** (-0.397)	-0.321* (-1.762)	-0.397** (-2.084)	-0.186 (-1.016)
C	0.993** (2.042)	1.125** (2.567)	1.024** (2.273)	0.771 (1.552)	-0.870*** (-2.759)	-2.097*** (-8.654)	-0.870*** (-2.759)	-2.357*** (-6.513)
R^2	0.58	0.62	0.65	0.49	0.98	0.93	0.98	0.95
Adj. R^2	0.55	0.60	0.63	0.45	0.98	0.92	0.98	0.94
N	14	14	14	14	14	14	14	14
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	1.475	1.537	1.175	1.268	0.243	0.256	0.576	0.628
Hausman test	6.95 [0.6427]	7.10 [0.6266]	3.68 [0.9310]	7.86 [0.7259]	15.11 [0.0878]	16.58 [0.0558]	14.15 [0.1172]	12.53 [0.3254]

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model.

Table 17: Estimation results of social welfare spending as a ratio of the GDP

	'Most corrupt' sub-sample				'Less corrupt' sub-sample			
	PM	PM	PM	PM	PM	PM	PM	PM
Cor	0.531*** (4.016)			0.889*** (5.689)	0.407*** (4.429)			0.336*** (3.675)
Pol		-0.248*** (-4.273)		-0.282*** (-4.520)		0.495*** (9.729)		0.478*** (8.508)
Acc			-0.159* (-1.767)	-0.231** (-2.121)			0.181*** (3.333)	-0.078* (-1.654)
Lden	-0.277*** (-3.277)	-0.586*** (-6.764)	-0.462*** (-4.914)	-0.608*** (-5.550)	0.229** (1.991)	0.199* (1.868)	0.263** (2.135)	0.237** (2.380)
Ldebt	-0.277* (-1.642)	0.423** (2.291)	0.015 (0.099)	0.132 (0.668)	-0.114* (-1.646)	-0.186** (-2.571)	-0.151** (-2.010)	-0.169** (-2.514)
Lpop65	1.871*** (8.813)	0.997*** (3.978)	1.357*** (7.192)	1.332*** (4.920)	0.836** (2.540)	1.696*** (6.752)	0.954*** (2.793)	1.440*** (5.789)
Lypc	-0.870*** (-4.312)	-0.638*** (-3.106)	-0.580*** (-2.914)	-0.798*** (-4.062)	0.443*** (3.897)	0.524*** (4.875)	0.420*** (2.850)	0.433*** (4.011)
IMF	-0.018 (-0.254)	-0.066 (-0.814)	0.072 (0.953)	-0.057 (-0.657)	-0.122 (-1.189)	0.017 (0.185)	-0.268** (-2.417)	0.072 (0.721)
Lurb	1.815*** (7.068)	0.906*** (3.415)	1.303*** (5.807)	1.401*** (4.636)	-0.636** (-1.969)	-1.087*** (-4.459)	-0.754** (-2.246)	-0.883*** (-3.712)
C	1.757*** (3.919)	0.677 (1.229)	0.700 (1.501)	0.993* (1.760)	-1.764*** (-5.245)	-3.578*** (-11.026)	-1.493*** (-3.061)	-3.347*** (-7.567)
R^2	0.79	0.76	0.87	0.68	0.67	0.80	0.67	0.81
Adj. R^2	0.78	0.74	0.86	0.66	0.65	0.79	0.66	0.79
N	14	14	14	14	14	14	14	14
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	1.1253	1.236	1.268	1.485	0.523	0.611	0.558	0.719
LM test	0.986	0.876	0.975	1.095	1.674	1.475	1.935	1.357
Hausman Test	6.81 [0.4485]	10.11 [0.1826]	4.23 [0.7530]	7.87 [0.5477]	6.02 [0.5375]	5.82 [0.5608]	8.73 [0.2724]	14.12 [0.1181]

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model.

As expected, the coefficients of per capita income are positive and significant at the conventional levels of testing in the full sample estimations, which implies that higher levels of economic development are associated with higher levels of social welfare spending. However, in the 'most corrupt' sub-sample, the coefficients are negative and significant in nearly all cases, which suggests that in more corrupt countries a higher level of economic development is associated with lower budget allocations to social welfare. In contrast, in less corrupt countries, consistent with the full sample, the estimated coefficients are positive and significant at the conventional levels of testing, which suggests that a higher level of development is associated with an increased share of the budget allocated to social welfare. These results support findings that show a positive

correlation between the provision of pure public goods and social welfare expenditure on measures such as child, disability, old age and other grants.

With regard to the role of public debt in tilting the budget towards social welfare, the coefficients are found to be negative and significant at the conventional levels of testing in the full sample estimations. In the sub-sample estimations, results are mixed depending on the definition of the dependent variable. Coefficients are positive in all cases where the dependent variable is the share of the total public budget, although not significant for any of the countries in the 'less corrupt' sub-sample. In contrast, coefficients are both positive and significant in all cases where the dependent variable is the share of the GDP. This result, therefore, points to the fact that public debt does not prompt social welfare spending, which is plausible since most foreign debt is specifically targeted at economic services sectors and specific social sectors such as education and health.

