

## AID, TAXATION AND DEVELOPMENT IN SUB-SAHARAN AFRICA

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External aid donors have gradually shifted from a benign view of the African state to one that presumes a conflict of interest between the state and its own private sector. What are the implications of this diagnosis for the design of aid programs? We develop a model that locates slow growth in the overly narrow interests of a political elite. We study the impact of aid on policy choice and private investment and the role of conditionality in securing the gains from aid. The results capture key features of the current diagnosis while underscoring the need for more sophisticated treatments of domestic political institutions, institutional change, and donor motivations.

### 1. INTRODUCTION

SUB-SAHARAN AFRICA is the poorest and most aid-dependent region in the world. It is also the region where, over the past three decades, concerns about slow growth and low aid effectiveness have interacted with an evolving diagnosis of the underlying development problem to shape and reshape aid programs. In response to the sharp decline in growth and external viability in the late 1970s and early 1980s, the prevailing "capital shortage" diagnosis of the development problem – that temporary aid inflows would alleviate a capital shortage and permanently lift countries out of poverty<sup>1</sup> – was superseded by one that viewed low levels of physical and human capital as symptoms of specific policy failures. Aid flows correspondingly evolved from low-conditionality project support to high-conditionality program assistance implemented through structural adjustment programs aimed primarily at redressing policy biases against agriculture and exports. By the 1990s, however, this "policy failures" diagnosis itself had given way to deeper concerns about the adequacy of African political and economic institutions in supporting growth. Recalling earlier critiques of foreign aid – such as those associated with Milton Friedman and P. T. Bauer – economic stagnation was increasingly

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<sup>1</sup>The "capital shortage" orthodoxy was deeply influenced by the experience of postwar reconstruction in Europe and led directly to aid policies based on official resource transfers for capital projects (Nurske, 1953; Chenery, 1967; White, 1992).

seen as a reflection of a more fundamental failure of the African state, particularly in relation to its own private sector. In this view, governments were prepared, for a variety of reasons, to sacrifice broad-based economic development for more venal objectives. It followed that without adequate institutions, aid flows could be wasted; they could even be positively inimical to growth, by strengthening the hand of predatory governments against the claims of rival domestic constituencies and thereby undermining the emergence of a developmental state.<sup>2</sup>

This “institutional failures” diagnosis finds strong echoes in an emerging mainstream in African political economy where scholars have developed arguments embedding these institutional failures in the systems of personal rule that dominated African politics until the 1990s. Bates (1981), Sandbrook (1986), Collier (1991) and others saw the heavy use of patronage, the discouragement of restraining institutions, and the emasculation of competing centers of political power as “rational” strategies of African leaders in the context of weak political legitimacy and tenuous bureaucratic control. A central theme of these contributions was the existence of a fundamental conflict of interest between African governments and their own private sectors. As Bates (1983, p. 165) notes:

Quite apart from philosophic predisposition, however, recent experiences in Africa and elsewhere make it clear that the preferences of governments often bear little correspondence to any idealization of the public interest. Rather, governments engage in bureaucratic accumulation and act so as to enhance the wealth and power of those who derive their incomes from the public sector; they also act on behalf of private factions, be they social classes, military cliques, or ethnic groups. They engage in economic redistribution, often from the poor to the rich and at the expense of economic growth. These are central themes in policy formation in Africa and their prominence serves to discredit any approach based on a conviction that governments are agencies of the public interest.

The movement of these hitherto unfashionable arguments from the margins to the center of the debate has been mirrored in contemporary donor policies towards Africa. The aid relationship now involves detailed economic and political monitoring and institutional intervention, typically in the context of “promoting good governance”.

Our aim in this paper is to provide an analytical underpinning to the “institutional failures” diagnosis of the development problem in Africa and to use the resulting structure to examine the effects of external aid and the role and limitations of conditionality in circumstances where the government may not act wholly in the public interest. To do so we model an economy in which capital shortages are driven by policy failures which are in turn imbedded in the state’s political economy. Specifically the policy failure we consider is the maintenance

<sup>2</sup>For example, Friedman (1958), Bauer (1974), and Bauer and Yamey (1982).

of distortionary taxes in excess of the levels justified by productive public spending so as to fund non-productive consumption transfers to favored political groups.<sup>3</sup> These tax interventions influence the composition of private sector investment and growth by confronting households with the choice between a high-yielding but taxable investment on the one hand and lower-yielding investment that escapes the tax net on the other. In equilibrium, the wedge driven between the pre-tax return on the two assets distorts the composition of investment away from the high-yielding asset and reduces growth – even though private and aggregate savings may well rise with increases in the tax rate. While lending concreteness to the “institutional failures” diagnosis, this model structure is also consistent with a key stylized fact about African growth and investment: that the dominant source of slow growth is more the efficiency of investment than its absolute volume (e.g. Collier and Gunning, 1999; World Bank, 1994).

The paper is structured as follows. Section 2 begins by outlining the basic model. Our model is an extension of that employed by Boone (1996) in his analysis of the empirical relationship between aid and growth and has its roots in the work of Olson (1994) and McGuire and Olson (1996) on the economics of autocracy, and of Olson (1982) and Becker (1983) on pressure groups. We depart from earlier work in a number of respects. First, we disaggregate capital in order to focus on the effect of taxation on the composition of investment. Cross-country evidence suggests an extremely low interest elasticity of saving at the low levels of per-capita income characteristic of much of Africa (e.g. Ogaki et al., 1996). This suggests, consistent with the evidence cited above, that taxes are unlikely to have exerted first-order effects on African growth via aggregate capital accumulation, the channel emphasized by Boone (1996) and McGuire and Olson (1996). More fundamentally, the African political economy literature has for at least two decades – certainly since Bates (1981) and the infamous “Berg Report” of the World Bank (1981) – grappled with the reality of policy regimes that impose highly differentiated tax rates on investment, variously favoring public investment over private, urban over rural, foreign (capital flight) over domestic, non-traded over traded, or informal over formal (e.g. Callaghy and Ravenhill, 1993; Elbadawi and Ndulu, 1994; Ravenhill, 1986). In our model, taxes reduce growth by undermining the composition of capital rather than its aggregate level. Second, we move to a two-period analysis from the infinite horizon of Boone. Nothing is lost in terms of the growth mechanics, which become more transparent and, we hope,

<sup>3</sup> In the model we intentionally emphasize only the negative effects of distortionary taxation. If public spending is productive, of course, governments can hold back growth as much by under-taxation as by over-taxation. A shortage of public infrastructure, for example, implies a high marginal productivity of public investment spending and therefore a high return on tax revenue. The return on tax revenue is also potentially high in “development trap” or endogenous growth models, where market imperfections typically provide a rationale for government intervention. But distortionary taxes, even when devoted to productive public spending, begin to reduce growth when pushed beyond certain limits.

useful as vehicles for discussion and analysis. The two-period horizon also facilitates a link to the credibility issues emphasized by Collier (1991) and others, and in an appendix we make this explicit by dropping the “full commitment” assumption of Boone (1996) and McGuire and Olson (1996). Third, we extend the treatment of interest groups by incorporating a non-zero welfare weight on groups out of power. The results generalize in a natural way, and the striking response to aid inflows emphasized by Boone (1996) emerges as a special case. Finally, rather than treating aid flows as predetermined we analyze the role of conditionality in sustaining such flows in the presence of conflicts of interest between donors – acting here “in the public interest” – and recipient governments. In section 3, therefore, we introduce an external aid donor and derive a set of results relating the efficacy of conditionality to fundamental structural characteristics of the recipient state and its political economy. In this section we also extend the discussion to consider ways in which conditional aid may directly influence the underlying political economy of the recipient. Section 4 concludes the paper.

## 2. THE MODEL

We consider a two-period model of household consumption and investment where in period 1, conditional on the political economy, the government declares the levels of future taxation and transfers and households choose the level and composition of investment (between the high-yielding taxed asset and the low-yielding but untaxed asset). Aid inflows, if they are forthcoming, are known in period 1 but arrive in period 2. To characterize the underlying conflict of interest between government and the private sector, we follow Boone (1996) and McGuire and Olson (1996) in assuming that the government is fully captive to an interest group that comprises a fraction  $0 \leq f \leq 1$  of the domestic population. We treat  $f$  as predetermined, using variations in  $f$  to trace out the consequences of alternative forms of political organization from the least to the most “representative” – in effect, from Mobutu to Mandela.<sup>4</sup> In section 3 we discuss how the favored group may evolve over time. As in Boone (1996), the government has the option of levying distortionary taxes in order to make transfers to the favored group. To reflect the reality of most African fiscal systems, we assume that non-distortionary forms of taxation are unavailable.

