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Budget Support, Project Aid, and Government Accountability

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Abstract

The basic model of government accountability is modified to study how the different aid modalities (project aid vs. general budget support) affect accountability. The basic model is biased against the budget aid. But after modelling the suboptimal allocation of project aid to different uses, the costs of coordination of project aid, and possibilities to corruption associated also with project aid, it is shown that the budget support can outperform project aid. Budget support also improves incentives of citizens to demand accountability from the government, project aid worsen the incentives. Accountability to citizens and local ownership of aid are thus linked and affected by the aid modality. The relative benefits of budget support are largest in the case where the government is extremely corrupted.

JEL Classification: O11, O19, O20, H50, H61

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1 Introduction

The perceived inefficiency of traditional development aid, given mainly as project aid¹, has given rise to extensive (heated) discussion (Burnside and Dollar, Easterly, Hansen and Tarp, see Roodman (2007) for a review, Banerjee (2008), Easterly (ed) 2008, Miguel (2009), Moyo (2009), etc.. It has also led to many changes in aid policies. The most remarkable change has been the increased weight given to general budget support (GBS) and programme aid², in general, in many donors' aid budgets. As a consequence, the share of project aid has fallen. E.g. the British aid agency DFID and the Nordic aid agencies have increased the share of budget support considerably.

Mozambique and Tanzania are among the largest recipients of general budget support (GBS) and programme aid. In 2005 the share of GBS given to Tanzania was 40 % of total aid, while in Kenya the share was 10 % (Mokoro 2008a). In Mozambique the share of GBS in total aid has risen from 2,7 % in 2000 (Batley et. al. 2005) to 38 % in 2008 (Castel-Branco et. al. 2009). Naturally, this means that the share of GBS in total central government expenditure in recipient countries has also risen, in Mozambique from 2,7 per cent in 2000 to 16,3 per cent in 2004 and has grown since then, in 2008 the share of GBS received by the Mozambican government as a share of **total** government expenditure was 18,6 per cent (the share on non-budget grants was 24 per cent, but non-budget grants possibly include items other than GBS).³

Aid has been criticized for making recipient governments accountable to donors relieving them from accountability to their own citizens. This paper studies theoretically the implications of the change in aid modality for citizens' welfare through its impact on government accountability to them. Among the many reasons behind the change in aid modality is the aim of improving aid effectiveness by improving local ownership of policies. Besides providing a conceptual basis for characterizing the ownership, the paper shows that the benefits of ownership are connected to the political accountability. Different aid modalities are related to different degrees of accountability and ownership, but the relationship is not straightforward. Empirically accountability seems to matter a lot. Chauvet and Collier (2009) have shown that in developing countries higher frequency of elections is conducive to better policies and governance. One of the points of the paper is that different aid modalities have different implications for the demand for accountability by the citizens. In a way the paper shows that the concerns e.g. Moyo raises against foreign aid may be more relevant for the project aid than for the aid given as a budget support.

¹One should remember, though, that various types of aid have tried before, including budget support to be studied here.

²Programme aid consists of GBS, sector aid programmes and balance of payments support.

³The data for government expenditure in meticals comes from Bank of Mozambique Statistics on State Budget, <http://www.bancomoc.mz/index.php>, data on GBS in USD from the PAP evaluation 2008 (Castel-Branco et. al. 2008). I have used 27 meticals/USD as the exchange rate, the World Development Indicators database did not contain the average exchange rate for the year 2008, in 2007 it was 26 meticals/USD, right now (August 31, 2009) it is 27,25.

The shifts in aid modality have been accompanied by changes also in the aid agencies. The cooperation between donors, especially those giving GBS, has increased. In Mozambique they have established Program Aid Partnership (PAP) (see <http://www.pap.org.mz/>) to ease the dialogue between the Government of Mozambique and donors, in other countries cooperation between donors has also increased though it has not been formalized. PAP also prepares studies on the performance of both the government (e.g. in the form of PEFA (public expenditure and financial accountability) reports) and the donors in the form of PAF (programme aid performance assessment framework). In addition, donors have established a joint database on the disbursed aid, ODAmoz (<http://www.odamoz.org.mz/reports/indexsub.asp>). This improves information on aid by both the donors and recipients. Without knowing the total amounts of aid and their allocation the recipient governments' ability to make budget plans is seriously impaired. In addition, project aid, which has been largely off-budget in the past (e.g. Batley et.al. 2006, Mokoro (2008a)) and still is in many countries, gives rise to unpredictable demands for budget funding (e.g. when donors stop funding for hospitals with the expectation that they will be taken over by the government). At the same time, individual donors cannot make proper plans for the allocation of their own aid budget if they do not know what other donors are doing. The model presented here captures some of these differences in aid modalities.

The switch to GBS has been criticized heavily. Some of the criticism comes from aid organizations and NGO's whose budgets have been cut because of reduction of project aid. Some of the criticism comes from donor politicians who see GBS opening the door to corruption grand scale, as GBS, at least seemingly⁴, hands over the power to allocate aid to recipient country governments. These doubts are certainly well founded and they have raised concern also among donors. One way to understand how e.g. PAP works is to see donors being concerned with corruption. The experience from countries receiving GBS seems not to be that bad. Tanzania's score in Transparency International's Corruption Perception Index (the higher the number the less corruption there is) was 1.7 in 1998 and 3.0 in 2008. Mozambique's score was 3.5. in 1999 and 2.6. in 2008, but the 1999 number, the first available, seems to be odd, as already in 2000 the score was 2.2 (<http://www.transparency.org/>). Both countries began to receive GBS in early 2000's. During the last 9 years both countries have become less corrupted despite the increase in the relative importance of GBS. And corruption goes with project aid also. It has led to an increase in the wages of local skilled people putting upward pressure on public sector wages and creating all kinds of demands for perks by officials which reduce the efficiency of the public sector (e.g. Wangwe 2006). This is taken into account in the paper.