The estimated coefficients for the IMF dummy have mixed signs depending on the definition of the dependent variable. In the estimations where the dependent variable is the share of the total budget, coefficients are positive and significant in all cases. However, in those estimations where the dependent variable is expressed as a share of the GDP, coefficients have mixed signs which are not significant at the conventional levels in the full sample and sub-sample estimations. This, therefore, suggests that these results are inconclusive as to the role of the IMF in the allocation of public budget to social welfare.

The estimated coefficients of the IMF interaction term are negative for the full sample and greater than unity, which suggests that as the public budget as a share of the GDP declines, social welfare spending increases more rapidly. Further analysis shows that in the 'most corrupt' sub-sample, the estimated coefficients are negative but largely insignificant. This may suggest that IMF programmes fail to affect the share of social welfare spending in more corrupt countries. On the other hand, the estimated coefficients are negative and

significant in the 'less corrupt' sub-sample. The estimated elasticities are greater than unity which suggests that in less corrupt countries social welfare spending increases faster than the rate of decline of the total public budget to the GDP.

The segment of the population older than 65 years is found to be particularly strong in explaining the allocation of resources to social welfare spending. The coefficients are positive and significant at the conventional levels of testing for all the estimations. This is because social welfare programmes mainly target the elderly segment of the population and so as the size of the population segment in the age group 65 years and older increases, the allocation to social welfare spending increases. The coefficients of urbanisation and population density are found to be significant but with mixed signs in all cases.

8.4 Summary

The coefficients for the corruption control index are positive and significant in all the estimations. Those of the political stability index have mixed signs and are largely insignificant. The estimated coefficients for the voice and accountability index are insignificant with mixed signs in the full sample estimations. Also, the estimated coefficients for public debt are consistently insignificant with mixed signs depending on the definition of the dependent variable. The coefficients of the relative size of government are positive but not significant, for all the estimations. The coefficients of the level of economic development as proxied by the GDP per capita are positive and significant in all the estimations for the full sample. This pattern is replicated in the 'less corrupt' sub-sample but the 'most corrupt' sub-sample exhibits negative coefficients, which are largely not significant at the conventional levels of testing.

The coefficients of the size of the population segment over 65 years of age are positive in nearly all the cases in both the full sample and sub-samples. Other demographic characteristics such as population density and urbanisation rate are

largely significant but with mixed signs. The estimated coefficients of the IMF dummy have different signs depending on the definition of the dependent variable. When the dependent variable is expressed as a share of the budget, the estimated coefficients are positive and significant at the conventional levels of testing. However, when the dependent variable is expressed as a share of the GDP, the estimated coefficients are negative and not significant, in all cases. Further evidence shows that the estimated coefficients of the IMF interaction variable are negative and significant for the full sample as well as for the sub-samples. For the full sample, the estimated coefficients are greater than unity, which suggests non-resiliency of social welfare spending. For the sub-samples, resiliency is ambiguous.

CHAPTER NINE: ECONOMIC SERVICES SPENDING

9.1 Introduction

This chapter deals with the estimation of economic services spending. It is divided into three parts: Section 9.2 discusses the relationship between governance indices and economic services spending, Section 9.3 is devoted to estimation results and Section 9.4 presents a summary of the main findings.

9.2 Relationship between economic services spending and governance

This section presents scatter plots for the various governance indices and economic service spending as shown in Figures 43-49.

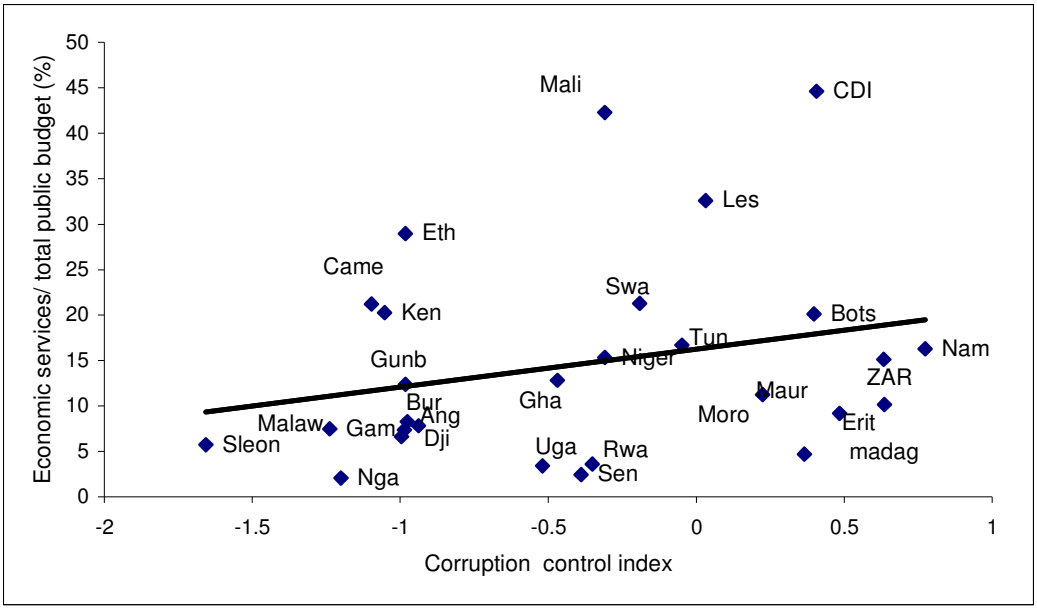

Figure 43: Corruption control index and economic services spending as a ratio of the total budget