To capture necessary and legitimate forms of public expenditure, we introduce a second parameter,  $G$ , measuring the level of government spending on essential public goods (such as security from external military threat, or some form of fundamental public infrastructure). Absent foreign aid, the implied “revenue

<sup>4</sup> A government with higher  $f$  has preferences that are more “encompassing”, in Olson’s (1982) use of the term. The adjective “representative” should be interpreted here as applying to the preferences of the sovereign rather than to the political institutions that induce these preferences. The latter are left implicit in our analysis and may or may not resemble those of a representative democracy.

imperative” means that even a fully representative government will engage to some degree in distortionary taxation. By treating  $G$  as a parameter, we have a simple way of capturing the difference between countries facing no or only limited external threats – so that  $G$  is low relative to the public command over resources, as in Nigeria – and those where the tax base is narrow but where external security concerns are greater – as in the so-called “front-line” states of Southern Africa during the 1980s. The level of  $G$  could be endogenized without substantially changing the analysis. What matters in either case is that the financing of  $G$  requires some level of distortionary taxation, and that a distinction be maintained between transfers to the favored group, which are viewed as non-productive, and socially productive spending  $G$ .<sup>5</sup>

### 2.1 Households: The Composition of Investment

Households receive an initial resource endowment  $E$  in period 1 and choose an investment portfolio to maximize a time-separable utility function defined over present and future consumption. Total investment is split between a tax-free project that yields  $R > 0$  per unit and a taxable high-yielding project (in amount  $K_H$ ) that produces future output  $g(K_H)$ , where  $g' > 0$ ,  $g'' < 0$  and  $g'(0) > R$ . The maximized value of household utility is given by:

$$V(t, z; E) = \max_{\{K_H, K_L\}} u(C) + \beta u(c) \quad (1)$$

subject to

$$C = E - (K_H + K_L) \quad (1.1)$$

and

$$c = (1 - t)g(K_H) + RK_L + z, \quad (1.2)$$

where  $C$  and  $c$  are consumption in the first and second periods, respectively,  $0 < \beta \leq 1$  is the discount factor,  $t$  is the tax rate on output from the high-yielding project, and  $z \geq 0$  is a non-negative transfer from the government. Lump-sum taxation is ruled out, and we assume that the household cannot borrow.

As long as some amount of the taxed investment is held, the first-order conditions in (1) imply  $(1 - t)g'(K_H) = R$ , which yields an investment function of the form

$$K_H^* = K_H^* \left[ \frac{R}{(1 - t)} \right], \quad K_H' < 0. \quad (2)$$

<sup>5</sup> See McGuire and Olson (1996) for analysis with endogenous  $G$  (but without foreign aid). On the possibility of socially productive transfers (which would be included in  $G$ ), see footnote 8 below.

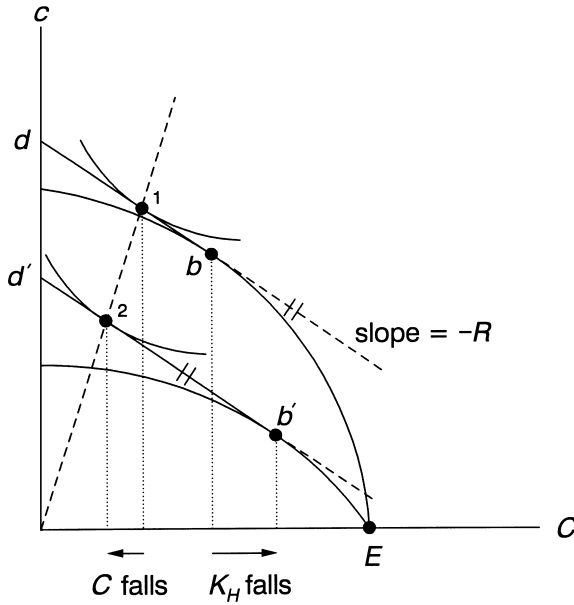


Figure 1. An increase in the tax rate on output from the high-yielding project. An increase in the tax rate rotates the set of feasible consumption patterns from  $Ebd$  to  $Eb'd'$ . The optimal consumption choice shifts from point 1 to point 2.

The high-yielding investment is therefore a declining function of both the tax rate and the return on the non-taxed investment.

Figure 1 shows the response of a household to an increase in the tax rate holding constant (at zero for simplicity) the level of transfers. Investment in the high-yielding asset falls, to a level at which its after-tax yield is again equal to the yield on the non-taxed investment. This shrinks the government's tax base and reduces the average quality of investment. Aggregate investment ( $K_H + K_L$ ) rises, however, since households increase saving in order to smooth out the fall in future disposable income.<sup>6</sup> An important property of the investment function (2) is that investment in the taxable asset is independent of both  $E$  and  $z$ . This means that the government's tax base is independent of the distribution of either current income or future transfers, a feature that simplifies the analysis considerably.<sup>7</sup>

<sup>6</sup> Disposable future income falls due to higher taxes and a lower before-tax yield on the household's total investment portfolio; future output, in contrast, may rise or fall depending on whether the increase in total investment overcomes the deterioration in the average yield.

<sup>7</sup> This aggregation property relies on the linearity of the tax-free production function. While this is not general, it is consistent with circumstances prevailing in small African economies in which the risk-free asset could be interest-bearing foreign currency deposits held offshore (e.g. Khan and Ul Haque, 1985). It is less likely to hold if, as suggested by a referee, claims on informal enterprises represent the operative tax-free asset for most African households. If these are subject to diminishing returns, the tax base becomes a function of the income distribution and therefore of  $f$ . Our conjecture is that this would not change the analysis materially, but we have not verified this.

## 2.2 Government: The Choice of Tax and Transfers in a Two-period Model

The government maximizes the utility of a select subset of the population. With households distributed uniformly over the unit interval, we can think of the favored group as constituted by any subset with probability mass  $0 \leq f \leq 1$ . The government has two instruments at its disposal: the distortionary tax  $t$ , which is non-selective in the sense that all households bear it, and the selective transfer,  $z$ , which is enjoyed only by the favored group. The government must also meet the fixed public spending requirement of  $G > 0$ . In what follows we assume that transfers are entirely private goods: any public-good component of transfers is subsumed in  $G$ .<sup>8</sup>

Since our focus is on distortions from expected future taxation, fiscal interventions and foreign aid all take place in period 2. To highlight the relationship between aid and political economy we assume that the government can credibly set its tax and transfer rates in advance of investment. The resulting solutions represent second-best optima from the government's perspective (second-best because non-distortionary taxes are unavailable). In practice, the government's capacity to alter tax and transfer rates *after* the private sector has accumulated taxable assets may render such announcements non-credible. In Appendix II we illustrate the discretionary outcome in the presence of different assumptions concerning the political economy.

The government therefore chooses  $t$  and the aggregate level of transfers,  $T = fz$ , in period 1 to solve the problem:

$$\max_{\{t, T\}} V(t, T/f; E) \quad (3)$$

subject to

$$T + G = tg(K_H^*) + A \quad (3.1)$$

$$T \geq 0, \quad (3.2)$$

where  $A$  is the inflow of aid in period 2. Equation (3.1) is the government's budget constraint. It states that tax revenues plus aid are used to finance either transfers or public spending. We assume that aid does not cover required spending, so that the "net spending requirement"  $G - A$  is non-negative. Since inequality (3.2) rules out lump-sum taxes, this implies that some degree of distortionary taxation ( $t > 0$ ) is inevitable.

The solution to (3) is illustrated in Figure 2, where we show the government's budget constraint and a set of indifference curves corresponding to its objective function  $V$ . Given the value of  $G - A$ , the budget constraint is a Laffer curve

<sup>8</sup> Conventionally defined transfers may well have a public-good or growth-promoting component that justifies some degree of distortionary taxation. Azam (1995), for example, develops a model of civil conflict in which transfers to "rebels" are used to ensure the security of the state, thereby fulfilling exactly the role assigned to  $G$  in our model. A similar role may be played by transfers aimed at offsetting excessive inequalities in income.