In the model the degree of corruption is endogenous and depends on the aid modality, among other things. I study corruption as game of accountability between the recipient government and citizens of the recipient country. In this

⁴GBS is supposed to give full ownership of aid to the recipient government. In practice this has not been achieved (e.g. Castel-Branco 2009) even though the local ownership has increased.

it differs from Amegashie et. al (2007) and Cordella and Dell’Aricchia (2006) which study the choice of aid modality as a game between the donor and the government. Also, I do not contrast conditional budget aid with unconditional, like both of these papers do. As Svensson (2003) has argued, conditionality in aid delivery has failed, it is not ex post credible. In addition, recipient countries are sovereign states on which it is hard to impose conditionality. In my model project aid is conditional in the sense that its use is completely determined by the donors while the use of GBS is completely in hands of the recipient government. I take the donor behavior to be exogenous. In this sense my model complements Amegashie et. al. and Cordella et. al. studies. The focus on the impacts of aid on recipient government accountability to its citizens allows me to bring up issues like local ownership and differences in ownership associated with different aid modalities.

Another strand of literature this paper builds on is the research on aid and the recipient government effort to improve local tax collection. There is quite a bit of evidence of a negative relationship between aid and local tax revenue (Moss, Pettersson and van de Walle 2008 provides a survey). In the model of this paper the incentives for local tax collection depend on the aid modality, even though all forms of aid tend to reduce local taxation.

I will use the standard model of accountability developed by Barro (1973), Ferejohn (1986), and Persson, Roland, and Tabellini (1997). The particular version I am using is presented by Treisman (2008, ch. 7). These models are extreme in the sense that they see political decision makers as only rent seekers. Citizens can control their actions only indirectly, through elections if the country is democracy or through various actions from demonstrations to coups in case the country is not a democracy. In their basic versions these models are heavily biased against budget support, but the major point here is to claim that even with small modifications the choice between aid modalities becomes non-trivial. Focusing on the relationship between government accountability and aid allows one also to sidestep the criticism levied by Castel-Branco (2008) on models of the principal (donor) - agent (recipient) as a proper way for understanding local ownership. The standard model of accountability is also a model of internal rivalry over allocation of resources.

2 The basic model

2.1 A simple model of accountability

Consider an economy where all citizens are identical. They derive utility from the consumption of a public good and a private good. The public good is financed by taxes. The periodic utility function of a citizen is

$$U = u(g) + (1 - t) f(e) - c(e)$$

where $u(g)$ = utility derived from the consumption of the public good, $f(e)$ = production of the private good, e = effort used in production with $c(e)$ =

cost of effort and $f(0) = 0$. The paper utilizes two specifications of the utility function, the basic one (version α) adapted directly from Treisman (2008, ch. 7, Appendix), and another version (version β) to check the robustness of some of the conclusions. In the basic version the utility function is the following

$$\begin{aligned} u' &> 0, u'' < 0, u'(0) = \infty \\ e = \underline{e} > 0, 0 \leq t \leq t^M \\ e = 0, t > t^M \end{aligned} \tag{1}$$

t^M = threshold level tax rate: if the tax rate is higher than the threshold level effort and private production cease, below the threshold level effort (and private output) is constant. This model captures the case where production does not react much to taxes unless taxes are very high. The specification also implies that there is a Laffer-curve, with high enough taxes tax revenues fall. Denote $\underline{y} \equiv f(\underline{e})$, the cost of providing this effort is $c(\underline{e}) = c(e)$ for all $0 < e \leq \underline{e}$, $c(0) = 0$. Naturally it is assumed that $(1 - t^M)\underline{y} - c(\underline{e}) > 0$. The tax revenue is $T(t) \equiv ty$ and the maximum tax revenue $T(t^M) \equiv t^M \underline{y}$.

In the $\bar{\beta}$ -version the utility, production and effort cost functions have the following properties

$$\begin{aligned} u' &> 0, u'' < 0, u'(0) = \infty \\ f' &> 0, f'' < 0, f'(0) = \infty \\ c', c'' &> 0, c(\infty) = \infty \end{aligned}$$

There are two types of actors in the society: citizens and decision makers. There is a continuum of citizens and one of them is chosen (e.g. voted) at the beginning of period to be the political leader. After being chosen she⁵ will make decisions on taxes and provision of the public good. After taxes have been determined the citizens choose the level of effort by maximizing the periodic utility. This gives

$$e = e(t), e' < 0$$

I assume that the tax revenue has the Laffer-curve property, i.e. there exists a tax rate t^M such that

$$\begin{aligned} T(t^M) &\geq T(t) : \forall 0 \leq t \leq 1 \\ T' &> 0 : 0 \leq t < t^M \\ T &< 0 : t^M < t \leq 1 \\ T(t) &\equiv tf(e(t)) \end{aligned}$$

Obviously, for a given level of supply of the public good the periodic utility is decreasing in the tax rate.

The intertemporal welfare of a citizen is

$$W^c = \sum_{\tau} \delta^{\tau} U_{\tau}$$

⁵I tossed a coin to select the gender of the political leader.

where $\delta =$ subjective discount factor, $0 \leq \delta \leq 1$.