Figure 43 shows the relationship between economic services spending and the corruption control index. It appears that Mali, Lesotho, Cote d'Ivoire and Ethiopia allocate the largest shares of their budgets to economic services, while Nigeria

allocates the least. It is also apparent that there is a weak positive relationship between the corruption control index and economic services spending. This suggests that countries that are less corrupt tend to allocate a larger share of their budgets to economic services.

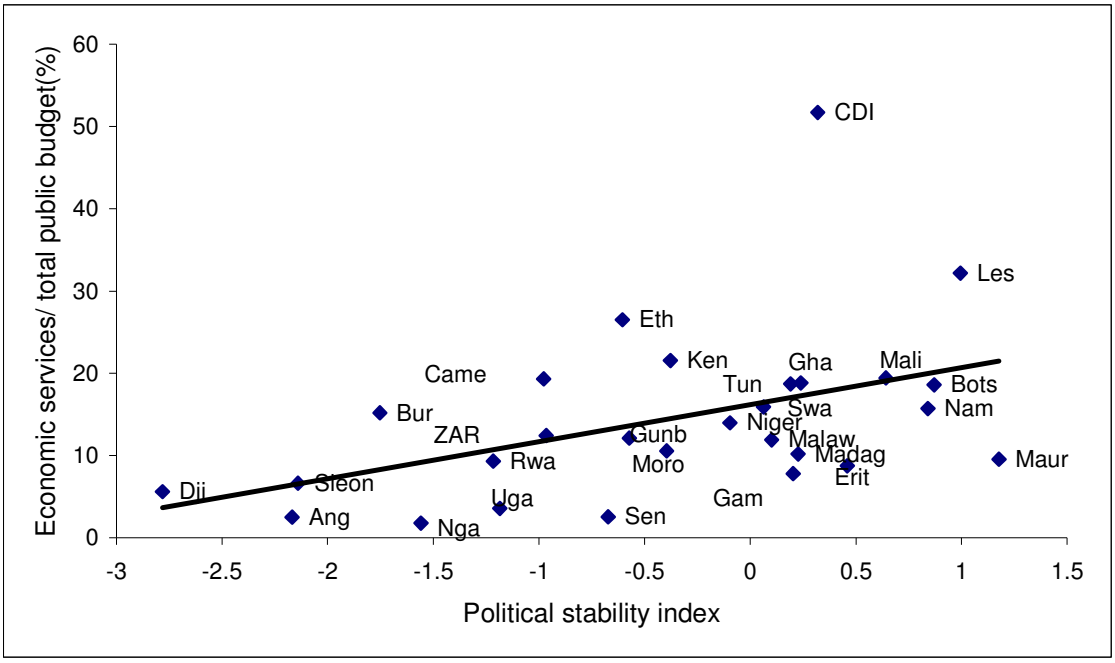

Figure 44: Political stability index and economic services spending as a ratio of the total budget

Level of political stability is found to be positively correlated to economic services spending. In other words, countries that are more politically stable tend to allocate a larger share of their budgets to economic services, while countries that are politically unstable tend to allocate a smaller part of their budgets to that sector. For the period under study, Angola, Sierra Leone, Djibouti and Burundi were the most politically unstable and spent the lowest budget share on economic services. Mauritius, Botswana, Lesotho and Cote d'Ivoire were more politically stable and spent a larger share of their public budgets on economic services.

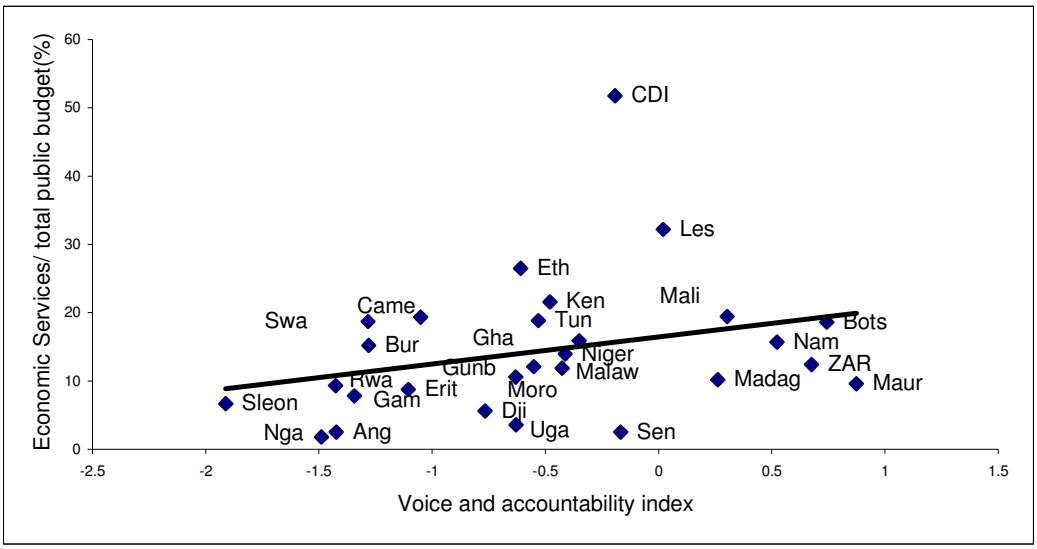

Figure 45: Voice and accountability index and economic services spending as a ratio of the total budget