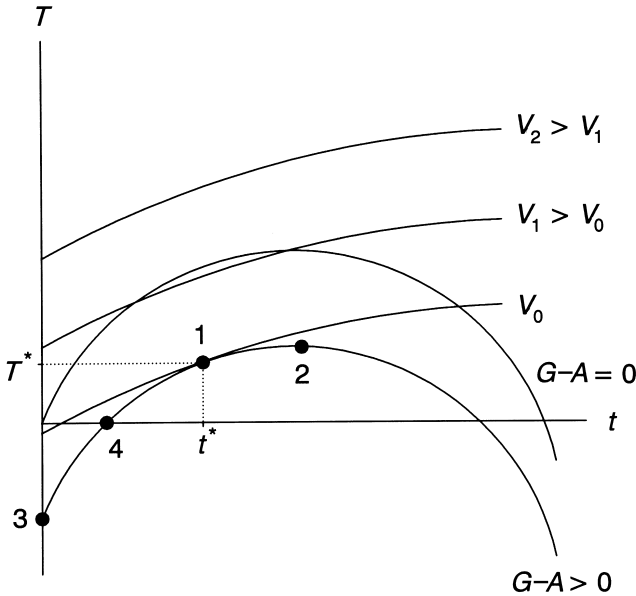


Figure 2. The government's choice of  $t$  and  $T$ . As  $f$  varies from 0 to  $f^c(G-A)$ , the optimum moves from point 2 through point 1 to point 4. Further increases in  $f$  move the tangency point towards point 3, but the optimal policy remains at point 4.

relating aggregate transfers to the tax rate on income from the high-yielding project. A rise in the tax rate increases the feasible level of total transfers, up to the point where the tax-elasticity of output from the high-yielding project,  $\eta(t)$ , is unity:

$$\eta(t) = \frac{-tg'(K_H^*(t))}{g(K_H^*(t))} = 1. \tag{4}$$

Beyond this point, further increases in the tax rate reduce revenue and thereby total transfers. The government's net spending requirement is a parameter of this Laffer curve: a rise in  $G-A$  reduces feasible transfers dollar-for-dollar, shifting the curve vertically downwards. Changes in  $f$ , in contrast, leave the curve unchanged, since the investment function is identical for the favored and non-favored groups.

The government's indifference curves show combinations of  $t$  and  $T$  that yield constant indirect utility for the favored group. They are upward-sloping because taxes reduce utility while transfers raise it. They are also concave, but the solution is unique if they are less concave than the Laffer curve, a reasonable



property that we will assume in what follows.<sup>9</sup> Since the high-yielding investment function does not depend on transfers, the indifference curves are vertically parallel. Changes in the political economy alter their shape, however: a fall in  $f$  concentrates a given transfer  $T$  on a smaller group, flattening out the indifference curves.

Ignoring the non-negativity constraint (3.2), the solution to (3) takes place at the point of tangency between the Laffer curve and a government indifference curve. The optimal choice of  $t$  satisfies the condition

$$\eta(t) = 1 - f, \quad \text{where } \eta(0) > 0 \text{ and } \eta'(t) > 0. \quad (5)$$

For a non-representative government (low  $f$ ), this generates an interior solution for both  $t$  and  $T$  (point 1 in Figure 2), with a tax rate high enough to finance transfers to the favored group. As the size of this group shrinks towards zero, the indifference curves rotate in a clockwise direction and the equilibrium moves to the top of the Laffer curve, where  $\eta = 1$  (point 2). A perfectly representative government, in contrast ( $f = 1$ ), wants to avoid the social cost of distortionary taxation. If lump-sum taxation were possible, this government would choose point 3, where  $\eta(t) = t = 0$  (its indifference curves being steeper than the Laffer curve at all tax rates). With lump-sum taxes impossible, point 3 is not feasible and this government chooses point 4 where the tax rate is just large enough to meet the exogenous public spending requirement.

The most interesting case is that of the government that is not fully representative ( $f < 1$ ) but nonetheless does not make transfers. Proposition 1 states that as long as the net spending requirement is positive, a range of such governments will exist. The government need only be “sufficiently representative” in order to choose zero transfers.

**Proposition 1.** *The “sufficiently representative” government.* If  $G > A$ , there is a cutoff value  $f^c < 1$  above which the government will choose not to make transfers. All governments with  $f < f^c$  will make transfers, with the size of the transfer (and accompanying tax rate) inversely related to the size of the favored group.  $\square$

*Proof.* See Appendix I.

This intuitively appealing proposition is simply a restatement of Mancur Olson’s “encompassing interest” principle. With a positive net spending requirement, distortionary taxes are strictly positive even when transfers are zero. The marginal social cost of tax revenue is therefore strictly greater than one, and the favored group faces a substantial share of this cost. A rise in aggregate transfers therefore

<sup>9</sup> By the envelope theorem,  $\partial V / \partial t = -\beta U_2 g(K_H)$  and  $\partial V / \partial T = (1/f) \partial V / \partial z = \beta U_2 / f$ , implying that  $dT/dt = fg(K_H)$  along an indifference curve. Since  $d^2T/dt^2 = fg'(K_H) > 0$ , the indifference curves are concave, raising at least the possibility of multiple equilibria or a failure of the first-order conditions. These problems do not arise, however, if we choose the production function  $g(K_H) = A(K_H)^a$  for  $0 < a < 1$ , in which case the indifference curves and Laffer curve appear as in Figure 2.

fails a cost–benefit test, even accounting for the concentration of marginal benefits.<sup>10</sup> If the favored group is small, in contrast, the distortion is largely borne by the non-favored group, and a small increase in the tax rate generates a large enough transfer per member of the favored group to justify the increase. On the margin, a rise in  $f$  increases both the tax rate and aggregate transfers if the latter are already positive. In Appendix II we show that a similar proposition governs the extent to which a narrow political economy generates credibility problems.

### 2.3 *The Developmental State*

In the following section we use this model to examine the effect of unconditional and conditional aid on taxes and transfers, and therefore on investment and growth. Before doing so, however, note that the model provides an interpretation of the “developmental state” and the relative influences of exogenous (external) forces and internal political economy in generating it. As long as  $f > f^c$ , the government “gets the prices right” – in our case, avoiding excessive distortion of the relative yields on alternative forms of capital – and avoids transfers to special interests. The transfer cutoff can therefore be thought of as the level of representation above which a government internalizes the general interest in high-yielding investment and growth. A government’s preferences need only be “sufficiently” representative, according to Proposition 1, to constitute a developmental state. Moreover, the cutoff level is a declining function of the net spending requirement. Other things equal, transfers become a more expensive luxury as  $G-A$  rises, and they will emerge only if the favored group faces a small enough share of the marginal costs and enjoys a sufficiently concentrated marginal benefit. The analysis therefore implies that adversity – for example, in the form of an external military threat that generates a high  $G$  – is more likely to produce a developmental state than ease, holding constant the historical, cultural and economic determinants of  $f$ , while the relaxation of an external threat (or other rationale for a high level of  $G$ ) may induce the collapse of a development state with an upsurge in transfers. This is summarized in Proposition 2.

**Proposition 2.** *External determinants of the developmental state.* A fall in  $G-A$  increases the level of representation required to generate zero transfers.  $\square$

*Proof.* The cutoff value of  $f$  is given by  $f^c = 1 - \eta(t) < 1$ , where  $t$  solves  $t = (G-A)/g(t)$  (see Appendix I). Since  $t$  is an increasing function of  $G-A$  and  $\eta$  is an increasing function of  $t$ , we can write  $f^c = f^c(G-A)$ , with  $f^{c'} < 0$ .

### 2.4 *Autocracy and growth*

The two-period model employed here is not designed to capture the evolution of relations between government and the private sector in a repeated setting.

<sup>10</sup> If the net spending requirement were zero, any government that was not fully representative would find it worthwhile to impose a small distortionary tax.

However, Olson (1994) argues that in systems of personal rule the seriousness of the predation problem depends on the planning horizon of the leader. Leaders with long horizons internalize the collective interest in economic growth; those with short horizons sacrifice the collective interest to maximize their short-term rents. With a number of African leaders enjoying long periods in power, this would seem to suggest that the model used in this section overstates the conflict of interest. There are, however, several reasons for rejecting this concern. First, and most clearly, while short horizons exacerbate the underlying conflict of interest (most dramatically in the case of time consistency problems), the conflict itself is rooted in the political economy and persists even if leaders have infinite horizons. Second, even with the notional protection of single-party political structures and other constraints on domestic political contestability, executive transitions in Africa have been violent and frequent (Sandbrook, 1986; Alesina and Perotti, 1994). A high ex ante probability of transition, even if tenure is long-lived ex post, reduces the leader's effective planning horizon, particularly when transitions force incumbents into a position of economic exile (or death) rather than returning them to a normal civilian life. A third and final reason why long horizons may fail to rescue development-oriented behavior in systems of personal rule is that leaders face a tradeoff between their own tenure in office and the overall performance of the economy. Very poor performance is to be avoided, since it increases the probability of a coup; but very successful performance may reduce collective action problems in the private sector, create countervailing centers of economic power, and speed institutional innovations that in the absence of external security threats would eventually repudiate or eviscerate personal rule. Thus Diamond *et al.* (1990, p. 19) observe that:

...the most common and in the long run the most important effect of rapid socioeconomic development under authoritarian rule has been to generate pressures and create social structural conditions more conducive to democracy...