If a citizen is elected as a political leader she becomes right away corrupted and concerned only with maximization of her private consumption. Her intertemporal welfare is thus

$$W^l = \sum_{\tau} \delta^{\tau} c_{\tau}^l$$

where $c^l =$ consumption of the private good by the leader. Without constraints the leader would always set the tax rate to maximize the tax revenue and use all of it for her private consumption, public good would not be provided at all. But she is accountable one way or another to her fellow citizens who have the option of not choosing her as the political leader next period. Assuming that if a citizen is once ousted from the office she has no possibility of returning to power, the leader chooses the policies to maximize (in any period)

$$W_{\tau}^l = c_{\tau}^l + p_{\tau} \delta W_{\tau+1}^l$$

where $p_{\tau} =$ probability of re-election at the end of period τ . Assuming that citizens have full information on government actions and that they base their actions on the welfare the government has delivered them in the current period, it is straightforward to show that their optimal strategy (if they can coordinate on the same action) is to choose the minimum level of periodic utility \underline{U} they request from the leader to allow her to continue in office:

$$\begin{aligned} p_{\tau} &= 1 : U_{\tau} \geq \underline{U} \\ p_{\tau} &= 0 : U_{\tau} < \underline{U} \end{aligned}$$

The point is now to understand how different aid modalities affect this threshold level of utility: the higher it is the more accountable the government is. To understand the logic of determination of the threshold utility. The leader always has the option of extracting the highest level of rent in the period she is first elected to office. If she does that she is thrown out of office for sure and her welfare is

$$W^l = T(t^M)$$

This is the level of welfare she has to be provided with if she is to be made to choose some other policy. The government budget constraint is (assuming that one unit of the private good is needed to produce one unit of the public good)

$$c^l + g = T(t)$$

Thus, any policy (t, g) satisfying (since the society is stationary with the exception of the potential change of the leader)

$$\begin{aligned} W^l(c^l) &\equiv \frac{c^l}{1-\delta} \geq T(t^M) \Leftrightarrow \\ c^l &\geq (1-\delta) T(t^M) \end{aligned} \quad (2)$$

will (partially) discipline the leader. The citizens naturally want to achieve the highest possible welfare. The welfare with (some) discipline in the government is obviously higher than when the government is ill-disciplined. Thus, the citizens' optimal action is to set the threshold level of utility \underline{U} as high as possible but still keeping the government interested in re-election. Thus, (3) has to hold as an equality:²

$$c^l = (1 - \delta) T(t^M) \quad (3)$$

If the leader is very far-sighted (δ is close to unity) then the possibility to change the leader achieves perfect accountability. With imperfect accountability the policies are chosen to maximize

$$U = u(g) + (1 - t)\underline{y} - c(\underline{e})$$

subject to

$$\begin{aligned} c^l &= (1 - \delta) T(t^M) \\ c^l + g &= T(t) \end{aligned} \quad (4)$$

These are the policies the citizens know they can require and still keep the government (relatively) disciplined, this is what accountability means. Thus, the solution gives \underline{U} . Substitution of these into the citizen's periodic utility gives

$$\begin{aligned} U &= u(g) + \underline{y} - c(\underline{e}) - T(t) = \\ &u(g) + \underline{y} - c(\underline{e}) - (1 - \delta) T(t^M) - g \end{aligned} \quad (5)$$

This is maximized for a level of public good supply satisfying

$$\begin{aligned} u'(g) &= 1 \Leftrightarrow \\ g &= u'^{-1}(1) \equiv g^o \end{aligned} \quad (6)$$

This is the optimal policy chosen by the leader if there exists a tax rate $t \leq t^M$ such that

$$T(t) = (1 - \delta) T(t^M) + g^o \leq T(t^M) \quad (7)$$

or

$$t = \frac{(1 - \delta) t^M \underline{y} + g^o}{\underline{y}} \leq t^M \quad (8)$$

If not, then the optimal policy is to set $t = t^M$ and set the supply of public goods so that the accountability of the political leader is still achieved

$$g = T(t^M) - (1 - \delta) T(t^M) = \delta T(t^M) \quad (9)$$

I call this case as the case of an **extremely corrupted government**. The government so corrupted that in its greed it sets the highest possible tax rate to grab funds, it is **funding constrained**. Note that this type of a "credit

constraint" holds the more likely to less far-sighted the leader is (the higher the rents she requires to behave) and the higher the marginal utility of public goods is.

In the β -version the government is never funding constrained in the sense above. The optimal tax rate maximizes

$$u(T(t) - (1 - \delta)T(t^M)) + (1 - t)f(e(t)) - c(e(t))$$

The optimal tax rate (I assume 2nd order conditions to hold) is given, using the envelope theorem, by the equation

$$\begin{aligned} u'(g)T' - f(e(t)) &= 0 \Leftrightarrow \\ u'(g) &= \frac{f(e(t))}{T'} = \frac{f(e(t))}{f(e(t)) + tf'e'} > 1 \end{aligned} \quad (10)$$

Taxation creates now a deadweight loss constraining the supply of the public good.