Figure 45 clearly shows that countries that rank highly in terms of voice and accountability tend to allocate a larger share of their budgets to economic services, while repressive countries tend to allocate less of their budgets to this sector. To further explore these findings, the sample is divided into the most corrupt and the least corrupt countries, as shown in Figures 46-49.

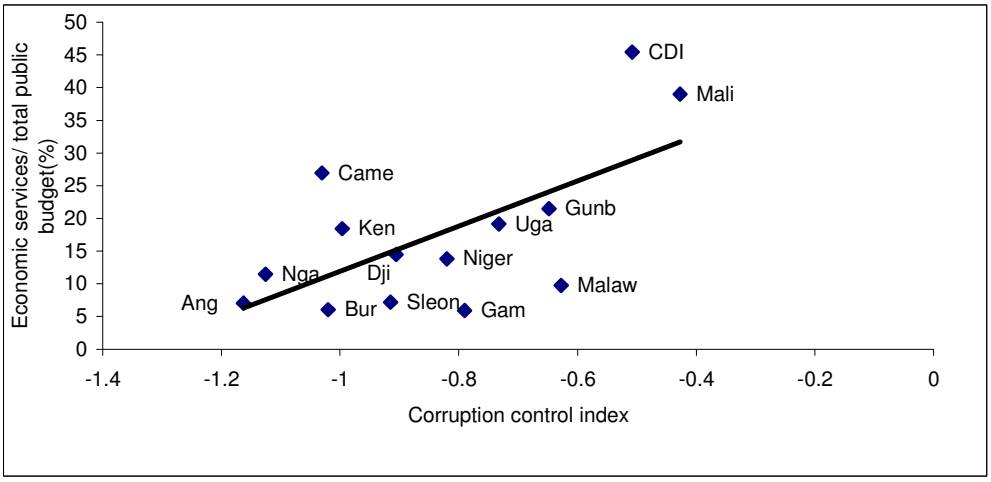

Figure 46: Corruption control index and economic services spending as a ratio of the total budget: 'most corrupt' sub-sample

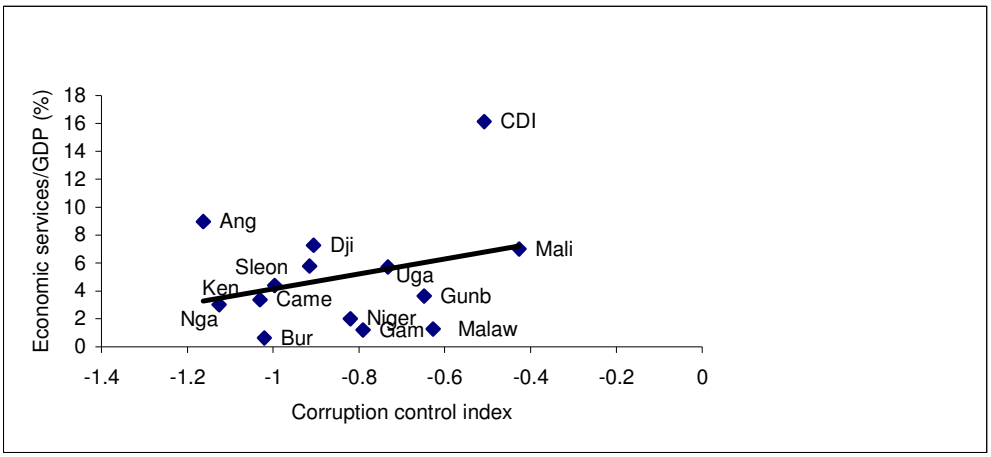

Figure 47: Corruption control index and economic services spending as a ratio of the GDP: ' most corrupt' sub-sample

Figures 46 and 47 show the relationship between the corruption control index and economic services spending in the 'most corrupt' sub-sample. These results are consistent with the full sample findings, namely that there is a negative relationship between the level of corruption and economic services spending. However, in the 'less corrupt' sub-sample, as shown in Figures 48 and 49, a negative and relatively weak relationship exists between the corruption control index and economic services.

