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Debt Relief and Civil War

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Abstract

Of the 41 HIPC, 11 are classified by the IMF and World Bank as conflict-affected. Can debt relief reduce the level of violent conflict in these countries? By providing additional resources to finance broad-based public spending, debt relief could help to redress the grievances that contribute to conflict. It could also reduce the ability of those motivated by greed to recruit followers, since the incomes, and therefore the grievances of followers, will fall if they benefit from broad-based public spending. But four things can go wrong with the use of debt relief in this way. First, the war party may prevail over the peace party in government, especially if the war party profits directly from conflict. Second, the fiscal system may be so institutionally weak that it cannot achieve the promised fiscal transfer even if the peace party prevails. .../...

Keywords: debt relief; conflict; fiscal policy; sub-Saharan Africa

JEL Classification: C72; F34, F35, O10; O55

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Third, the rebel leaders may capture most of the fiscal transfer, leaving the grievances of their followers to ferment into further conflict. Fourth, a fiscal transfer that could have prevented conflict may be insufficient to stop a war once it begins, since rebels will seek out war-related income (and external finance) that may substantially exceed any promised post-war fiscal transfer. Hence, other forms of international action will be necessary alongside debt relief to end conflict.

Tables and figures appear at the end of this paper.

1 Introduction

Of the 41 HIPC's, 11 are classified by the IMF and World Bank as conflict-affected, 10 of them being in Sub-Saharan Africa (IMF and World Bank 2001: 21).¹ To this list could be added other HIPC's that are politically unstable and which could be on the cusp of conflict (for instance Nigeria and Zambia). We could also add HIPC's with recent histories of conflict, notably Guinea-Bissau, Mozambique, and Rwanda. Clearly, the conflict dimension of the HIPC problem cannot be ignored (see Table 1).

Some debt relief has been provided to 'post-conflict' countries, most notably Mozambique. And influential figures—such as UK Chancellor of the Exchequer, Gordon Brown—have called for more assistance to indebted post-conflict countries (Brown 2001). However, many argue that this is far from enough, especially in relation to the scale of the damage that conflict inflicts—and indeed many conflict affected countries presently receive no debt relief under the HIPC initiative (Christian Aid 2000).

The use of debt relief (and other external assistance) may offset some of the damage done by conflict. But could it also reduce the level of conflict itself? This paper addresses the latter question. To start answering it, we must understand the nature and causes of contemporary wars. This is the focus of section 2, in which we discuss two sets of motives for violent conflict: greed and grievance. We argue that while greed is important—especially over natural resource wealth—contemporary conflicts are characterised by considerable grievance as well. This often arises when the government does not distribute public spending fairly; a weakening of the social contract and rebellion by the excluded emerges. Section 3 presents an analytical model of conflict based on a Cournot-Nash game between rebels and a government as in Addison et al (2000). We model a conflict where neither side can completely overthrow the other in the foreseeable future, but nevertheless fight one another (Angola for instance). From the perspective of the belligerents, this is a 'low-intensity' conflict (although of course its humanitarian costs can be very high). The states of war and peace are therefore along a continuum, neither complete war nor complete peace, which is sadly the situation in many countries today. The model also illustrates another common problem: the existence of both a pro-peace group, and a pro-war group, in government itself, and the necessity for the former to gain the upper-hand so that the resources released by debt relief are used to redress the grievances of rebels.

Finally, section 4 summarises and concludes that debt relief can contribute to achieving peace by providing additional resources for a fiscal transfer (broad-based public spending) to rebels that reduces their grievances, and incentives to fight. We note, however that four things can go wrong with the use of debt relief in this way. First, the war party may prevail over the peace party in government, especially if the war party profits directly from conflict. Second, the fiscal system may be so institutionally degraded that it cannot achieve the promised fiscal transfer even if the peace party

¹ These are: Angola, Burundi, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Ethiopia, Liberia, Myanmar, Sierra Leone, Somalia, and Sudan. The total debt stock (as of end 1999) of these 11 countries is US\$ 63.7 billion (IMF and World Bank 2001: 21).

prevails. Third, the rebel leaders may capture most of the fiscal transfer, leaving the grievances of their followers to ferment into further conflict. Fourth, a fiscal transfer that could have prevented conflict may be insufficient to stop a war once it begins, since rebels will seek out war-related income (and external finance) that may substantially exceed any promised post-war fiscal transfer. Hence, other forms of international action will be necessary alongside debt relief to end conflict.