2.2 Accountability with project aid

Assume now that the society receives foreign aid in the form of project aid. Since much of this aid is in the form of building hospitals and schools one can model the project aid as provision of public goods financed by funds not in the government budget. Let the total aid be A . Then the citizen's periodic utility is

$$u(A + g) + (1 - t)\underline{y} - c(\underline{e})$$

The leader's accountability constraint is still given by (3). Thus, the citizen's welfare is given by (in analogy with (5) using (4)):

$$u(A + g) + \underline{y} - c(\underline{e}) - (1 - \delta)T(t^M) - g$$

Assuming that $A < g^o$ the optimal supply of public good by the leader satisfies

$$\begin{aligned} u'(A + g) &= 1 \Leftrightarrow \\ g^{PA} &= g^o - A \end{aligned} \quad (11)$$

where g^o is given by (6). Thus, the government budget constraint is now

$$\begin{aligned} c^l + g^{PA} &= T(t) \Leftrightarrow \\ c^l &= T(t) - g^o + A \end{aligned}$$

For this to be a feasible policy, there must exist a $t \leq t^M$ such that

$$\begin{aligned} T(t) &= c^l + g^{PA} \Leftrightarrow \\ t &= \frac{(1 - \delta)t^M \underline{y} + g^o - A}{\underline{y}} \end{aligned} \quad (12)$$

With this the citizen's periodic welfare is now

$$\underline{U} = u(g^o) + \underline{y} - c(\underline{e}) - (1 - \delta) T(t^M) - g^o + A \quad (13)$$

Comparing (7) and (12) with each other one sees that project aid (in this form) increases political accountability. First, it makes possible to satisfy the leader's accountability constraint with a smaller tax rate: less tax revenue is needed to cover the optimal supply of public good. Or to put it other way, project aid makes it more likely that the optimal level of public good can be provided. The lower tax rate directly increases citizen's welfare. Secondly, project aid increases directly the citizen's welfare as less of tax revenue needs to be allocated to the supply of the public good. This means that aid is in effect a direct income transfer to the citizen: aid does not have any effect on the accountability constraint with the implication that less of tax revenue has to be given as a transfer to the leader. Finally, aid does not have any direct impact on the supply of the public good.

These positive effects derive from the implicit assumption that aid is **perfectly fungible**: even when given as direct project aid, which is off-budget, the government can change its budget allocations to reflect the aid allocation, with fungibility off-budget aid is in this sense on-budget, but the government cannot directly grab the aid. The positive impact of project aid is due to the fact that the only way the government can benefit from it is an indirect way, change its own policy. The empirical evidence on aid fungibility is that it is fungible but only partially. In this set-up aid is not fungible at all if (12) is not satisfied for any $t \leq t^M$. In this case the government is extremely corrupted and the public expenditure is given by (analogously to (9))

$$g = \delta t^M \underline{y} \quad (14)$$

implying the supply of the public good

$$A + \delta t^M \underline{y}$$

and the citizen's welfare

$$u(A + \delta t^M \underline{y}) + (1 - t^M) \underline{y} - c(\underline{e})$$

Aid increases public good supply one to one and improves welfare only through increasing the supply of the public good. As long as $A + \delta t^M \underline{y} < g^o$, $\frac{\partial U}{\partial A} > 1$. We study below the case when $A + \delta t^M \underline{y} \geq g^o$.

In the β -version the tax rate giving the optimal citizen's threshold welfare is obtained by maximizing

$$u(A + T(t) - (1 - \delta) T(t^M)) + (1 - t) f(e(t)) - c(e(t)) \quad (15)$$

with the first order condition:

$$u'(A + T(t) - (1 - \delta) T(t^M)) T'(t) - f(e(t)) = 0$$

Thus, part of the increase in aid is used to reduce tax rate, only part of it is used to reduce the supply of public good by the leader, thus aid is only partially fungible. Aid definitely increases the utility the citizens are able to reach and thus increases government accountability.

Thus, in this basic version project aid improves accountability, regardless of whether it is fungible or not. Finally, note also that both of the cases studied are consistent with the empirical observation that higher aid is associated with smaller government tax revenues. But this is not because aid directly reduces the incentives to collect local taxes but because aid allows citizens to make the government more accountable.

2.3 Accountability with general budget support

Assume next that aid is given as a transfer of funds directly to the government budget. In this case aid has a direct impact on the accountability constraint as now the leader can use the aid in addition to tax revenue for her private consumption: without re-election the highest level of welfare the leader can obtain for the single period she is in power is

$$W^l = T(t^M) + A$$

where A again is the aid received by the society. In this case aid is equivalent to a rent from some natural resource like diamonds. Thus, the accountability and government budget constraints are now⁶

$$\begin{aligned} c^l &= (1 - \delta) [T(t^M) + A] \\ c^l + g &= T(t) + A \end{aligned} \tag{16}$$

The citizen's periodic utility is now

$$u(g) + \underline{y} - c(\underline{e}) - (1 - \delta) [T(t^M) + A] - g$$

The public good supply maximizing this is clearly g^o if there again exists a tax rate smaller than the revenue maximizing rate such that the feasibility constraint

$$t = \frac{g^o + (1 - \delta) T(t^M) - \delta A}{\underline{y}} \tag{17}$$

is satisfied. Aid again makes it more likely that the optimal level of public good can be supplied with lower tax rate, but the effect is smaller than with project aid: direct budget support increases the rents the leaders can directly demand. Thus, only part of aid, determined by the discount factor, can be used to reduce taxes. In this case the citizen's welfare is

$$\underline{U} = u(g^o) + \underline{y} - c(\underline{e}) - (1 - \delta) T(t^M) - g^o + \delta A \tag{18}$$

⁶Note that I am here assuming aid to continue forever. The same assumption was implicitly made above. Clearly, dropping the assumption would make it more costly to citizens to provide incentives to leaders to behave.

with tax rate determined by the solution to (17). Increasing aid increases welfare and thus accountability but the impact of higher aid is smaller than with project aid as higher aid also increases the rents the political leaders are able to capture. The difference arises from the fact that budget support can be directly captured by the government while it can capture off-budget aid only indirectly.

In case the government is extremely corrupted the public good supply is given by

$$g = \delta [T(t^M) + A]$$

which, for the same total amount of aid, is smaller than with project aid. Again, switching aid from project aid to budget aid keeping the total amount of funds constant is welfare reducing, even though in both modalities welfare is higher with aid than without aid.