A similar tension emerges if causality goes from institutional developments to growth, rather than the reverse. Collier (1991), for example, argues that agencies of restraint like a free press and an independent central bank (or, in principle, conditional aid) contribute to growth by placing limits on predation. Non-representative leaders may therefore actively oppose the development of such agencies, even if they are in the public interest.

These observations would appear to strengthen rather than weaken the tension between non-representative rule and growth that is central to our analytical model. They also bring out an important distinction between external and internal threats in such systems. As we noted above, a greater externally-driven revenue imperative can transform the policy choices of a non-representative leader into those of a "developmental state", as the common interest in secure borders overcomes a distributional conflict of interest that would otherwise undercut growth. But the

opposite seems likely to hold if the primary threats are to the tenure or autonomy of incumbent leaders. These drive a wedge between the general interest and that of the incumbent group, which now acquires an interest in opposing developments that would undercut its own flexibility and longevity.

This rationalization of distortionary policy choices suggests a link with what political scientists identify as a central conundrum of economic reform in Africa: what incentives do incumbent regimes have to reverse economic policies that they themselves had implemented and had not chosen voluntarily to change? The government's ambivalence reflects the tension between the gains accruing from reforms, which may solve the government's commitment problems, and the costs of increased contestability on the other. The major policy reforms of the 1990s, more so than the reforms of the 1980s, have as a common feature the substantial removal of discretion in tax and tax-like policies. Thus policies of exchange rate unification, trade liberalization, financial liberalization, privatization and in particular the support for competitive elections, all undermine the scope for executive discretion, improving the capacity to commit to policy measures, but at the cost of making the political system more contestable. The immediate result may be partial, fitful implementation and an increase in the uncertainty faced by the private sector.<sup>11</sup>

### 3. AID AND CONDITIONALITY

With the model as background we now turn to a more complete analysis of the effect of (anticipated) aid flows and conditionality. In subsection 3.1 we examine the consequences of unconditional flows to the recipient government under alternative configurations for  $f$ , repeating the exercise for conditional aid flows in subsection 3.2. In a final subsection we extend the discussion of conditionality to consider the question of aid dependence and graduation.

#### 3.1 *Unconditional Aid*

Under our assumptions, an increase in unconditional aid shifts the tangency point of the government's indifference curves and its revenue Laffer curve vertically upwards. The response to aid inflows therefore takes the extreme form analyzed by Boone (1996). A sufficiently representative government reduces taxes and retains zero transfers. For this government, aid crowds in productive forms of domestic capital formation by reducing distortionary future taxation. A government that is already giving transfers, in contrast, uses an increase in aid to increase transfers dollar for dollar, leaving the tax rate unchanged. These points are illustrated in Figure 3, where we begin with a net spending requirement that is large enough, given  $f$ , to generate zero transfers (point 1). Small increases in aid (represented by

<sup>11</sup> Bates and others suggest that the partial implementation of programs of reform reflects the fact that incumbent rulers will only seek to implement reforms up to the point that the marginal gain (additional resources) equal the marginal cost (constraints on autonomy).

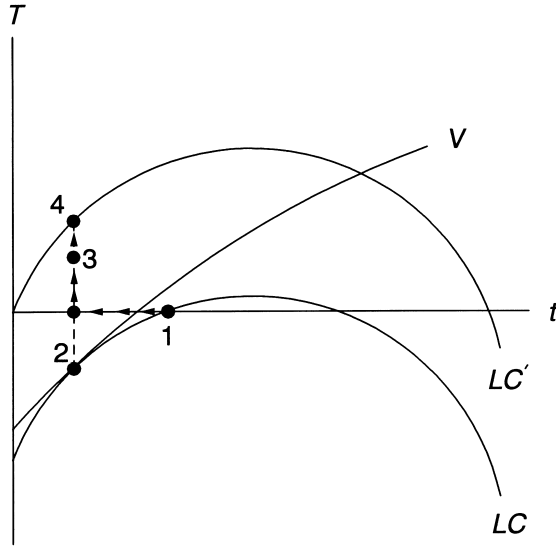


Figure 3. The effect of unconditional aid flows. Given  $G$ , a rise in  $A$  shifts the Laffer curve upwards. For a government initially giving zero transfers (point 1), aid inflows first reduce the tax rate, to point 2, and then go fully into transfers, through point 3 to point 4 where  $A = G$ .

the arrows) go first into reductions in the tax rate, and then into higher transfers.

The non-representative but non-redistributing government (moderate  $f$ ) again provides an interesting case. For this government, small increases in aid reduce distortions, but a large enough increase also justifies the initiation of transfers to the favored group. This occurs while distortionary taxation is still positive. It is illustrated in Figure 3 by a jump from point 1 to a point like 3.

**Proposition 3.** *The effect of aid.* For  $f \geq f^c$ , a small increase in aid reduces the tax rate without initiating transfers. For  $f < f^c$ , in contrast, *any* increase in aid, whether small or large, goes fully into transfers. Moreover, for *any* government, there is some amount of aid above which transfers will be initiated. As long as the government is not fully representative (so that  $f < 1$ ), this will occur while the tax distortion is still positive (i.e., before aid pays for all of required public spending). □

The response to marginal increases in aid is less extreme than depicted in Proposition 3 if the government applies some non-zero value to the welfare of members of the non-favored group. To see this, suppose that the government maximizes  $W = fV^f + \psi(1 - f)V^n$ , where the superscripts denote the favored and non-favored groups; the weights  $f$  and  $(1 - f)$  come from integrating over the population. Holding initial second-period marginal

utilities equal across the two groups, the  $f$ -group remains “favored” as long as  $\psi < 1$ ; this condition guarantees that the government would choose to make transfers from the non-favored to the favored group if such were costless. The effect of this generalization can be seen immediately by recalculating the “critical” value of  $f$ , below which transfers are initiated. This now satisfies

$$\eta = 1 - f^c - \psi(1 - f^c), \quad (6)$$

where  $\eta$ , as before, is the elasticity of the Laffer curve at the tax rate corresponding the financing requirement  $G-A$ . The critical value of  $f$  is now a function of both  $G-A$  and  $\psi$ . The case analyzed in Propositions 1–3 [and in Boone (1996) and McGuire and Olson (1996)] is that of  $\psi = 0$ .

One effect of this extension is to strengthen Proposition 1. Given  $G-A$ , the higher perceived cost of taxation now discourages transfers for a lower level of representation: being “sufficiently representative” in this case is now less demanding. Proposition 2 is unchanged. Proposition 3 remains intact provided that transfers are not operative. As before, the government with  $f \geq f^c$  behaves like a developmental state on the margin, using aid to reduce distortionary taxes; and a sufficiently large increase in aid will induce transfers before distortionary taxes have been eliminated. Once transfers have been initiated, however ( $f < f^c$ ), increasing them further lowers the marginal utility of the favored group *relative to that of the non-favored group* – and therefore relative to the weighted marginal disutility of distortionary taxes. When  $\psi$  is strictly positive, therefore, the government’s optimal response to an increase in aid now involves both an increase in transfers and reduction in the tax rate (and tax revenue).<sup>12</sup>

The analysis of unconditional aid is easy to summarize. For a “developmental state”, unconditional aid reduces distortions, thereby delivering benefits greater than those attached simply to a consumption transfer. But if this state’s preferences are not fully representative, increased aid may also change the character of domestic taxation, so that distortionary taxes are on the margin financing not only the public good but also transfers to the favored group. The latter possibility underpins Bauer’s (1974) warning that aid would politicize life in developing countries. It also provides some interpretation of the view (Bahl et al., 1986) that the cutoff of American aid to Korea in the early 1960s encouraged the emergence of a developmental state there, a view echoed by Williamson (1995) in describing Taiwan’s move towards greater export orientation in the 1960s. More generally, the model suggests various ways in which conditionality might be used to increase the effectiveness of aid.

<sup>12</sup> We thank an anonymous referee for suggesting this extension. Note that the extreme response to aid in Proposition 3 would persist even with  $\psi > 0$  if second-period utility were linear, or if the government maximized distributionally-weighted *consumptions* rather than utilities.