2 The Causes of conflict in HIPCS

With the exception of Ethiopia, and its 1998-2000 war with Eritrea, HIPC conflicts are internal.² This conforms to the pattern of contemporary wars, particularly in SSA; of the 37 active conflicts in 1999, 33 were intrastate in nature (Wallensteen and Sollenberg 2000: 635). Many conflict-affected HIPCs are rich in natural resources, particularly 'point' resources such as diamonds and oil; these are concentrated thereby facilitating their capture.³ Greed or the desire to acquire these valuable resources is now frequently cited as the driving force in contemporary civil wars (see Collier and Hoeffler 1999 for example). Grievances are therefore often seen as excuses utilised to mask avaricious motives. While there is some truth in this, grievance does itself exist as a motive independent of greed. The 'divide and rule' strategies of colonialism encouraged inter-ethnic grievances (DRC and Rwanda are tragic examples). And a single ethnic group (or a subset) often assumed power in the immediate post-independence era, subjugating others and capturing the fruits of state power—public employment, other public spending, and resource rents—into its own hands (see Ndikumana 2001 on Burundi and Rwanda). There can be little doubt that grievance, often with an ethnic dimension, is a powerful organising and motivating basis for civil war in addition to greed. Hence, Addison et al (2000) present a model in which civil war is partly motivated by desire for natural resource rents, but where historically given grievances also have a role.

A focus on grievance, points us to a central fact, namely that civil war represents a partial or complete breakdown of the social contract—the rules of the game that govern the distribution of the social pie, and the mechanisms for resolving conflicts peacefully. Such breakdown is especially likely when the state fails to apportion public spending fairly, in a 'broad-based' manner. Azam and Mesnard (2001) present a model of civil war in which the social contract between different groups weakens when the state breaks its implicit promise to make a fiscal transfer to all of society's members. Those who are excluded rebel in an attempt to overthrow the state and redress their grievance. Azam (2001) attempts to explain inter-ethnic conflict in Africa as emanating from the state's failure to make fair provision, encouraging individuals to rely more on ethnic ties or "ethnic capital" (akin to social capital). This facilitates the use of ethnicity as an organising mechanism for violence, this being a more powerful organising force relative to social class in Africa.

² This is not to ignore the impact on neighbouring countries of civil wars in such HIPCs as Angola and the DRC.

³ On the distinction between point resources (minerals etc) and diffuse resources (soils, water etc) see Auty (1998). On the nature of contemporary conflicts see Nafziger et al (2000).

Achieving peace is then difficult since subsequent promises by the state to rectify the initial injustice may be imperfectly credible (Addison and Murshed 2001). Moreover, if conflict is prolonged, the economy's decline reduces the size of the fiscal transfer that the state is able to offer, as the tax base declines, compared with the initial transfer it should have made to avoid war. The state can share the post-conflict peace dividend with the rebels, and reducing military spending after a peace deal will release resources for such broad-based spending as education and health (see Table 1 on the comparative size of social spending versus military spending). And, lowering military spending should have a positive effect on growth, and thus raise the tax base to finance a higher fiscal transfer to the excluded (Deger and Sen, 1983, find that military spending has a negative effect on growth in developing countries). But the state cannot reduce military spending before a peace deal is signed to finance the fiscal transfer, given the mutual distrust of both parties.

These considerations bring us back to debt relief, for this adds to the resources that a state intent on peace could potentially offer—through broad-based public spending—to redress grievances and thereby achieve complete peace, or at least lower the level of fighting. The object of this paper is to identify the conditions under which this will occur. An increase in broad-based spending is modelled in section 3 below as an increased fiscal transfer (as in Azam and Mesnard, 2001) to the excluded rebel group. Alternatively, the government might choose to keep more of the resources from debt relief for itself—thereby reneging on any promise to donors to use debt relief to buy peace—and counter the threat posed by rebels by raising its fighting effort. The answers are intuitive: the outcome depends on what type of government, or what party (peace or war)⁴ has greater influence on the government of the day.