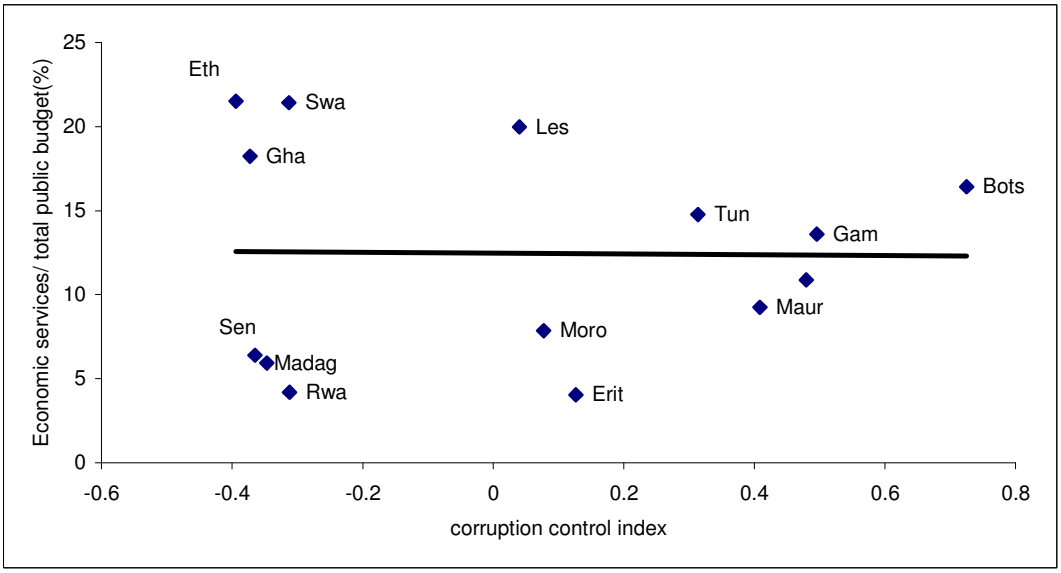

Figure 48: Corruption control index and economic services spending as a ratio of the total budget: 'less corrupt' sub-sample

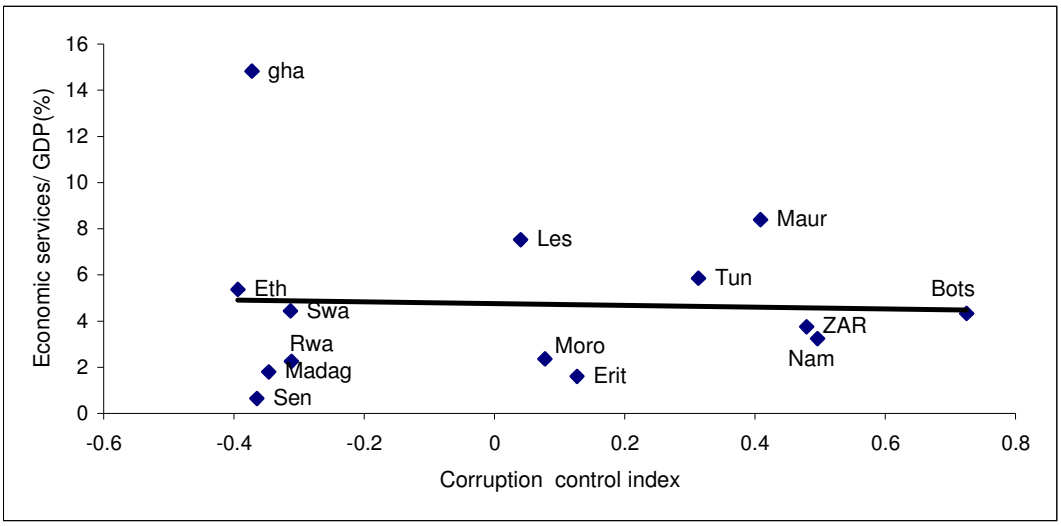

Figure 49: Corruption control index and economic services spending as a ratio of the GDP: 'less corrupt' sub-sample

9.2 Estimation results of economic services spending

This section reports the estimation results, as shown in Tables 18-20. In the full sample, the coefficients for the corruption control index have mixed signs. In the cases where the dependent variable is expressed as a share of the total public budget, the estimated coefficients are negative and significant at the conventional levels of testing, while they are positive and insignificant in the cases where the dependent variable is expressed as a share of the GDP. In the sub-sample estimations, the coefficients are not significant and have mixed signs for the 'most corrupt' sub-sample, and are positive and significant in three of the four 'less corrupt' sub-sample. These findings are to a large extent inconsistent with those of previous studies indicating that more corrupt countries generally spend larger shares of their budgets on economic services. However, the fact that the corruption control index is found to be negative suggests that corruption may have an influence on budget allocation to the economic services sector. Economic services include public works and all public programs that require heavy capital investment and, in most cases, sophisticated technology. Furthermore, competition to procure contracts in this sector tends to be

oligopolistic in nature and, therefore, corruption can easily occur in the procurement process.

For the full sample, the estimated coefficients of the political stability index are positive and significant at the conventional levels of testing in most cases. On the other hand, for the 'most corrupt' sub-sample, the estimated coefficients have mixed signs, with most being negative and significant at the conventional levels of testing. For the 'less corrupt' sub-sample the results are consistent with the full sample results. This, therefore, suggests that when a country is politically unstable it drains resources from the economic services sector and as it becomes more stable it increases the budgetary allocation to that sector. This is plausible because in times of political instability, a government tends to focus on the security of the state and not on infrastructural development. In estimations where the dependent variable is expressed as a share of the GDP, the coefficients are negative, but the relationship is not significant at the conventional levels of testing.