### 3.2 Conditional Aid

There are two quite separate roles for conditionality in the aid relationship. The first is to provide the recipient with a way of committing credibly to a course of action that is in its own interest, independently of the aid inflow. We have assumed thus far that the government can commit to its tax and transfer policy in advance. If it cannot, the issue of time consistency is relevant and, as indicated in Appendix II, even a fully representative government may find itself on the “wrong” side of the Laffer curve, in a low-investment, high tax-and-transfer equilibrium. If the donor can credibly enforce adequate penalties, conditional aid can substitute for the recipient’s lack of a commitment technology, allowing the good side of the Laffer curve to be obtained. Recipient credibility problems therefore greatly increase the apparent scope for conditionality. Collier (1991) sees aid donors as having taken on precisely this role in post-independence Africa, but with limited success given their own credibility problems.<sup>13</sup> A recent debate therefore focuses on the redesign of aid programs to enhance and/or economize on donor credibility (e.g. Collier et al., 1997).

Our focus will be on the second, more conventional, role of conditionality: that of supporting aid flows in the face of a conflict of interest between the donor(s) and the recipient. To root this conflict in the recipient country’s political economy, we assume that the donor is concerned about the general welfare in the recipient country rather than the welfare of the favored group. This specification is consistent with pure altruism on the part of the donor, but it may also be consistent with other donor motivations.<sup>14</sup> A simple specification that captures this feature is

$$W = \int_0^1 [u(C_h) + \beta c_h] dh + \delta X, \quad (7)$$

where the integral goes over all households (distributed uniformly over  $[0, 1]$ ) in the recipient country,  $X$  is the donor’s domestic spending, and  $\delta > 0$  is the relative weight the donor attaches to this spending. We have assumed in (7) that household utility is linear in second-period consumption; this is less general than

<sup>13</sup> In what follows we study donors with altruistic preferences. Such donors confront a “Samaritan’s Dilemma” in enforcing threats to withhold aid: policy failures that weigh heavily on the disenfranchised confront the donor with strong pressures to renegotiate, in the hope of channeling some portion of aid flows to these groups in period 2. In response, the private sector, believing (correctly) that the donor is unable to act as its agent in restraining the predatory instincts of the government, will be unprepared to commit resources to investments with high social but low (after-tax) private returns. In an extreme case, a non-representative government may be able to capture the donor in a permanent aid relationship that replicates the outcome of unconditional aid discussed in subsection 3.1.

<sup>14</sup> For example, there may be positive cross-country externalities to the general welfare, such as a reduction in spillovers from civil disorder.

our earlier treatment but simplifies the analysis considerably.<sup>15</sup> To avoid a corner solution in which all donor resources go to foreign aid, we require that donor altruism be limited in the sense that  $\beta < \delta$ .

Although the donor's preferences are defined over  $C$ ,  $c$  and  $X$ , we can readily express them in terms of the fiscal policy variables  $t$  and  $T$ . To do this, note first that the donor faces a domestic budget constraint of the form  $X + A = D$ , where  $D$  is (exogenous) domestic revenue. Combining this with the recipient's budget constraint (3.1) and eliminating  $A$ , we get the overall constraint

$$D + tg(K_H^*(t)) = X + G + T. \quad (8)$$

Equation (8) simply states that the total domestic spending of both players is limited by the sum of their tax revenues. This constraint ties  $t$ ,  $T$  and  $X$  together, since all other variables are exogenous. Consider a rise in  $T$ , for example, holding  $t$  constant. By (8),  $X$  must fall because with  $t$  fixed, the rise in transfers must have been financed by an aid inflow. Viewed as a bargaining game, the aid relationship is about determining both the size of the overall revenue pie and its division between alternative uses.

With linear second-period utility, the donor's objective function (7) is of the form  $V(t, 0) + \beta T + \delta X$ .<sup>16</sup> Substituting (8) into this objective function, we obtain the donor's valuation of alternative choices of  $t$  and  $T$ :

$$W(t, T) = V(t, 0) - (\delta - \beta)T + \delta[D + tg(K_H^*(t)) - G]. \quad (9)$$

Equation (9) has two notable features. First, aid flows that generate consumption transfers reduce the utility of the donor. This is a straightforward implication of  $\beta < \delta$ , and it has a powerful implication for unconditional aid.

**Proposition 4.** *Aid collapse.* A government with  $f < f^c(G)$  receives no unconditional aid.  $\square$

*Proof.* Unconditional aid can be thought of as a Stackelberg game in which the donor moves first, pledging an amount of future aid. The recipient then formulates tax and transfer policy and implements these when the aid flow arrives in period 2. By Proposition 3, a recipient with  $f < f^c(G)$  will spend any aid inflow on transfers. By (9), this will reduce the donor's welfare. Anticipating this, the donor will choose  $A = 0$ .

The second observation about (9) is that the tax rate can be either too high or too low from the donor's perspective. Holding  $T$  constant and starting at  $t = 0$ , a

<sup>15</sup> With linear second-period utility, the future income distribution is irrelevant from the perspective of the donor, and the donor's preferences can be written as a simple function of  $t$  and  $T$ . Note also that as long as there is some investment in the safe asset, the first-period consumption becomes a constant, tied down by the Euler equation  $u'(C_h) = \beta R$ . With concave second-period utility the parameter  $f$  would no longer adequately summarize the political economy; it would matter, for example, whether the favored group was composed of poor or rich individuals.

<sup>16</sup> With linear second-period utility,  $fV(t, T/z) + (1 - f)V(t, 0) + \delta X = V(t, 0) + \beta T + \delta X$ .



small increase in the distortionary tax increases the donor's domestic spending by more than enough to offset the reduction in investment quality and utility. But as  $t$  rises, the deterioration in the recipient's economic performance eventually dominates and donor utility falls.

In Figure 4 we use these observations to replace the Laffer curve in our earlier diagrams with a set of donor indifference curves. Lower indifference curves mean higher utility for the donor, while the reverse is true for the recipient. The donor's indifference curves, like those of the recipient, are vertically parallel. We can show that their turning point takes place where the elasticity of  $g(K_H)$  with respect to the tax rate [defined earlier as  $\eta(t)$ ], is equal to  $1 - (\beta/\delta)$ . Since  $\eta$  is an increasing function of  $t$ , this takes place to the left of the revenue-maximizing tax rate, denoted  $t_{max}$  in the diagram. We also identify the tax rate  $t_T(f)$  in the diagram, which is the rate corresponding to tangencies between the Laffer curve and the recipient government's indifference curves. These tangencies take place where  $\eta(t) = 1 - f$ . We have drawn the case in which  $f < \beta/\delta$ , which implies that the donor's indifference curves peak to the left of  $t_T(f)$ .

We can now illustrate the role of conditionality when unconditional aid is undermined by political economy considerations. For the sake of illustration we

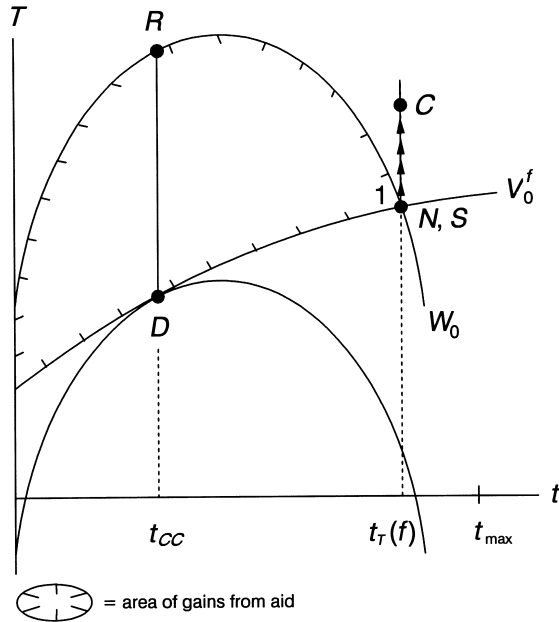


Figure 4. The aid relationship with  $f < f^c(G)$ .  $N$  is the no-aid point;  $C$  is the unconditional aid point;  $S$  is the Stackelberg equilibrium point without conditionality; and  $RD$  is the contract curve.

return to the case where  $\psi = 0$  so that the recipient government places no weight on the non-favored group. We begin by arguing that there will typically be gains from aid, even when unconditional aid is zero. This is illustrated in Figure 4, where we assume that  $f$  is low enough (given  $G$ ) that transfers are positive even in the absence of aid inflows [ $f < f^c(G)$ ]. The no-aid equilibrium is at point 1. By Proposition 4, this is also the aid equilibrium in the absence of conditionality, since the recipient's response to aid (indicated by the vertical arrows) makes the donor worse off. The diagram makes clear, however, that although aid is zero without conditionality, the *potential* gains from aid are strictly positive. Any point inside the hatched area represents the set of choices of  $t$  and  $T$  that generate Pareto improvements over the no-aid point. Proposition 5 generalizes this observation.