3 The analytics of civil war and debt forgiveness

The expected utility of the government side (G) is given by:

$$G = \pi(a, e)G^P + (1 - \pi)(\cdot)G^C - C(a) \quad (1)$$

and

$$\begin{aligned} G^P &= \alpha Y^G - pF^G - T \\ \alpha &> 1 \\ Y^G &= B - iD \\ G^C &= Y^G - cF^G \\ a &= \frac{T(Y^G)}{F^G(W)} \\ c &> p. \end{aligned} \quad (2)$$

⁴ We use the terms peace or war party to refer to opposing factions within the state.

Where G^P and G^C denote utilities or pay-offs in peace and conflict respectively, weighted by the probabilities of the two states (π). The net income of the government (Y^G) is given by available revenue (B) less debt servicing obligations (iD), D being the stock of debt times the interest paid on it (i). Note also that the government's income is greater during peacetime, $\alpha > 1$. This is because income is derived from tax revenues which in turn is related to output and the technology of production. During war production falls due to rising transactions costs, reduced investment, and the flight of labour. Output losses are generally greater in resource-diffuse economies than in “point-source” ones. But even in the latter case, there are investments necessary to make extractive mining sectors function. However, in certain instances, as with alluvial diamonds, $\alpha < 1$, reflecting the ease of obtaining of natural resource based revenues (or where forcible appropriation is the key). The parameter, a , is the strategic choice variable of the government.

T is the “transfer” made by the government to the rebels in the state of relative peace. These can take a variety of forms including broad-based social and development expenditure extended to the rebels, power sharing, and the inclusion of the otherwise excluded group in government jobs and state contracts. F , denotes military expenditure, this is clearly greater in wartime than during peace, hence $c > p$. Note that even the peaceful outcome is a state of armed peace, as a minimum credible deterrent is required by the state.

The probabilities of the two states are not related to a Tullock type rent-seeking contest (Hirshleifer, 1995, for example).⁵ This is because the low-intensity conflict is not a war of attrition. The rebels cannot expect to oust the government solely via a military victory and vice versa (the situation in Angola for example). Nor does the government have a Weberian monopoly over violence. We are concerned with a continuum of possible states of peace or war.

In fact, the strategic actions of the two players are a ratio of peaceful-belligerent behaviour. This is reflected in the ratio of transfers to military expenditure in definition of a in (2). Totally differentiating the expression for a in (2) we obtain:

$$da = \frac{T_1}{F^G} dY^G - \frac{T}{F^{G^2_1}} dW \quad (3)$$

The first term on the right-hand side of (3) is positive, while the second term has a negative sign before it ($T_1, F^{G_1} > 0$). The first term is associated with a transfer to the excluded, and the second corresponds to a greater military effort against the rebels. W stands for the government's objective function with respect to military expenditure, which will be defined below. The chances of the peaceful state in equation (1) are positively associated with a . In other words, $\pi_a > 0$, (but $\pi_{aa} < 0$, due to diminishing returns). Peace is more likely if a transfer is made, including the excluded, rather than resorting to military expenditure with a view to overthrowing the rebels. There is a trade-off between transfers and fighting to generate the same level of expected utility indicated in (1). A more benevolent and developmental state may prefer making

⁵ This is where the chances of winning the prize (winner takes all) is related to the outlays (fighting effort) made by each protagonist relative to the total effort of all contenders.

transfers to rebels to fighting them.⁶ In equation (1), C is the cost function of undertaking the action, a , which increases the probability of peace, π . Both $C_a > 0$ and $C_{aa} > 0$. This cost function may also incorporate psychological costs of making peace.

Turning to the rebel or excluded group, its expected utility (R) is given by:

$$R = \pi(a, e)R^P + (1 - \pi)(\cdot)R^C - E(e) \quad (4)$$

where

$$\begin{aligned} R^P &= \alpha Y^R - pF^R + T \\ R^C &= Y^R - cF^R \\ e &= \frac{T(Y^G)}{\theta} \end{aligned} \quad (5)$$

The excluded group, not being the state, is not responsible for debt servicing. Its income is exogenous, but may be greater during peace, at least for diffuse economies for the reasons outlined above. The “exogenous” income of the rebel group might be derived from voluntary contributions in rebel areas, or coercion of the local population, contributions from sympathetic citizens’ abroad or the export of narcotics and natural resources such as diamonds. The government side too may obtain external assistance and control over natural resource rents in a state of war.