Since in the β -version welfare is determined by finding the tax rate maximizing

$$\begin{aligned} u(T(t) + A - (1 - \delta) [T(t^M) + A]) + (1 - t) f(e(t)) - c(e(t)) = & \quad (19) \\ u(T(t) + \delta A - (1 - \delta) T(t^M)) + (1 - t) f(e(t)) - c(e(t)) \end{aligned}$$

it is clear (comparing this to (15)) that welfare is also in this case lower with GBS than with project aid of the same size.

The standard model of accountability studied in this section, when extended to allow external inflow of aid to the society, predicts that aid given as budget support reduces political accountability relative to the accountability obtained with project aid.

3 Why budget support can outperform project aid?

The model of the previous section is heavily biased against general budget support. There was nothing corresponding to national ownership the lack of which is emphasized in the literature criticizing project aid, no coordination problems existed with the national supply and donor supply of the public goods, there was no corruption associated with the project aid, etc. In this section I will look at some of these effects. Finally, it is also shown that budget support gives better incentives to citizens to make government accountable than project aid. In fact it is shown that increasing project aid reduces these incentives and there is an upper bound for the incentives, while increasing budget support always increases the incentives.

3.1 Aid and ownership

National ownership is usually defined as national sovereignty in allocating resources. Project aid is quite often criticized for reducing ownership. Donors have been claimed e.g. to fund their own pet projects regardless of the local

needs. The model above is not suitable to study the ownership issue as there was no genuine issue of allocating tax revenue between various uses. To get to the ownership problem, assume that there are two public goods and assume that the citizen's periodic utility function with only national supplies of public goods is

$$U = u(g) + v(h) + (1 - t)\underline{y} - c(\underline{e})$$

The government budget constraints and the accountability constraints are changed accordingly.

3.1.1 Ownership and project aid

Consider first the ownership with project aid. Assume that the donor(s) have funded the production of A units of g and B units of h . Then the citizen's welfare is

$$u(A + g) + v(B + h) + (1 - t)\underline{y} - c(\underline{e})$$

The accountability constraint of the political leader is still given by (3). With it, if both of the public goods are undersupplied by donors, i.e.

$$u'(A), v'(B) > 1 \tag{20}$$

and the government is only mildly corrupted, i.e. faces **no funding constraint** then we are back in the same situation as above: aid is perfectly fungible, it crowds out fully local funding of the public goods but both public goods are optimally supplied. Aid reduces the tax rate and is partly transferred to the citizens as de facto lump sum transfer.

The situation may change if the government faces a funding constraint. Assume that the donor allocation of funds is both undersupplied and inefficiently allocated, e.g. wlog

$$u'(A) > v'(B) > 1$$

i.e. there is a larger need to expand the supply of g than h . The political leader would then use all of increased funding to expand the supply of g . If the feasibility constraint it faces is severe enough then even with national supply of public goods it still is the case that

$$u'(A + g) > v'(B) > 1 \tag{21}$$

and even the constrained efficiency in the supply of the public good is not achieved. The local supply of the public good is given by

$$g = \delta t^M \underline{y}$$

and welfare is given by

$$u(A + \delta t^M \underline{y}) + v(B) + (1 - t^M)\underline{y} - c(\underline{e})$$

Aid is again not fungible and aid improves welfare by helping the government to increase the supply of the most needed public good. But this holds only for

part of aid, aid given to provide the other public good increases the distortion in the allocation of funds to the production of the public goods.

With the β -version the optimal tax rate and allocation of public funds can be derived by maximizing

$$u(A + T(t) - (1 - \delta)T(t^M) - h) + v(B + h) + (1 - t)f(e(t)) - c(e(t)) \quad (22)$$

Clearly, if at the optimum

$$u'(A + T(t) - (1 - \delta)T(t^M)) > v'(B)$$

none of the local public funds will be allocated to the production of the good h . Interestingly, now part of aid, B , does not have any effect on the optimal tax rate, only the aid given to the supply of the public good provided more suboptimally has an effect⁷. The aid given to the supply of h , even though it increases welfare, does not improve accountability in a way at all as it has no effect on government policies. This is analogous to the case of GBS in the previous section, only a part of the aid has an impact on the accountability. But with overall undersupply of public goods project aid definitely improves ownership as it makes it possible to reallocate resources in a way that more closely is aligned with the citizens' preferences. Full alignment may not be possible, however.

An even more drastic case of loss of accountability is the one where donors have overfunded⁸ some of their pet projects. This case prevails when wlog

$$u'(A) > 1 > v'(B)$$

Below in the subsection dealing with corruption and project aid I present a model explaining how this type of a situation can arise. When this holds, perfect ownership cannot be achieved even when the government faces no funding constraint: the optimal policy would be to reduce the supply of h , but this is not in the hands of the national government. Aid allocated to the production of h does not have any other effect on citizens' welfare than directly through $v(B)$, the indirect effects through the government budget constraint and accountability constraint do not arise. Thus, in case of no government funding constraint the citizen's welfare is

$$u(g^o) + v(B) + \underline{y} - c(\underline{e}) - (1 - \delta)T(t^M) - g^o + A$$

where the tax rate satisfies the accountability constraint (12). Thus, only a part of the aid now is transferred back to citizens as reduced taxes. The first of these effects is analogous to the case with GBS in the previous section. Similar effects

⁷This result crucially depends on the assumption that public goods enter additively separately in the utility function.