**Proposition 5.** *The gains from aid.* Regardless of the recipient's political economy, there are some values of  $G$  for which gains from aid exist. For  $f < \beta/\delta$ , gains exist for all values of  $G$ . For  $f \geq \beta/\delta$ , gains exist whenever  $G$  is low enough to induce transfers in the absence of aid or high enough to push the tax rate above the rate satisfying  $\eta(t) = 1 - (\beta/\delta)$ .  $\square$

In the case illustrated in Figure 4, aid-supported conditionality that lowers the tax rate even slightly makes both donor and recipient better off. But a Pareto-efficient aid contract would call for a reduction all the way to  $t_{CC}$ , in order to reach the contract curve. We can think of the players as bargaining over  $t$  and  $A$ , since with  $G$  predetermined any two of the variables  $t$ ,  $T$  and  $A$  determines the third. What combination will be chosen, if both donor and recipient can costlessly enforce commitments regarding aid flows and tax rates, cannot of course be determined without specifying the precise bargaining game between the donor and the recipient. We can, however, make the following observations.

**Proposition 6.** *The nature of conditionality.* Any conditional aid contract reduces the distortionary tax rate. If the donor has substantial bargaining power relative to the recipient, the accompanying fall in tax revenue will be partly financed by an increase in aid and partly by a reduction in transfers. If the recipient has substantial relative bargaining power, the implied reduction in tax revenue may actually be more than offset by aid inflows, allowing a net increase in transfers.  $\square$

Finally, Proposition 7 summarizes this discussion by giving a more complete account of the role of conditionality, distinguishing its role in preventing a collapse of aid from its role in securing an efficient aid contract.

**Proposition 7.** *The role of conditionality.* The role of conditionality depends on the values of  $f$  and  $G$ . Define  $G^c(f)$  as the critical value of public spending below which transfers are initiated [ $G^c(f)$  solves  $f = f^c(G - 0)$ ]. There are five regions:

- *Region 1.* For  $f < \beta/\delta$  and  $G \geq G^c(f)$ , conditionality is not required to secure some gains from aid, but it is required to secure a Pareto-efficient aid contract.
- *Region 2.* For  $f < \beta/\delta$  and  $G < G^c(f)$ , conditionality is required to secure any gain whatsoever from aid.
- *Region 3.* For  $f \geq \beta/\delta$  and  $G \geq G^c(\beta/\delta)$ , a Pareto-efficient aid contract can be reached without conditionality.
- *Region 4.* For  $f \geq \beta/\delta$  and  $G(f) \leq G < G^c(\beta/\delta)$ , conditionality has no role; there are no gains from aid.
- *Region 5.* For  $f \geq \beta/\delta$  and  $G < G^c(f)$ , conditionality is required to secure any gain whatsoever from aid. □

Figure 5 illustrates the five regimes in terms of the two key parameters of the process,  $G$  and  $f$ . In principle we could locate different countries within this figure and, indeed, could trace the evolution of the required aid relationship as countries' internal political economy and external circumstances changed over time. Thus, for example, we may be tempted to locate the major aid recipients of the postwar period such as West Germany, which faced a high level of  $G$  but was sufficiently representative, in regions 1 and 3 where conditionality was either not required or only needed to secure a Pareto-efficient outcome. Similarly, African economies such as Nigeria and Zambia in the 1980s could be located in region 2, while a country such as Zimbabwe may be seen as moving downwards (from, say, region 1 or 3 to 2 or 5) as the external threat posed by the hostile Apartheid South African regime subsided.

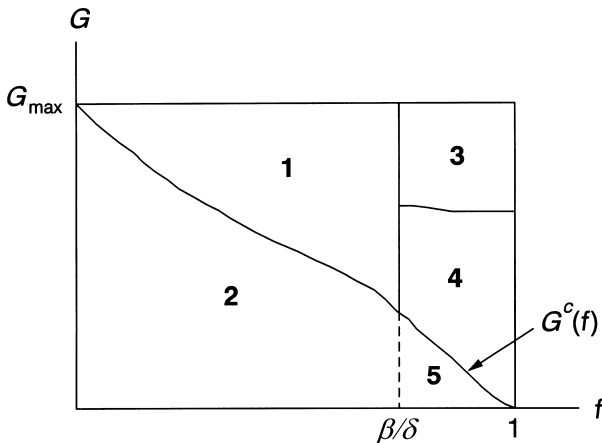


Figure 5. Gains from aid and the role of conditionality. In region 1, aid is positive but inefficient without conditionality. In region 2, aid is zero without conditionality; conditionality reduces  $t$ , and  $T$  may rise or fall. In region 3, conditionality is not needed for efficiency. In region 4, there are no gains from aid. In region 5, aid is zero in the absence of conditionality; conditionality reduces both  $t$  and  $T$ .

Propositions 4–7 conform with certain features of the evolution of the aid relationship in Africa, notwithstanding the clear weakness of the model in characterizing donor motivations during the Cold War era. The analysis ties the emergence of conditionality in the 1970s to deteriorating domestic policy choices associated with increasingly non-representative political structures. The increasing tightness of conditionality starting in the 1980s, and especially in the 1990s, can be associated with exogenous events that altered the external environment for developing countries and dramatically increased the relative bargaining power of donors. In what follows we discuss various extensions and implications of the analysis.

### 3.3 *Dependence and Graduation*

While the analysis in subsection 3.2 has a general plausibility we must acknowledge that in practice conditionality typically emerges in a context where donor and recipient interact through time, and not simply in a one-shot relationship. On the positive side, repeated interactions may generate some limited scope for mechanisms that alleviate time-consistency problems. But even if time consistency problems are solved, a fundamental limitation remains: conditionality over  $t$  alone locks the donor and recipient into a permanent relationship. Unless either  $f$  or  $G$  changes over time, either autonomously or in interaction with economic growth or aid flows, the donor must act as an agency of restraint in perpetuity. While an explicit analysis of graduation is beyond the scope of this paper, the analysis of subsection 3.2 provides some clues for thinking about the basic issues. In particular, the distinction between  $t$  and  $f$  in the two-period model mirrors an important practical distinction between what might be called “policy” and “process” conditionality, one that becomes essential when repeated interaction is considered.

Donors in subsection 3.2 treat political economy as predetermined and use conditionality to restrict the government's choices of economic policy ( $t$  and  $T$ ). Aid bargains are conditional in precisely those cases in which the contract curve is off the expansion path for the  $f$ -type government (e.g., the path from  $N$  to  $C$  in Figure 4). However, noting that the underlying budget constraint is independent of the political economy, each point on the contract curve is also located on an expansion path for some other value of  $f^* > f$ . In principle, therefore, it would be possible to arrive at the same  $(T, t, A)$  outcome by defining the aid contract in the current period in the form  $[f^*, A]$ . In this case aid is conditioned directly on a change in the recipient's political economy, and the political economy itself then (unconditionally) determines the level of taxation and transfers associated with the aid flow.<sup>17</sup> Rather than being defined over policy choices, conditionality in this case is defined over the policy process itself. This type of conditionality is clearly much less precise, but has tended to consist of, for example, reforms to

<sup>17</sup>Notice also that exogenous changes which altered  $G$  could also serve to alter the character of a given political economy, where as a result of the collapse of an external security threat the reduced (distortionary) cost of providing  $G$  induces the same government to start making transfers.

constitutional and legislative structures through competitive parliamentary elections and the shifting of power to legislative committees; judicial reforms; support for key institutions in the realm of civil society, such as trade unions and a free press; and policies supporting the emergence of restraining interest groups in the private sector, such as privatization programs aimed at widening share ownership.

In a one-shot aid relationship, the two forms of contract seem equivalent. What differentiates them in a multi-period context is the possibility that  $f$  is a “deeper” parameter than  $t$  or  $T$ , one that is less easily reversed. Unlike changes in  $t$ , which are temporary, changes in  $f$  alter the recipient’s no-aid position,  $N$ , in future periods. An increase in  $f$  shifts the government to a new position of tangency on the no-aid Laffer curve, shifting the no-aid point in Figure 4 some distance to the left of  $N$ , consistent with a lower value of  $t$  and lower (or zero)  $T$ . The no-aid point in these circumstances is no longer the “threat point” as in the case of the aid contract defined over current policy choices, but the desired outcome of conditionality over the policy process.