E is the cost of effort, e , which increases the probability of peace, π . Also, $\pi_e > 0$, but $\pi_{ee} < 0$, $E_e > 0$, and $E_{ee} > 0$. Peaceful effort increases as more transfers or broad-based social expenditures are extended to the rebel group. We introduce a shift parameter, $\theta > 0$, which affects the level of peaceful action. It is an absolute measure of historical *grievance*. This grievance or sense of injustice serves to bind the rebels into a group, overcoming the Olsonian (1965) collective action problem. Furthermore, the presence of the grievance is what precludes cooperation or an effective social compact between the government and the rebels. A rise in θ could be caused by an increase in poverty or a greater perception of injustice; it serves to increase the cost of peaceful effort and raises belligerency levels amongst rebels. Alternatively, the parameter θ could reflect the relative income gap between the government and rebels.⁷ A similar line of analysis will apply to the rebels as in (3):

$$de = T_1 dY^G - \theta^2 d\theta \quad (6)$$

⁶ We refrain from making the distinction between democracies and military dictatorships in this regard, as democracies are occasionally “militaristic” and dictatorships pacific, even inclusive.

⁷ We could make θ a negative function of the transfer, T ; excluding this link does not affect the results as peaceful effort is already increasing in T .

Conflict (non-cooperation) occurs because neither side can cooperate or enter into a social contract due to the presence of historical grievances, low levels of transfers to the rebel group, imperfectly credible transfers to the rebel group or because the returns to peace relative to war are insufficient. In the model payoffs are exogenous, what is endogenous are the strategies adopted by the two-sides in a Cournot-Nash non-cooperative one-shot game which in turn depend on disposable income, debt servicing, transfers, fighting intensities and grievances.

Each side will maximise its own utility function with respect to its own choice variable. For the government it implies maximising utility in (1), with respect to a as shown by

$$\frac{\partial G}{\partial a} = \pi_a [G^P(\cdot) - G^C(\cdot)] - C_a = 0 \quad (7)$$

Rebels maximise (4) with respect to e :

$$\frac{\partial R}{\partial e} = \pi_e [R^P(\cdot) - R^C(\cdot)] - E_e = 0 \quad (8)$$

Equations (7) and (8) form the basis of the reaction functions for both sides, obtained by totally differentiating them with respect to a and e . Thus:

$$\frac{de}{da / R^G} = \frac{C_{aa} + \pi_{aa} [G^C(\cdot) - G^P(\cdot)]}{\pi_{ae} [G^P(\cdot) - G^C(\cdot)]} \begin{matrix} \geq \\ \leq \end{matrix} 0 \text{ if } \pi_{ae} \begin{matrix} \geq \\ \leq \end{matrix} 0 \quad (9)$$

and

$$\frac{da}{de / R^R} = \frac{\pi_{ae} [R^P(\cdot) - R^C(\cdot)]}{E_{ee} + \pi_{ee} [R^C(\cdot) - R^P(\cdot)]} \begin{matrix} \geq \\ \leq \end{matrix} 0 \text{ if } \pi_{ae} \begin{matrix} \geq \\ \leq \end{matrix} 0 \quad (10)$$

Note that $\pi_{ae} = \pi_{ea}$ by symmetry.

The reaction functions are positively sloped if $\pi_{ae} > 0$, implying that the two strategies are complements (figure 1). This is the standard assumption in the literature on conflict. In our model, however, we allow for the possibility that $\pi_{ae} < 0$, the choice variables are strategic substitutes, and the reaction functions could slope downwards (figure 2). This can occur because the strategy space is defined in terms of peace. Thus if one side behaves more peacefully it increases the utility of both parties, and the other side may free ride on this action by not bringing about a corresponding increase in their action. It must also be remembered that action and effort entail costs. Also recall that we are concerned with relative states of war and peace. Thus the two strategies can become substitutes the closer society is to complete peace, or the lower is the state of belligerency.