For the full sample, the estimated coefficients of the voice and accountability index have mixed signs. In those cases where the dependent variable is expressed as a share of the GDP, the estimated coefficients are positive and significant at the conventional levels of testing. For the 'most corrupt' sub-sample, all the estimated coefficients are positive, but not all of them are significant at the conventional levels of testing. For the 'less corrupt' sub-sample the estimated coefficients are significant but with mixed signs. These findings, therefore, suggest that the role of voice and accountability is not very pronounced in tilting the budget towards the economic services sector.

Table 18: Estimation results of economic services spending: full sample

	Dependent variable expressed as share of the total public budget				Dependent variable expressed as share of the GDP			
	PM	PM	PM	PM	FEM	FEM	FEM	FEM
Cor	-0.084** (-2.423)			-0.182*** (-5.194)	0.042 (0.645)			-0.058 (-0.844)
Pol		0.088*** (4.931)		0.141*** (6.802)		0.080* (1.857)		0.022 (0.445)
Acc			0.023 (1.090)	-0.046** (-2.349)			0.245*** (3.950)	0.255*** (3.554)
Lden	-0.221*** (-10.876)	-0.217*** (-10.595)	-0.218*** (-10.544)	-0.222*** (-11.818)	0.409*** (2.780)	0.436*** (2.995)	0.474*** (3.269)	0.502*** (3.328)
Ldebt	0.094*** (6.110)	0.069*** (4.098)	0.093*** (5.757)	0.062*** (3.761)	0.262** (2.593)	0.294 (2.948)	0.246** (2.513)	0.272*** (2.651)
Lgov	0.602*** (3.813)	0.706*** (4.745)	0.656*** (4.051)	0.594*** (3.762)				
Lpop	0.122 (1.193)	-0.084 (-0.908)	0.010 (0.103)	0.100 (1.118)	1.496*** (3.877)	1.511*** (3.946)	1.458*** (3.824)	1.490*** (3.764)
Lypc	0.254*** (3.948)	-0.004 (-0.072)	0.116** (1.913)	0.210*** (3.273)	0.316 (1.562)	0.360* (1.792)	0.437** (2.198)	0.436** (2.108)
IMF	0.895*** (5.449)	0.882*** (5.628)	0.855*** (4.996)	0.985*** (5.925)	0.087* (1.907)	0.081* (1.774)	0.116** (2.593)	0.117** (2.578)
IMF*Lgov	-1.499*** (-5.447)	-1.484*** (-5.565)	-1.451*** (-5.083)	-1.613** (-5.939)				
Lurb	-0.092 (-0.998)	0.134 (1.580)	0.019 (0.204)	-0.028 (-0.342)	1.675*** (4.876)	1.716*** (5.024)	1.630*** (4.817)	1.677*** (4.770)
C	0.034 (0.098)	0.745** (2.434)	0.492 (1.448)	-0.079 (-0.241)				
R^2	0.95	0.96	0.96	0.96	0.11	0.12	0.16	0.16
Adj. R^2	0.95	0.96	0.96	0.96	0.09	0.10	0.13	0.13
N	28	28	28	28	28	28	28	28
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	2.354	2.165	2.457	2.476				
LM test	0.356	0.548	0.457	0.375				
Hausman test	33.88 [0.0001]	43.89 [0.0001]	35.74 [0.0001]	43.94 [0.0001]	42.07 [<0.0001]	56.27 [<0.0001]	78.14 [<0.0001]	84.22 [<0.0001]

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model and FEM is the fixed effects model.

Table 19: Estimation results of economic services spending as a proportion of the total public budget

