

RESEARCH NOTE

THE IMPACT OF AID ON BUREAUCRATIC QUALITY: DOES THE MODE OF DELIVERY MATTER?[†]

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Abstract: We show that the impact of foreign aid on bureaucratic quality in recipient countries varies with the mode of delivery. Specifically, grants are found to impair the functioning of the bureaucracy, whereas loans are not. The negative impact of grants is larger when they are given as budget support rather than as assistance for specific projects or for programmes in general. Our results thus suggest that the probability of adverse effects rises with the degree of discretion recipients have over the incoming resources, which is in conflict with donors' recent emphasis on strengthening local ownership by limiting the conditions attached to foreign aid. Copyright © 2010 John Wiley & Sons, Ltd.

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1 INTRODUCTION

The goal of supporting institutional change and good governance practices in developing countries has led donors towards concentrating their aid in the form of direct financial support to local bureaucracies (e.g. de Renzio, 2006). This type of foreign aid has indeed the potential to raise bureaucratic quality, as it can release governments of binding revenue constraints, enabling them for instance to pay higher salaries to civil servants. Yet, a variety of factors associated with the aid process itself, such as a tendency of donors to impose their own notions of governance on recipients rather than taking local perceptions of the legitimacy of political institutions into account (OECD, 2010), or the donor fragmentation and the related 'poaching' of local staff caused by the presence of multiple donor agencies

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and development agendas (e.g. Acharya *et al.*, 2006) can become serious obstacles to an effective establishment of better local bureaucracies.

Empirically, only a small number of studies have analysed development aid's impact on the quality of local bureaucracies. For a sample of 34 African countries, Bräutigam and Knack (2004) find that high levels of aid are associated with declines in the overall quality of governance. Covering a broader cross-section of aid recipients, Knack and Rahman (2007) identify a negative effect of donor fragmentation on bureaucratic quality. On the positive side, a panel data analysis by Tavares (2003) shows aid to lower corruption.

In this paper we present an empirical assessment of the effects of aid on bureaucratic quality across countries, aiming to contribute to the literature in two dimensions. Conceptually, our paper is the first to capture a salient characteristic of development aid in recent years, namely that donors have started to disburse it with increasing degrees of discretion in the use of funds, which to a large extent corresponds to the aim of giving more substance to the idea of 'aid ownership' in recipient countries (see e.g. DFID, 2005). Empirically, we overcome an important drawback of the existing literature by focusing on disaggregated flows of aid rather than on a single aid aggregate. This explicitly takes into account that some forms of aid are more likely to affect governance than others. Our basic hypothesis is that aid with few restrictions imposed on recipients runs a higher risk of adversely affecting local bureaucracies.

The remainder of the paper is organised as follows. The data and estimation method are discussed in Section II. Section III presents the results. The paper closes with some concluding remarks.

2 DATA AND METHOD

Our dependent variable is the average level of bureaucratic quality. We take as a proxy the corresponding index from the PRS Group's International Country Risk Guide (ICRG).¹ This index is intended to measure institutional strength and the extent to which the bureaucracy tends to minimise revisions of policy when governments change. It gives countries a score ranging from 0 to 4 according to the overall level of bureaucratic quality, as perceived by the population, and measured by a number of independent surveys.

Aid data are taken from the OECD's Creditor Reporting System (CRS). The data refer to actual aid disbursements. Disbursements are to be preferred over aid commitments as the behaviour of recipients is more likely to respond to actual transfers of resources rather than to donors' promises. We distinguish between programme and project aid, based on the OECD's Development Assistance Committee (DAC) sector codes for aid allocation. *Programme aid* consists of funds for 'general budget support', 'developmental food aid', 'other commodity assistance' and 'action related to debt'. *Project aid* comprises investments in social and economic infrastructure, as well as aid to production sectors such as agriculture.

Our analysis covers the years 1995–2005, which coincides with the period in which donors started to increasingly emphasise the crucial importance of ownership and the quality of governance for development, and the period for which we have access to data on disaggregated aid disbursements from the OECD.