We now move to consider the mechanics of debt-relief in this model. It will raise the net income of the government, Y^G . As a consequence, will efforts in connection with peace, the parameter, a , as indicated in (3) rise or fall? Equation (3) suggests that the effect on a of a rise in Y^G is ambiguous. On the one hand transfers (T) increase, which raises a , but on the other hand so could fighting intensity (F^G) which lowers, a . The eventual outcome depends on the preferences of the state with respect to T and F^G . This raises the question as to how government attitudes are formed, requiring us to specify and evaluate the government objective function with respect to fighting, W in (3). Normally, unanimity of views is rare even within the ruling group. Let us consider a simple version of competing interests within the state, composed of a belligerent party and a peace party. The influence of the first group is measured by b , and the latter group by $1-b$. The grand objective function (W) of the state, therefore, can take the following form:

$$W = bF^G + (1-b)(Y^G - F^G - T) \quad (11)$$

Equation (11) is constructed such that the war party, whose influence is measured by b , receives utility from fighting as it receives the wages, salaries and contracts associated with war (F^G). The peace party ($1-b$) prefers making the transfer and obtaining the income from peace.⁸ Debt-relief raises net income which raises the ability to be inclusive to the rebels via increased transfers, T or allows for more fighting effort. Totally differentiating (11) with respect to F^G we obtain:

$$\frac{dW}{dF^G} = 2b - 1 \begin{cases} > 0 & \text{as } b > 1/2 \\ < 0 & \text{as } b < 1/2 \end{cases} \quad (12)$$

Thus, if the peace party has greater influence than the war party, ($dW/dF^G < 0$) the government will choose more transfers and higher levels of peaceful effort, a after debt relief ($da > 0$ in equation 3). Conversely, if $dW/dF^G > 0$, then the sign of da in (3) is ambiguous. Exactly how the relative influence of the two sides within the state is determined through lobbying and other endogenous processes is analysed in Murshed (2000).

Let us consider the possibility that greater influence in the state is wielded by the peace party and there is a relative rise in T , and hence a . In figure 1 the reaction function of the government will move rightwards, and the rebels' reaction function upwards. The rebels' stock of grievances (θ) has not risen in (6) but transfers have increased, raising their equilibrium levels of peaceful effort, e . Compared to the new equilibrium at point A, the new equilibrium at B is relatively more peaceful, which is what the donors want. An acceptable level of non-belligerency may have emerged. Lasting peace, however, requires high levels of a and e chosen by both sides, with θ eliminated. This also implies high levels of transfer, T or broad-based spending by the state, high income (Y) levels during peace relative to war (large a and a diminished ability to profit from war).

⁸ Note that the second term in (11) is similar to the government utility function in (1). In (11) the second term can be interpreted as the risk averse nature of the peace party compared to the risk neutral nature of the entire government. The war party may be viewed as risk lovers.

What if the two strategies are substitutes as in figure 2. Both reaction functions will shift in an upward direction. Again the equilibrium moves from A to B showing more peaceful behaviour. But at point B the rebels are engaged in less effort than previously by passing some of the burden of peaceful behaviour to the government. It could have, of course, worked in the opposite direction with the government side free-riding on the rebels. In general terms, it is more difficult to achieve greater levels of total peacefulness, when the strategies of the two sides are substitutes.

4 Conclusions

If we are to end wars then we must understand their causes. This paper has argued that while greed is important, grievance is also a powerful motivation. Debt relief could help to reduce grievance by providing resources to achieve broad-based public spending (if the peace party prevails over the war party in government). It is unlikely to eliminate violent conflict entirely, but reducing the level of fighting (and therefore the humanitarian costs) is a worthwhile objective. To end war completely, we need to get rid of greed as well—or at least confine it to peaceful commerce. Debt relief may not directly affect the preferences of greedy actors (either state actors or rebels). But by reducing grievance it will raise the cost to greedy leaders of recruiting followers (whose living standards post-debt relief will be higher), and thereby reduce the profitability of making war.⁹ This will complement the use of other instruments, notably the strengthening of international criminal justice, to alter the preferences and actions of greedy belligerents.

Several things can go wrong. First, the war party may prevail over the peace party in government. Government representatives at peace talks may not have the backing of hawks back home, including the military. Some of the debt relief together with domestic resources may have to be used to buy off the war party (and indeed this happens, as in Mozambique, through the formation of a new post-war national army with better pay and conditions). This dilutes the amount that can be offered to the rebels, reducing the possibility of peace. Moreover, if the war party profits from the continuation of war—and this is common in prolonged conflicts such as Angola and DRC—the expected value of the payoff from the peace party may be far less than the certain value of loot and other profit to the war party.¹⁰ In Angola, DRC, and Sudan, the military have profited handsomely and will indeed cut ‘side deals’ with rebels to share the profits by,

⁹ For instance, high levels of pre-war youth unemployment assisted Sierra Leone's warlords in recruiting followers in their drive to capture the country's diamond areas. The country's ‘youth crisis’, and the attendant grievance of the young against their exclusion from decent education and employment, is as important in explaining Sierra Leone's conflict as the existence of the diamond ‘prize’.