⁸This is just a relative oversupply of a public good, relative to the circumstances prevailing in the society. Thus, donors, making decisions without information what other donors or the government are doing, may e.g. build schools or hospitals in a certain region in excess of current needs, etc.

are observed in case where the government faces the funding constraint. In fact this case is formally similar to the case where there is general undersupply of public goods and the government faces a tight funding constraint. Obviously, the β -version also produces analogous results.

3.1.2 Ownership and general budget support

Assume now that all aid is given as general budget support, denote the amount of aid by D . Then, if the government is mildly corrupted the situation is like in the previous section except for the fact that now a full optimality in the structure of public good provision is achieved: As can be easily shown, in this case the optimality condition

$$u'(g^o) = 1 = v'(h^o)$$

holds. Budget aid thus achieves full ownership. But the level of welfare can still be lower still than with project aid, unless the aid allocation is severely distorted.

With distorted project aid allocation GBS can outperform project aid even though it leads to larger rent extraction than project aid. This is both because with GBS the public expenditure allocation is at least constrained optimal, and taxes are reduced by the total amount of aid, since without the funding constraint the tax rate with GBS is

$$t = \frac{(1 - \delta) T(t^M) + g^o + h^o - \delta D}{\underline{y}}$$

If the government is extremely corrupted then the GBS achieves the constrained optimum

$$u'(g) = v'(h) > 1$$

GBS also prevents completely the oversupply of some public goods, as the government always has full incentives to allocate government expenditure efficiently given the accountability constraint and with GBS it has the possibility to do it. With a binding funding constraint the aggregate local public expenditure is given by

$$E = \delta [T(t^M) + D]$$

and its allocation is determined to maximize

$$u(\delta [T(t^M) + D] - h) + v(h) + (1 - t^M) \underline{y} - c(\underline{e})$$

with the (possibly constrained) optimum

$$u'(g) = v'(h)$$

With the β -version the effects are similar, GBS prevents the misallocation of the supply of public goods, as the tax rate and the allocation of public funds are given as the maximands of

$$u(T(t) + \delta D - (1 - \delta) T(t^M) - h) + v(h) + (1 - t) f(e(t)) - c(e(t)) \quad (23)$$

Compare (22) with (23): With GBS the full amount of aid always has an impact on the tax rate (reducing it) while with the project aid only a part of aid may have this effect. If $D = A + B$, then the welfare ranking of different aid modalities is not clear anymore. Budget support achieves full national ownership and the allocation of public expenditure always achieves at least constrained efficiency. Project aid may (but need not) fail to achieve any efficiency criterion in allocation. Thus, both ownership and accountability can be larger with GBS than with project aid.

3.2 Project aid and costs of coordination

Among the costs associated with project aid are the costs of coordination (e.g. Knack and Rahman 2008, Mokoro (2008a,b), Svensson 2008). Funds are wasted as numerous donors independently make decisions on the projects to be funded resulting in e.g. duplication of effort. At the same time there are costs of coordination between the donors and aid recipient governments. The government usually lacks information on the project aid and on individual projects. With pure GBS, if no project aid is given, these costs are avoided. In this subsection I study how the costs of coordination affect the implications of project aid on government accountability.

Let us return to the model with only one public good. Assume that the costs of supplying g units of the public good to the government are

$$J(g, A) = g + j(g, A), j_g, j_A > 0 \quad (24)$$

where $j(g, A)$ = costs of coordination. I assume that these costs are increasing in both g and A . The larger the number of projects donors fund the harder it is for the government to coordinate its actions with donor actions, and the more it wants to supply the public good on its own the harder the coordination problems again are. These costs can be interpreted as the total costs needed to provide an effective supply of g units of the public good. Similarly, let

$$\gamma(A), 0 < \gamma' \leq 1 \quad (25)$$

denote the effective supply of the public good by the donors. If $\gamma' < 1$, then there are costs of coordination. If the function is concave, then the inefficiency increases with the number of projects. For simplicity I ignore from (25) the government actions as affecting the inefficiency in donor actions.

Since the project aid does not directly enter the government budget the rents required by the leaders to behave well are again

$$c^l = (1 - \delta) T(t^M)$$

and the government budget constraint, including the accountability constraint, is (with (24))

$$c^l + J(g, A) = T(t)$$

Consider the case where the government is not funding constrained. Then the optimal supply of the public good by the government is the maximand to

$$u(\gamma(A) + g) + \underline{y} - c(\underline{e}) - (1 - \delta)T(t^M) - J(g, a) \quad (26)$$

characterized by the FOC

$$u'(\gamma(A) + g) - J_g(g, A) = 0 \quad (27)$$

From this one can solve the optimal supply of the public good by the local government, $g(A)$, with

$$\frac{dg}{dA} = -\frac{u''\gamma' - J_{gA}}{u'' - J_{gg}}$$

If $J_{gg}, J_{gA} > 0$, then aid is at least partly fungible, $\frac{dg}{dA} < 0$. If $J_{gg} > J_{gA}$, then $-1 < \frac{dg}{dA} < 0$. Also, from (27) one knows that, since $J_g > 1$, that the optimal supply of the public good is smaller than without the coordination costs. Finally, with the government supply decision the tax rate is given by

$$t = \frac{(1 - \delta)T(t^M) + J(g(A), A)}{\underline{y}} \quad (28)$$

If $g'(A) < 0$, then increased aid reduces the tax rate if $J_g g' + J_A < 0$. This effect is made smaller by the partial fungibility of aid and the increased costs of coordination.