Our basic econometric specification is

$$\Delta \text{bureau}_{i,95-05} = \alpha + \beta_0 \text{bureau}_{i,95} + \beta_1 \overline{\text{aid}}_{i,95-05}^{t,p} + \varepsilon_i, \quad (1)$$

¹Available at <https://www.prsgroup.com/ICRG.aspx>

where $\Delta \text{bureau}_{i,95-05} = \text{bureau}_{i,05} - \text{bureau}_{i,95}$ is the change in the level of bureaucratic quality in country i over the period 1995–2005, $\text{bureau}_{i,95}$ is the initial level of bureaucratic quality, $\overline{\text{aid}}_{i,95-05}^{t,p}$ is the average level of type t aid received for purpose p , where $t \in \{\text{grants, loans}\}$, and $p \in \{\text{project aid, programme aid, budget support}\}$; and ε_i is a zero-mean error term.

This specification reduces to an important extent problems related to omitted variables, since including $\text{bureau}_{i,95}$ as a regressor helps to control for a potentially large set of historical slow moving factors explaining differences in the level of bureaucratic quality across countries (like the degree of ethnic fractionalisation, or the endowment of natural resources, as examples); and factors such as unobservable dimensions of culture which might be difficult to account for directly. Controlling for $\text{bureau}_{i,95}$ also helps to account for the fact that the variation in average levels of bureaucratic quality across countries depends to a large extent on idiosyncratic initial conditions. Indeed, for the case of total aid, various proxies for institutions, resource endowments, religion, ethno-linguistic fractionalisation and geographical location turn out to be insignificant when introduced jointly with $\text{bureau}_{i,95}$ (results not shown in the paper, but available on request).

We extend Equation (1) to include $\mathbf{X}_{i,95-05}$, a vector of time varying covariates of bureaucratic quality, to reduce the number of potentially confounding factors and help in the identification of β_1 :

$$\Delta \text{bureau}_{i,95-05} = \alpha + \beta_0 \text{bureau}_{i,95} + \beta_1 \overline{\text{aid}}_{i,95-05}^{t,p} + \beta_2' \mathbf{X}_{i,95-05} + \varepsilon_i. \quad (2)$$

In our preferred specification, $\mathbf{X}_{i,95-05}$ is represented by the initial level of real GDP per capita. Other regressors suggested in the literature, such as the number of conflicts the government is involved in (Bräutigam and Knack, 2004) and the initial level of human capital (proxied by enrolment in tertiary education), are not found to have an independent impact on bureaucratic quality.

In estimating Equation (2), an OLS regression may not allow us to identify β_1 as the impact of aid on bureaucratic quality, since causality between aid and bureaucratic quality can run in both directions (see, e.g. Alesina and Weder, 2002, who argue that more corrupt countries receive more aid). To account for this, we estimate Equation (2) in a 2SLS framework, using the level of population in 1995 and the level of mortality for children under 5 in 1995 as instruments for the aid variable.

Population size is a promising instrument for aid. As Easterly (2009) notes, ‘there is an exogenous small country bias in aid such that smaller countries get higher aid per capita and higher aid as a ratio to their income’ (p. 388). And Knack and Azfar (2003) show that the relationship between country size and the quality of governance is theoretically ambiguous and empirically weak. Therefore, our choice of initial population size as an instrument for aid appears to satisfy the conceptual requirements of relevance and validity.

We supplement population size in the set of instruments with the rate of mortality for children under 5 years, for various reasons. First, population size might not capture entirely the idea of allocating aid according to recipients’ current needs; infant mortality is a clear indicator of need, supporting its relevance as an instrument for aid. Second, in a study on the link between governance and development performance, Campos and Nugent (1999) show that bureaucratic quality has no direct effect on infant mortality rates across countries. This supports the exclusion restriction for infant mortality and its use as a valid instrument. Third, if population size and infant mortality are valid instruments, and uncorrelated among themselves (the correlation in the sample is only 1.5 per cent), then

any linear combination of them is valid as well, and in general more efficient than using any of them separately.²