	'Most corrupt' sub-sample				'Less corrupt' sub-sample			
	PM	PM	PM	PM	PM	PM	PM	PM
Cor	0.225*** (2.928)			0.082 (0.992)	-0.068 (-1.527)			-0.052 (-1.011)
Pol		0.094*** (3.397)		-0.038 (-0.904)		0.125*** (3.165)		0.183*** (4.061)
Acc			0.267*** (6.141)	0.291*** (4.134)			-0.061** (-2.601)	-0.102*** (-3.808)
Lden	-0.219*** (-4.291)	-0.220*** (-4.056)	-0.062 (-0.993)	-0.034 (-0.522)	-0.195*** (-9.535)	-0.191*** (-7.519)	-0.198*** (-10.031)	-0.211*** (-8.954)
Ldebt	0.064 (1.449)	0.059 (1.314)	0.190*** (4.600)	0.192*** (3.650)	0.077*** (5.457)	0.059*** (3.698)	0.077*** (5.670)	0.058*** (3.643)
Lgov	0.429** (1.919)	0.512** (2.253)	0.293 (1.356)	0.241 (1.099)	0.727*** (3.475)	0.800*** (3.735)	0.909*** (4.507)	0.822*** (3.597)
Lpop	0.236* (1.726)	0.171 (1.253)	-0.150 (-0.981)	-0.160 (-1.035)	-0.026 (-0.166)	0.241 (1.293)	-0.060 (-0.396)	0.365* (1.825)
Lypc	0.637*** (5.768)	0.601*** (5.607)	0.435*** (3.868)	0.419*** (3.633)	0.017 (0.186)	-0.003 (-0.037)	0.052 (0.587)	0.165* (1.657)
IMF	0.641*** (2.714)	0.823*** (3.942)	0.468** (2.201)	0.335 (1.406)	1.817*** (7.314)	1.787*** (7.763)	1.977*** (7.878)	1.854*** (7.758)
IMF*Lgov	-0.955** (-2.580)	-1.289*** (-3.859)	-0.795** (-2.351)	-0.573 (-1.526)	-3.305 (-8.026)	-3.145*** (-8.007)	-3.522*** (-8.628)	-3.185*** (-8.051)
Lurb	-0.026 (-0.195)	0.013 (0.097)	0.227* (1.613)	0.243* (1.710)	-0.071 (-0.525)	-0.215 (-1.480)	-0.051 (-0.382)	-0.294* (1.917)
C	-1.739*** (-3.616)	-1.575*** (-3.357)	-0.475 (-0.971)	-0.438 (-0.846)	1.545*** (3.388)	0.625 (1.075)	1.435*** 93.176)	-0.219 (-0.329)
R^2	0.84	0.87	0.95	0.94	0.97	0.95	0.97	0.96
Adj. R^2	0.84	0.86	0.95	0.93	0.96	0.94	0.97	0.95
N	14	14	14	14	14	14	14	14
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	2.354	2.964	3.174	3.001	3.487	3.298	2.938	3.087
Hausman test	50.73 [<0.0001]	78.89 [<0.0001]	46.92 [<0.0001]	67.60 [<0.0001]	46.94 [<0.0001]	50.36 [<0.0001]	-	-

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model.

Table 20: Estimation results of economic services spending as a proportion of the GDP

	'Most corrupt' sub-sample				'Less corrupt' sub-sample			
	PM	PM	PM	PM	PM	PM	PM	PM
Cor	0.320***			0.319***	0.083			0.004
	(3.436)			(3.282)	(1.386)			(0.056)
Pol		-0.088**		-0.158***		0.459***		0.531***
		(-2.383)		(3.856)		(7.902)		(7.989)
Acc			0.115*	0.096			0.061*	-0.099***
			(1.788)	(1.296)			(1.790)	(-2.670)
Lden	-0.212***	-0.325***	-0.209***	-0.252***	0.139***	0.080**	0.109***	0.058
	(-3.818)	(-5.722)	(-3.203)	(-3.805)	(5.025)	(1.998)	(3.476)	(1.454)
Ldebt	-0.136	0.166	-0.036	0.206	0.006	-0.004	0.020	-0.011
	(-1.345)	(1.268)	(-0.386)	(1.495)	(0.212)	(-0.096)	(0.743)	(-0.256)
Lpop	0.758***	0.371*	0.515***	0.429**	-0.299	1.463***	-0.011	1.700***
	(4.106)	(1.874)	(2.898)	(2.284)	(-1.451)	(5.709)	(-0.047)	(6.094)
Lypc	0.267	0.471**	0.487**	0.430***	0.163*	0.471***	0.229**	0.630***
	(1.373)	(2.454)	(2.458)	(2.284)	(1.712)	(5.540)	(2.123)	(5.596)
IMF	-0.063	-0.079*	-0.094**	-0.104**	0.003	0.063	0.001	0.115
	(-1.284)	(-1.665)	(-1.990)	(-2.043)	(0.035)	(0.866)	(0.021)	(1.455)
Lurb	0.978***	0.561***	0.664***	0.621***	0.199	-1.080***	-0.080	-1.232***
	(4.936)	(2.728)	(3.612)	(2.777)	(1.091)	(-5.308)	(-0.394)	(-5.689)
C	-0.259	-1.503**	-0.859	-1.266*	0.588	-4.191***	0.217	-5.313***
	(-0.385)	(-2.067)	(-1.260)	(-1.835)	(1.098)	(-5.900)	(0.355)	(-6.156)
R^2	0.80	0.71	0.80	0.75	0.89	0.66	0.82	0.72
Adj. R^2	0.79	0.70	0.79	0.73	0.88	0.64	0.82	0.70
N	14	14	14	14	14	14	14	14
T	10	10	10	10	10	10	10	10
Diagnostic tests								
F test	2.384	2.475	2.483	2.589	2.514	2.478	2.568	2.723
Hausman test	128.72 [<0.0001]	72.85 [<0.0001]	113.95 [<0.0001]	123.68 [<0.0001]	13.25 [0.0663]	3.04 [0.8810]	137.46 [<0.0001]	44.98 [<0.0001]

*** Significant at 1%; ** significant at 5%; and * significant at 10%; t-statistics in bracket. PM is the pooled model.

The estimated coefficients for population density are positive and significant in all cases in the full sample and sub-sample estimations. This suggests that as population density increases, governments tend to devote an increasing share of their budgets to the economic services sector. Closely related to population density is urbanisation rate, which is also positive and significant at conventional levels in all cases both in the full sample and sub-sample estimations. These results suggest that as population density and urbanisation increase, governments allocate larger shares of their budget to the economic services sector. This may be because as a country becomes more urbanised, the demand for public utilities such as roads, water and sewage increases.