Compare now (28) and (18) with the expressions of pure GBS when the government does not face funding constraint, (17) and (26). Without coordination costs project aid performed better than GBS because with the same amount of total aid given the supply of the public good was the same but project aid led to a larger reduction of the tax rate as GBS. With fungibility the total amount of aid was used to reduce the tax rate while with GBS part of aid is used in rents to the political leader and the tax reduction was not as big. With coordination costs of project aid the impacts on the tax rate are now qualitatively similar in bot aid modalities and the supply of the public good is now larger with GBS than with project aid. These results generalize to the case of funding constraints and to the β -version of the preferences. Thus, it is possible that with the costs of coordinating the project aid GBS leads to better countability even if the rents captured by the political leaders are larger with it than with project aid: the rents captured in the model version of this subsection are the same as in section 2 above.

3.3 Corruption and project aid

The superiority of project aid relative to GBS shown in section 2 depended partly on the assumption that there is no corruption associated with project aid. This does not accord with the facts and needs to be taken into account when comparing the aid modalities. The corruption associated with the project

aid need not be of the traditional form of handing out bribes to get things done or to avoid some regulations. E.g. Wangwe (2006) claims that the costs arising from government officials attending all kinds of seminars arranged by the donors are huge both in terms of lost working days and higher pay demands. Also, project implementation needs cooperation with local officials whose incomes are increased by all kinds of fees and extra salaries provided by the donors (e.g. Mokoro 2008 a,b).

One way to model the corruption or just "excessive budgets" associated with the project aid is to use the theory of bureaus and sponsors developed in Moene (1986). A more proper account requires modelling of the hierarchy of central government, line ministries and local governments, but we assume here that all excess budgets or bribes are received by the political leadership. Assume now that a donor is willing to provide a public good with a willingness to pay (net of the opportunity cost)

$$D(A), D' > 0, D'' < 0$$

To provide this the donor has to use the services of local government officials. Only these officials know the true costs of providing these services, they are $C(A), C', C'' > 0$. The officials care about the aid itself but they also want to get rents from providing their services, their utility function is

$$w(A, S - C(A))$$

where $S - C(A)$ = the rents the officials earn with S = the funding received from the donor, or the excess budget they receive. The officials are assumed to know the donors willingness to pay for the public good. Given that the officials know the donor's willingness to pay they can extract the whole "consumer surplus" from the donor by presenting proper cost estimates. If the officials are successful in doing so, then their welfare is

$$w(A, D(A) - C(A))$$

The optimal supply of the public good from the officials point of view is the solution to

$$w_A + w_S(D' - C') = 0 \tag{29}$$

Clearly, at this optimum $D' - C' < 0$ as $w_A, w_S > 0$: the officials want the donor to supply more of the public good than is optimal from the donor point of view, the donor optimality condition is $D' - C' = 0$. But the donor cannot control for this as it does not know the true costs. The officials can get what they want by presenting the donor with cost function $\hat{C}(A)$ having the properties

$$\begin{aligned} D(\hat{A}) &= \hat{C}(\hat{A}) \\ D'(\hat{A}) &= \hat{C}'(\hat{A}) \end{aligned}$$

Here \hat{A} = the supply of the public good desired by the officials (the solution to (29)). Since this larger than the supply optimal for donors if they knew the

true costs, the marginal costs declared by the officials must be lower than the true marginal costs

$$\widehat{C}'(\widehat{A}) < C'(\widehat{A})$$

while the total costs must exceed the true costs (since $D' > 0$ and the officials extract all the rents)

$$\widehat{C}(\widehat{A}) > C(\widehat{A})$$

This can be achieved e.g. by inflating the fixed costs of providing the services (e.g. school construction costs). It has been observed that in projects costs are heavily biased towards capital expenditure (Nilsson 2004). The story here provides one reason why this is the case and associates it with rent extraction by the recipient governments. Indeed, one of the by-products of the project has been that they have increased the incomes of the government officials (Mokoro 2008a). Also, seminars are one way of inflating the fixed costs. The total rents earned by government officials from this donor are

$$\widehat{C}(\widehat{A}) - C(\widehat{A})$$

and the total returns from all donors

$$R \equiv n [\widehat{C}(\widehat{A}) - C(\widehat{A})]$$

assuming all donors to be identical, n = the number of donors. All donors are induced to provide, from their own point of view, excessive amount of the public good. If these are donors' pet projects, i.e. they value them more highly than locals do, $u' < D'$, the supply may be excessive from the local point of view. This is one way to explain why with project aid one may end up to the situation where some public goods are supplied more than efficiency judged by the local valuation requires, as analyzed above in this section.

Consider now the public sector as a whole. Then these rents collected from the project aid end up to rents required by the political leaders in fashion similar to GBS

$$c^l = (1 - \delta) [T(t^M) + R]$$

Thus, the difference between project aid and GBS studied in Section 2 diminishes but does not disappear altogether if GBS equals the total amount of project aid ($n\widehat{C}(\widehat{A})$ equals the total project aid supplied by the donors), but the supply of the public good may be more inefficient with project aid than with GBS. Thus, there again exists a genuine trade-off between the project aid and GBS.

3.4 Demand for accountability

Above it has been assumed that citizens do demand accountability from the government. If there are some costs of doing so (including the problems of collective action) then the benefits from getting government to become accountable must be large enough. How does aid affect these benefits?