If changes in  $f$  are irreversible, the recipient will require greater compensation to accept a change in  $f$  than to commit to the resulting  $t$  for a single period. To the favored group, the cost of accepting conditionality over  $f$  is the present value of the future stream of rents foregone. Unless the recipient fully discounts the future beyond the next period, political conditionality will be more costly, particularly if there is scope for rents to accrue from the time inconsistency of the donor. The aid flow required to change the policy process will therefore be higher than that required simply to alter the recipient’s policy choice in a one-shot bargain. Two features of the 1990s, however, make the observed shift of donors towards political conditionality less surprising. First, the greater unanimity and stronger relative bargaining power of donors has enhanced their credibility, undercutting the expected future rents of recipients in the aid relationship. Second, internal pressures for democratization have increased the discount rate of government leaders by reducing their expected length of tenure.

The possibility of altering  $f$  irreversibly therefore brings out possibilities of graduation which previously were not available. Of course, if the donor is not credible then whether conditionality attaches to the political economy or to the tax rate and level of transfers is immaterial. However, the relevant difference between the two approaches is that  $f$ -conditionality requires donor credibility only over the short run, not permanently. In sufficiently straitened circumstances incumbents may discount the future heavily and accept conditionality over  $f$  even though it may undermine their discretionary powers in the future.

The superficial attraction of conditionality on  $f$  masks at least two fundamental problems. The first, noted above, is understanding how and why changes in  $f$  may be more permanent than changes in  $t$ . The second is understanding not only how the institutions that are summarized by the parameter  $f$  constrain the actions of the government, but more importantly how they evolve over time and how their evolution is influenced by aid. For example, in the model of democratic evolution considered by Persson and Tabellini (1994a) temporary aid conditioned over  $T$

and  $t$ , which accelerates the accumulation of  $K_H$ , would eventually lead to the emergence of a self-sustaining political economy in which the emergence of an encompassing interest in the taxable assets ensures that the taxation instincts of the government are circumscribed. In these circumstances, direct conditionality on  $f$  may not be necessary to bring about graduation: simply holding the recipient's feet to the fire long enough will suffice. Coate and Morris (1996) apply a similar logic in a lobbying model of political equilibrium, and show that there are conditions under which policy choices underpinned by temporary conditionality can become irreversible.<sup>18</sup> Similarly, direct conditionality over  $f$  may be required to generate graduation when collective action failures prevent the independent emergence of institutions and the growth of  $f$ . In this case, aid conditioned directly on the political economy may help to internalize the externalities, mirroring the role that early views of foreign aid expected external financial capital to play in solving "big-push" externalities. Specifically conditionality which reduces information costs – for example, through conditionality on freedom of speech and association or on legal representation – may contribute to the increase in  $f$ .

In all these cases, however, we are faced with a much greater problem, namely knowing how, in practice, aid flows would interact with nascent political institutions. Robinson (1997a, 1997b) suggest a promising way forward by incorporating political contestability into a structure similar to our own. Specifically, while taking the interest group structure ( $f$  in our model) as given, his model assumes that the provision by the elite of public infrastructure (which is analogous to the tax- and transfer-setting decision in our model) serves to reduce the costs faced by the opposition of coordinating revolutionary action against the elite. The elite shares in the growth-inducing benefits of the provision of public infrastructure, and hence is constrained by its "encompassing interest", but successful confrontation by the opposition results in the redistribution of the assets of the elite and the creation of a majority-rule structure of politics. Elites in this structure therefore face the tradeoff we emphasized in subsection 2.4 between faster growth and greater political contestability.<sup>19</sup> Although aid donors

<sup>18</sup> Coate and Morris consider the case where there may be uncertainty over the consequences of reforms so that only once reforms are introduced will groups fight to retain newly acquired entitlements. Similarly, coordination failures or threshold effects may prevent the emergence of agencies of restraint, but once established – perhaps through conditional aid – they will not be reversed.

<sup>19</sup> Robinson argues that incorporating contestability undermines a fundamental feature of Olson's "encompassing interests" paradigm. In his model, a wider elite is actually *more* likely than a narrow one to act in a predatory fashion, cutting infrastructure spending – and therefore growth – in order to defend its claim on national income (assumed proportional to  $f$ , as in our analysis). The reason is that the wider elite has a larger "prize" to defend. Bringing in the "prize" is a first-order contribution to the debate – with potential implications for unconditional aid, which becomes part of the prize – but the result that wider elites are more predatory than narrow ones depends very strongly on an implausible technology of revolution. Thus in the Robinson analysis, a wider elite has a greater command over resources than a narrow one, but this gives it no advantage in resisting revolution. Incorporating such an advantage would help secure a broader elite's property rights in future "rents", thereby neutralizing or even overturning the contestability effect and supporting higher rather than lower infrastructure levels.

make no appearance in Robinson's model, his approach draws out a number of implications consistent with our analysis. In particular, this process would allow "process" conditionality to take on a concrete interpretation: for example, in order to prevent costly direct action by the opposition, donors might make aid flows conditional on the adoption of democratic institutions. This is an area in which further analytical work is likely to deliver important insights.

#### 4. CONCLUSIONS

To say that institutional failures are central to Africa's poor economic performance is not to repudiate earlier interpretations based on policy failures and capital shortages. In the framework developed here, institutional failures *produce* policy failures which in turn *produce* capital shortages or the equivalent. The problem, instead, is that the design of effective aid programs depends on the diagnosis. Our aim in this paper has been to capture the analytical core of the evolving (primarily external) diagnosis of the African development problem. Four basic observations make this a relevant, and unfinished, exercise. First, donors as a group are currently in a position of overwhelming bargaining strength with respect to major African aid recipients, but are at the same time facing rising domestic concerns about the effectiveness of aid. Second, the decade of the 1990s has seen the most substantial political developments in many African countries since independence. Taken together these factors give donors extraordinary opportunities for implementing the political and institutional conditionality suggested by the current diagnosis but at the same time place a premium on understanding the underlying continuities that will condition the sustainability of alternative interventions. Third, our analysis raises some implications for aid selectivity, a central theme of the World Bank's recent study of aid effectiveness, *Assessing aid: what works, what doesn't, and why* (World Bank, 1998). The Bank's study leans heavily on innovative empirical work by Burnside and Dollar (1997), who report the following two results based on cross-country empirical work. First, the impact of aid on economic growth depends on the quality of economic policy: aid contributes to growth only where policy surpasses a threshold. Second, aid has very little effect on policy choice. Taken together, these observations suggest that donors concerned with the developmental impact of aid should retreat from conditionality and redirect aid to poor countries in which policy is already good.

Our framework brings out both the appeal and the limitations of this approach. Suppose we define a "good" policy environment as one in which transfers are inactive ( $T = 0$ ) so that distortionary taxes finance only productive public spending. Proposition 3 is then consistent with the first observation, as applied to unconditional aid: such aid enhances growth if and only if  $f$  and  $G - A$  are high enough that policy is "already" good. But even in its very simple form the analysis suggests two cautions. First, unconditional aid is subject to diminishing returns even in a good policy environment: in Proposition 3 a sufficiently large aid inflow

induces the initiation of transfers to the favored group even if such transfers were not initially present. Second, the *potential* gains from aid are typically positive even where transfers are initially active (Propositions 5–7). Not surprisingly, in fact, an effective conditionality package contributes much more to growth in an initially weak policy environment than in a strong one.

This leads to our final point. Practical arguments for selectivity lean crucially on a presumption that policy conditionality is ineffective and that policy reforms will only stick if they are supported by a domestic political equilibrium. This brings us back to the distinction between policy and process conditionality. Can donors direct conditionality towards institutions and policy processes rather than individual policy reforms? While aid practice has already shifted strongly in this direction, our analytical understanding of these issues lags well behind. The growth and political economy literatures are full of potentially relevant material, but the positive theory of institutional evolution, is in its infancy and can offer little systematic guidance as to what constitutes best practice for donors when institutional failures are important. Models such as ours which treat the political economy as given (by  $f$  and  $G$ ) should prove useful in exploring the diagnosis and posing the relevant questions; but a more complete understanding of aid effectiveness requires that the political economy be endogenized.