The estimated coefficients of population size are insignificant in the estimations where the dependent variable is expressed as a share of the budget and has mixed signs. However, in those cases where the dependent variable is expressed as a share of the GDP, the estimated coefficients are positive and significant at the conventional levels of testing. Further estimations for the sub-samples show that in the 'most corrupt' sub-sample, all the positive coefficients are also significant at the conventional levels, while all the negative coefficients are statistically insignificant. For the 'less corrupt' sub-sample, the results are largely similar to those obtained for the 'most corrupt' sub-sample. This, therefore, suggests that a larger population tends to compel a government to spend a larger share of its budget on economic services.

For the full sample, the coefficients of public debt are positive, although not significant in some cases. For the sub-samples, all the coefficients which have the expected positive signs are significant and those with the wrong signs are not significant. These results, therefore, suggest that as a country accumulates foreign public debt, a larger share of its budget goes to the economic services sector.

In those cases where the dependent variable is expressed as a share of the total public budget, the size of government is positively related to economic services sector spending, in the full sample. The same pattern is found in the sub-samples although the estimated coefficients are higher for the 'less corrupt' sub-sample than for the 'most corrupt' sub-sample. The positive relationship may be explained by the fact that large governments are plagued by several risks (Mahdavi, 2004), such as corruption and external shocks, which may lead to a larger share of the budget being spent on economic services.

For the full sample, the estimated coefficients of the level of income per capita are positive and significant at the conventional levels of testing. The results are similar in both the 'most corrupt' sub-sample and the 'less corrupt' sub-sample. This suggests that, as a country develops, it favours economic services spending. This finding is plausible because the economic services sector largely includes capital expenditures on infrastructure which the state must provide.

The estimated coefficients of the IMF dummy are positive and significant in all the estimations for the full sample. However, for the 'most corrupt' sub-sample, when the dependent variable is expressed as a share of the public budget, the estimated coefficients are positive, while when it is expressed as a share of the GDP the coefficients are negative. In contrast, for the 'less corrupt' sub-sample, when the dependent variable is expressed as a share of the total public budget, all the estimated coefficients are positive and significant at 1% level of testing, while when the dependent variable is estimated as a share of the GDP, the coefficients are not significant at the conventional levels of testing.

The estimated coefficients of the IMF interaction term are negative and significant for the full sample and greater than unity in all instances. Estimation results obtained in the sub-sample cases are consistent with those obtained for the full sample. However, the estimated coefficients for the 'most corrupt' sub-sample are less than unity, which suggests that in this sub-sample, the rate of

increase of economic services spending is lower than the rate of cuts in the total budget-to-GDP ratio, implying that these expenditures are resilient in IMF-supported countries for this period. In contrast, the estimated coefficients for the 'less corrupt' sub-sample are found to be greater than unity, which suggests that these expenditures are not resilient in cases where IMF programmes are implemented.

9.3 Summary

The results show that all the estimated coefficients of the corruption control index are negative and statistically insignificant, which suggests that countries that are corrupt tend to allocate a larger share of their budgets to economic services. However, these results are not conclusive. When the countries are divided into 'most corrupt' and 'less corrupt' sub-samples, the estimated coefficients are largely consistent with those obtained for the full sample. For the 'most corrupt' sub-sample the coefficients are negative and largely significant as expected. All these results, therefore, are not conclusive with regard to the role of corruption in budget allocation to economic services.

As expected, countries that are politically stable tend to allocate a higher share of their budgets to the economic services sector. The estimated coefficients of the voice and accountability index show mixed signs. This index appears to be insignificant in explaining economic services spending in the 'less corrupt' sub-sample, but is positive and significant for all cases in the 'most corrupt' sub-sample, which implies that the role of voice and accountability is more important in the budget allocation of more corrupt countries than in less corrupt ones.

The estimated coefficients of population density are negative and significant at the conventional levels of testing. These results are replicated in the sub-samples, where the estimated coefficients have mixed signs. Also, the estimated coefficients of the urbanisation rate have mixed signs and are insignificant in all

the estimations for the full sample. However, in the 'most corrupt' sub-sample estimations, they are positive and largely significant, while in the 'less corrupt' sub-sample they are negative and significant in most cases. Also, the estimated coefficients of population size are positively related to economic services, although they are not statistically significant at the conventional levels of testing.

The coefficients of level of development, which is proxied by the level of income per capita, are positive and significant at the conventional levels of testing in most of the estimations. The size of government is significant at 1% level and positive in all the estimations.

The role of the IMF variable in the allocation of the budget share to economic services was also tested. In those cases where the dependent variable is expressed as a share of the total public budget, the estimated coefficients are positive and significant at the conventional levels of testing. However, in those cases where the dependent variable is expressed as a share of the GDP, most of the estimated coefficients have unexpected signs and are insignificant. These results, therefore, suggest that the IMF programmes plays an important role in tilting the budget towards the economic services sector. The estimated coefficients of the interaction term are negative and significant at the conventional levels of testing. The coefficients of the public debt variable are positive and significant at the conventional levels of testing.