With project aid, using the simplest model above, the net gain from having an accountable government is (assuming the government is not funding constrained), using (13)

$$B^{pa} = \begin{aligned} & [u(g^o) + \underline{y} - c(\underline{e}) - (1 - \delta)T(t^M) - g^o + A] - \\ & [u(A) + (1 - t^M)\underline{y} - c(\underline{e})] \end{aligned} \quad (30)$$

where, obviously, it is assumed that $A < g^o$. Without accountability the government uses the all maximum tax revenue for its own consumption and does not contribute at all to the supply of the public good, hence the second term. But then

$$\frac{\partial B^{pa}}{\partial A} = 1 - u'(A) < 0$$

i.e. increased aid reduces the benefits from accountability. Consider what happens when $A \rightarrow g^o$. In the limit

$$B^{pa} = \delta t^M \underline{y} \quad (31)$$

Thus, if aid provides the optimum amount of the public good, citizens can hope from hope to get through accountability only the return of the extra tax revenue captured by the government without accountability. The accountability problem is transformed to a conflict in distribution of income, not to a conflict over broader policy packages. When $A > g^o$, aid does not have any impact on incentives to make the government accountable. With fungible project aid the government can transform aid to increase in government revenue only as long as it is optimal for itself to provide some of the public good: it reduces its own supply when aid expands. The benefits from accountability are still given by (31). Another way to express this is to say that there is a limited capacity to absorb project aid, at least when it comes to gains from accountability.

If aid is given as budget support then the benefits from accountability are

$$B^{bs} = \begin{aligned} & [u(g^o) + \underline{y} - c(\underline{e}) - (1 - \delta)T(t^M) - g^o + \delta A] - \\ & [u(0) + (1 - t^M)\underline{y} - c(\underline{e})] \end{aligned}$$

and thus, always

$$\frac{\partial B^{bs}}{\partial A} = \delta > 0$$

Larger aid in budget support always improves incentives to demand accountability, as the aid is always part of government revenue. If it does not want to use it to expand the supply of public goods it can be handed back (or part of it) to citizens and it has to do this because of accountability constraint. Thus aid modality matters for the incentives of the citizenship to make government accountable, project aid always reduces incentives, budget support increases incentives. These results hold also for the more complicated versions of the model (extremely corrupted government and the β -version of the utility function).

In a deeply aid-dependent society aid matters for all aspects of social life (see e.g. Castel-Branco 2008). The results here indicate that also the aid modality

can be important, the modality may matter for the whole operation of the political mechanism. Project aid makes citizens politically dull as their actions do not actually matter that much, and the effect is the stronger the more aid is given. Budget support increases the gap between what can be achieved and what is achieved without accountability, its use can be potentially determined by the citizens through a working democratic system.

4 Concluding comments

The paper has argued with the help of a simple model of government accountability that project support may be inferior to general budget support even when the political leadership is extremely corrupt. As such GBS generates rents equivalent to resource rents and tends to increase rents required by the leaders reducing accountability, but there are many countervailing effects. First, GBS is consistent with local ownership even if it allows leaders to earn higher rents as, net of rents, leaders want to and **can** allocate the budget as efficiently as possible between various uses. The same is not true of project aid, as the leaders may not be able to achieve efficient allocation even if they want. This can be the case regardless of whether the government is funding constrained or not if the allocation of aid by donors is not consistent with efficiency. One mechanism creating inefficient allocation is extraction of rents by government officials from donors providing project aid, as the way to create rents is to inflate aid budgets above the true costs. And this leads to the result that also project aid creates rents and allows political leaders to require higher rents to make their decisions more aligned with citizens' preferences. The final result of the paper is that higher project aid worsens incentives of citizens to demand for accountability, higher budget support improves these incentives.

The model of accountability used here is based on the standard accountability model. The model assumes political leaders to be completely corrupt, giving no weight to citizens' welfare unless made to do so by the threat of reducing the leaders time in office. In future work one should dispose of this assumption and utilize models where the political leaders are ordinary citizens, who, even if they make purely selfish decisions, have preferences more or less aligned with their fellow citizens. Also one may want to endogenize the political structure. The model is heavily biased against GBS but the point has been to show that with empirically relevant modifications GBS may work better in theory at least. But the great benefit of the model is that it shows how internal struggles over the distribution of income matters for the benefits from aid. It also shows how aid modality matters for the structure of the political system. naturally, the model is too simple to capture many relevant aspects of internal conflicts, to get there one would have to consider the heterogeneity of interests among the citizens and model the pressure groups. Also, to get to a better modelling of implementation and incentives of accountability one should model the formation and activities of political and civil organizations.

More at the grassroots level, one should go deeper in the structure of govern-

ment decision making. The few existing studies on the experiences from GBS (Nilsson 2004, IDD 2006, Mokoro 2008a) have pointed out that much of the project aid is (or has been in the past⁹) off-budget reducing the information central governments has at its disposal complicating the decision making at the central level. One of the reasons for this is that line ministries which are aware of the projects and have received funding from donors have an incentive to hide the information as they fear that their funding from the central government would be cut. Local governments have the same incentives of hiding the information. Getting project aid to budget is to make it at least partly analogous to GBS. That is one of the reasons why donors giving project aid have started to provide the central government information about the project aid they are giving.

The most important next modelling step is to endogenize the donor behavior to study e.g. the accountability of donors to e.g. parliaments funding them. This would be a way to understand why the donor interests are not fully aligned with the recipient country interests, explaining why the question of ownership is important. Also, the model used in the paper has considered pure project aid, determined by donor decisions alone, and pure budget support the allocation of which is determined by the recipient alone. The reality in both cases is somewhere between these to extremes, and can be solved only by endogenizing the donor behavior. What the model shows, though, is that the policy space available for the recipient country policy makers matters, and this is the crucial distinction made in the paper. Also the model shows, how aid reducing the policy space restricts incentives by citizens to make the government accountable, or to put it the other way, the blame from policies can be shifted to donors (see e.g. Castel-Branco 2008).

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⁹Increasingly also project aid is recorded in the government budget even though the donors still make decisions on it. This drive to get all aid on-budget has been driven by the same forces as have driven the increase in the share of the general budget support.

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