As shown in the next section, this pair of instruments passes the standard tests of strength and validity in all cases, except when the aid variable refers to loans, where we can statistically not reject that instruments are weak. We find that infant mortality is a particularly weak instrument for loans. This is perhaps not very surprising though, as loans tend to be given to richer developing countries, where infant mortality arguably is no longer among the most pressing concerns.³ We use then initial levels of loan commitments as alternative instruments for loan disbursements. Loan commitments are highly correlated with loan disbursements (see e.g. Clemens *et al.*, 2004), and should not affect the level of bureaucratic quality directly if sufficient time has passed since commitments were made. Finally, since the 2SLS estimates do not allow for correct inference on the coefficients when the instruments are weak, we additionally rely on Moreira's (2003) test for the significance of weakly identified coefficients.⁴

3 RESULTS

Table 1 presents the 2SLS regression results for the preferred specification, which includes aid as the explanatory variable of interest, and the levels of initial bureaucratic quality and initial GDP per capita as controls. Aid is instrumented with initial infant mortality and initial population. The first stage regression in this case reflects well the main findings of the aid allocation literature (e.g. Berthélemy, 2006). That is, it explains the level of aid received by a country with the initial level of population (and the results reflect donors' tendency to give more aid in absolute terms to countries with smaller populations, or the 'small country bias'); the initial level of infant mortality (representing an important specific need of the recipient country), and the initial level of GDP per capita (which captures the idea that donors prefer to give more resources to poorer countries).⁵

Our control variables are significantly associated with average bureaucratic quality over the period under consideration, with a few exceptions where the coefficient of GDP per capita becomes insignificant.

As concerns aid, our variable of interest, a clear pattern emerges. First, the effects are statistically significant and negative for total levels of aid and for the part of them being only grants, but not for loans. Second, the impacts of total aid and grants are larger (more negative) when the funds are meant to support the fiscal budget rather than to finance specific projects or more general programmes. If we associate grants and aid for general programmes with potentially higher degrees of flexibility in the use of funds, our results suggest that the probability of adverse effects from aid varies positively with the degree of discretion that recipients have over the incoming resources. Third, the impact of loans on bureaucratic quality turns out to be insignificant or weakly significant except for budget support.

²Using both instruments also allows us to test for an over-identifying restriction, which provides additional useful information to assess the instrumentation strategy's overall validity.

³Other indicators of need, such as the share of paved roads equally fail to produce strong and valid instruments.

⁴Moreira's (2003) test is valid only under the hypothesis that errors are homoskedastic. We test this hypothesis, and we cannot reject it in any of our regressions.

⁵None of the standard indicators of donor interest, such as former colonial status or religious affinity, qualified as a potential instrument as none was found to be a significant determinant of aid allocation. This may reflect the fact that we include aid given by multilateral agencies, which according to previous studies is unaffected by conventional donor interest variables (e.g., Nunnenkamp and Thiele, 2006).

Table 1. Disaggregated aid and bureaucratic quality (2SLS)

Dependent variable: Δ Bureaucratic quality	1995–2005	1	2	3	4	5	6	7	8	9	10	11	12
Bureaucratic quality 1995		-0.819*** [0.106]	-0.482*** [0.220]	-0.818*** [0.105]	-0.789*** [0.111]	-0.469*** [0.155]	-0.807*** [0.110]	-0.778*** [0.107]	-0.703*** [0.116]	-0.815*** [0.121]	-0.743*** [0.0936]	-0.378* [0.199]	-0.777*** [0.105]
Real GDP, per capita 1995		0.0285** [0.0136]	0.0855* [0.0459]	0.0320** [0.0133]	0.0172 [0.0153]	-0.0237 [0.0372]	0.0244* [0.0141]	0.0268* [0.0141]	0.0146 [0.0236]	0.0278* [0.0145]	0.0290** [0.0138]	0.00292 [0.0221]	0.0307** [0.0138]
Aid/GDP, 1995–2005		-0.101*** [0.0284]											
Loans			0.84 [1.186]										
Grants				-0.0993*** [0.0275]									
Project aid/GDP, 1995–2005					-0.275*** [0.0878]								
Loans						-3.338* [1.913]							
Grants							-0.261*** [0.0808]						
Programme aid/GDP, 1995–2005								-0.219*** [0.0700]					
Loans									-2.87 [1.853]				
Grants										-0.211*** [0.0746]			
Budget Support/GDP, 1995–2005													
Loans													
Grants												-12.74** [5.991]	-0.863*** [0.267]

(Continues)

Table 1. (Continued)