#### APPENDIX I: PROOF OF PROPOSITION 1

Define  $L = tg(K_H^*)$  as revenue from the distortionary tax. The first-order conditions for problem (3) are then

$$V_t + \lambda L_t = 0 \quad (\text{A1})$$

$$(V_z/f) - \lambda + \gamma = 0, \quad (\text{A2})$$

where  $\lambda$  and  $\gamma$  are the Lagrange multipliers associated with (3.1) and (3.2), and where  $L_t$  denotes the derivative of  $L$  with respect to  $t$ , which is the slope of the Laffer curve ( $L_t = tg_t + g$ ). Note that there should also be a constraint requiring  $t \geq 0$ , but as long as  $G > A$ , this constraint is never binding.

To verify our earlier graphical analysis, note that equations (A1) and (A2) imply

$$-f(V_t/V_z) = L_t + \gamma(f/V_z)L_t. \quad (\text{A3})$$

The left-hand side of (A3) is the slope of an indifference curve. If the non-negativity constraint on transfers is not binding (so that  $T$  is positive and  $\gamma = 0$ ), the right-hand side of (A3) is the slope of the Laffer curve and the optimum takes place at a point of tangency, as discussed in the text. It is straightforward to verify that the second-order condition holds for the production function  $g(K_H) = (K_H)^a$ ,  $0 < a < 1$ , for  $a \geq \frac{1}{2}$  (the latter condition is sufficient but not necessary).



We now show that  $f = 1$  implies  $\gamma > 0$ , so that transfers are zero for a fully representative government. By the envelope theorem,  $V_t = -\beta U_2 g(K_H)$  and  $V_z = \beta U_2$ . Letting  $\eta$  be the elasticity of the output function [ $\eta = -tg'(t)/g(t) > 0$ ], we can use (A1) and (A2) to write

$$\lambda = 1/(1 - \eta) = 1/f + \lambda/(\beta U_2). \quad (\text{A4})$$

The shadow price  $\lambda$  is non-negative, so we know that at an optimum,  $0 < \eta \leq 1$ . It follows that  $\lambda > 1$ . But this in turn implies that if  $f = 1$ , we must have  $\gamma > 0$ .

To show that (3.2) remains binding for “sufficiently” representative governments, simply note that with  $T = 0$ , the tax rate is tied down by the Laffer curve [the optimal  $t$  solves  $t = (G - A)/g(t)$ ]. But since  $\eta$  is a function only of  $t$ , this ties down the value of  $\eta$  and therefore of  $\lambda$  in (A4). The cutoff value of  $f$  is therefore given by (A4) with  $\gamma = 0$ :

$$f^c = (1 - \eta) < 1. \quad (\text{A5})$$

This establishes Proposition 1.

#### APPENDIX II: PREDATION AND TIME CONSISTENCY

The growth effects we have studied operate through the effect of future tax rates on current investment. Governments internalize this link and therefore have an incentive to announce low future taxes in order to secure a large tax base. But as long as investment is at least partially irreversible, high rates of capital taxation will seem more attractive *ex post* – when they distort behavior less – than *ex ante*. Governments may therefore be tempted to renege on low tax rates once the private sector has invested in taxable activities. Anticipating this, the private sector may substitute current consumption for savings and switch its investment away from readily taxable forms of capital. The result may be a low-investment, high-tax equilibrium in which the government’s inability to pre-commit penalizes all parties: the private sector faces a more distorted tax environment than under commitment, and the government faces a shrunken tax base.

Governments therefore have an incentive to bind themselves, unless considerations not modeled here produce some value to flexibility. We have shown in the text that in the commitment case, governments that cater to narrower favored groups choose “worse” policy. In this appendix we extend the analysis to the case in which governments lack a precommitment mechanism. Our purpose is simply to demonstrate that the political structures that generate predatory behavior under commitment can also create an acute time consistency problem *that would not otherwise be present*. Narrower governments are therefore more likely to renege and more likely to generate highly inefficient outcomes.

The time consistency of capital taxation has been extensively studied in a two-period setting similar to that of section 3 and Appendix I (e.g. Fischer, 1980). To

incorporate lack of precommitment, we allow the government to re-optimize its tax and transfer rates once the private sector has irreversibly chosen its investment portfolio. For reasons to become apparent, we incorporate an administrative cost of  $\alpha$  per unit of revenue into the government's budget constraint. The government's second-period (discretionary) optimization problem is then:

$$\max_{\{t, T\}} u(c) \quad (\text{A6})$$

subject to

$$c = (1 - t)g(K_H^*) + RK_L^* + (T/f) \quad (\text{A6.1})$$

$$T + G + \alpha tg(K_H^*) = tg(K_H^*) \quad (\text{A6.2})$$

$$T \geq 0 \quad (\text{A6.3})$$

$$(1 - t) \geq 0, \quad (\text{A6.4})$$

where  $K_H^*$  and  $K_L^*$  denote the levels of investment in the two assets chosen by the private sector in the first period. The Lagrange multiplier on constraint (A6.2) is denoted by  $\lambda > 0$ , and  $\gamma, \theta \geq 0$  denote the Kuhn–Tucker multipliers for constraints (A6.3) and (A6.4), where for convenience we have defined constraint (A6.4) in terms of the “retention rate” of the private sector. The main difference from the problem analyzed in (3) is that the government's revenue constraint is now linear in the tax rate  $t$ , reflecting the irreversibility of the tax base. Our key result follows:

**Proposition.** Full expropriation for the sake of transfers is an equilibrium unless  $f > 1 - \alpha$ . □

*Proof.* The first-order conditions for (A6) take the form

$$-u'g(K_H^*) + \lambda(1 - \alpha)g(K_H^*) - \theta = 0, \quad (\text{A7})$$

$$\frac{u'}{f} - \lambda + \gamma = 0. \quad (\text{A8})$$

Solving for  $\lambda^* = \lambda/u' > 0$ , we derive the following condition:

$$\lambda^* = \frac{1}{1 - \alpha} + \frac{\theta}{(1 - \alpha)u'g(K_H^*)} = \frac{1}{f} + \frac{\gamma}{u'}. \quad (\text{A9})$$

Equation (A9) implies a “bang-bang” property of government behavior with respect to transfers. For  $f > 1 - \alpha$ , administrative costs “eat up” any attempt to transfer net resources to the favored group, and the government restricts capital taxation to the amount required to finance  $G - A$ . For  $f < 1 - \alpha$ , in contrast, each

dollar of taxation delivers a net benefit (ex post) of  $[(1 - \alpha)/f] - 1$  to each member of the favored group. Opportunism drives the government to full expropriation, defined as a situation in which  $\theta > 0$  (so that  $t = 1$ ) and  $\gamma = 0$  (so that  $T > 0$ ).

If there are no administrative costs ( $\alpha = 0$ ), then full expropriation is an equilibrium for any value of  $f$ , including  $f = 1$  (in which case  $t = 1$  but the constraint is “just” binding so that  $\theta = 0$ ). The best we can say is that a fully representative government is indifferent between full expropriation and any combination of  $t$  and  $T$  satisfying the budget constraint. A vanishingly small friction in the form of an administrative cost of tax collection, however, is sufficient to rule out full expropriation by a fully representative government, by violating the second equality in (A9). In this fundamental sense, *the same political economy considerations that plague the commitment equilibrium can produce the most acute manifestation of a time consistency problem*. In the particular structure used here, fully representative preferences are not required to eliminate the full-expropriation equilibrium: the combination  $\theta > 0$ ,  $\gamma = 0$  is infeasible for any value of  $f$  exceeding  $1 - \alpha$ .

One-shot capital taxation models often have discretionary equilibria that involve partial rather than full expropriation, defined as a tax rate that leaves the economy on the “wrong” side of the Laffer curve but does not completely drive out the taxed activity (see Persson and Tabellini, 1990). Since any value of revenue (net of administrative costs) can be generated by two alternative (anticipated) tax rates in our model, this inferior discretionary equilibrium exists whenever a government is not tempted to undertake discretionary transfers ( $f > 1 - \alpha$ ). Under discretion, therefore, such a government may find itself in a high-tax, partial-expropriation equilibrium. Our model therefore retains the flavor of the standard capital taxation literature, in which even a fully benevolent government faces a commitment problem.

Regardless of  $f$ , aid conditionality is in principle among the devices capable of supporting commitment. But this, in turn, is subject to the credibility of the donor. A full assessment of institutions capable of supporting commitment requires an analysis of repeated interaction, raising issues that remain unsettled in the literature, particularly in the capital taxation case [the key papers in this literature and an excellent overview appear in Persson and Tabellini (1994b)].

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