Dependent variable: Δ Bureaucratic quality 1995–2005	1	2	3	4	5	6	7	8	9	10	11	12
Constant	1.640*** [0.292]	-0.211 [1.258]	1.574*** [0.274]	1.774*** [0.348]	1.760*** [0.573]	1.690*** [0.315]	1.559*** [0.307]	1.622*** [0.386]	1.630*** [0.356]	1.435*** [0.232]	1.105*** [0.349]	1.479*** [0.257]
Observations	100	100	100	100	100	100	100	100	100	100	100	100
R-squared, first stage	0.374	0.00611	0.414	0.272	0.0157	0.328	0.182	0.0544	0.138	0.303	0.0353	0.303
F statistic, first stage	11.87	4.837	12.44	10.48	3.068	11.35	11.675	3.738	9.649	10.25	2.728	10.1
Hansen's J overid test (p value)	0.596	0.0555	0.514	0.867	0.102	0.924	0.639	0.862	0.556	0.685	0.328	0.62

Notes: Robust standard errors in brackets. ***, ** and * denote significance at 1, 5 and 10 per cent level, respectively. Aid variables instrumented by population in 1995 and under 5 mortality rate 1995.

Table 2. Loans and bureaucratic quality, 2SLS

Dependent Variable: Δ Bureaucratic quality 1995–2005	1	2	3	4
Bureaucratic quality 1995	−0.724*** [0.130]	−0.624*** [0.101]	−0.673*** [0.102]	−0.594*** [0.0938]
Real GDP, per capita 1995	0.0399** [0.0190]	0.0426* [0.0225]	0.0357* [0.0195]	0.0426*** [0.0141]
All Aid Loans/GDP, 1995–2005	−0.384 [0.313]			
Project aid loans/GDP, 1995–2005		−0.454 [0.818]		
Programme aid loans/GDP, 1995–2005			−1.286 [1.026]	
Budget Support loans/GDP, 1995–2005				−2.585 [2.022]
Constant	1.248*** [0.425]	0.927*** [0.289]	1.167*** [0.349]	0.861*** [0.163]
Observations	101	101	101	101
R-squared, first stage	0.13	0.138	0.07	0.0981
F statistic, first stage	14.44	11.85	10.96	32.8
p-value for Moreira (2003) CLR test	0.102	0.563	0.145	0.216
Confidence set for Moreira (2003) CLR test		[−2.509, 0.00199]	[−3.237, 1.001]	[−9.185, 0.201]
			[−6.896, 1.036]	

Notes: Robust standard errors in brackets. ***, ** and * denote significance at 1, 5 and 10 per cent level, respectively. Aid disbursements instrumented by initial aid commitments for each loan category.

In all cases related to total aid aggregates and grants, the instruments we rely on appear to be valid, as can be interpreted from high p values for the Hansen's J -test of over-identification; and fairly strong, since our first-stage F -statistics exceed the rule-of-thumb threshold of 10. Inference about statistical significance in the case of loans regressions is limited by the presence of weak instruments. Hence, in Table 2 we introduce initial loan commitments as an alternative instrument for disbursed loans. These instruments appear to be markedly stronger than the ones used before. The corresponding 2SLS regressions yield an estimate statistically not different from zero, even if loans are given as general budget support. This is corroborated by Moreira's (2003) test, which allows for robust inference in the presence of weak instruments, since in all cases the confidence intervals for the coefficient of interest contain the value zero.

4 CONCLUDING REMARKS

This paper analyses the impact of different forms of aid on bureaucratic quality in recipient countries. The main finding is that grants appear to impair the functioning of the local bureaucracy, whereas loans do not. In a similar vein, when investigating tax collection effort, another important dimension of governance, Gupta *et al.* (2004) find that grants have a significant negative effect on government revenue, while loans have a significant positive effect. Taken together, these results qualify the predominant view (e.g. Lerrick and Meltzer, 2002; Radelet, 2005) that grants are superior to loans as a mode of delivering aid to poor countries.

Interestingly, grants are found to exhibit the strongest negative effect on bureaucratic quality when they take the form of budget support. Our analysis thus suggests a note of

caution against routinely providing aid for budget support in the name of ownership without carefully considering how this affects local governance.

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