¹⁰ Where either or both government income under conflict, R^G and R^R is very high due to external funding or the ability to export narcotics or diamonds in a state of conflict then the (a) the transfer to the rebels and/or (b) debt relief to the government must be high. Even then it may not lower conflict if R^G and R^R are exogenously high.

for example, exporting valuable natural resources across the battle lines (Nafziger et al 2000).

Second, the fiscal system may be so degraded that it is unable to effectively achieve the promised broad-based fiscal transfers even if the peace party prevails. This is certainly a problem that will have to be resolved in Angola and DRC (and such institution building will itself absorb a sizeable portion of the resources from debt relief). Third, the rebel leaders may ex post capture most of the fiscal transfer—through their entry into post-war national and regional government—leaving little for their followers. Grievance will remain, and new leaders may well emerge from the ranks of the followers (if for instance the greed of the old rebel leaders is sated, and they have no wish to take up arms again on behalf of their still poor followers). Fourth, a given fiscal transfer that would have prevented war may be insufficient, once war has started, to achieve peace. This is because as war proceeds, so rebels mobilize more external funding (from diasporas and entrepreneurs hoping for profit) and from the sale of loot, natural resources, and the use of rebel-held areas to grow narcotics. This income and external finance may well exceed any conceivable fiscal transfer, using debt relief or any other external assistance. Hence, other forms of international restraint—on money laundering, sales of ‘blood diamonds’, and arms flows—are necessary alongside debt relief.

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Table 1
External debt of conflict-affected HIPC^s (in millions of US dollars)

	Angola	Burundi	C.A.R.	Congo, Dem. Rep. Of	Congo, Rep. of	Ethiopia	Liberia	Myanmar	Sierra Leone	Somalia	Sudan	Total
Total Debt Stocks ¹ (as of end-1999)	10,871	1,131	913	11,921	5,031	5,551	2,152	5,999	1,249	2,627	16,273	63,718
Public and publicly guaranteed	9,248	1,050	830	8,187	3,932	5,360	1,063	5,333	938	1,860	8,852	46,653
Multilateral	312	899	612	2,230	600	2,741	398	1,251	530	729	2,011	12,313
Of which:												
IBRD	0	0	0	82	67	0	125	0	0	0	3	277
IDA	214	599	403	1,235	166	1,739	103	723	300	409	1,208	7,099
AfDB	51	9	3	494	194	195	56	...	...	4	87	1,093
AfDF	29	202	140	190	11	653	57	...	126	91	237	1,736
Bilateral	3,351	150	185	5,453	2,551	2,490	460	3,555	402	1,097	5,494	25,188
Private Creditors	5,584	1	32	504	782	130	205	527	6	34	1,347	9,152
Private nonguaranteed	...	...	...	...	...	...	...	...	...	...	496	496
Short-term debt	1,624	70	60	3,217	1,070	96	446	666	117	491	5,372	13,229
IMF credit	0	12	23	516	29	95	645	0	195	277	1,554	3,346
Arrears ² (as of end-Jan. 2001)												
IBRD	...	...	...	120	56	...	292	...	...	...	...	468
IDA	...	...	...	167	7	...	26	56	...	74	174	504
IMF	...	...	...	504	...	...	626	...	...	270	1,440	2,840
AfDB	21	6	3	740	81	...	142	...	...	9	49	1,051
AfDF	...	4	12	38	...	...	3	...	...	23	24	104
Debt ratios												
Total debt stocks to GDP (in per cent)	175	143	87	223	227	86	480	92	188	...	159	...
Total debt stocks to export (in per cent)	204	1,824	473	951	284	607	3,611	372	1,358	...	1,958	...

Sources: *Global Development Finance 2001* ; *World Economic Outlook 2001* ; IMF; AfDA; and the World Bank.

¹ Data are from the World Bank's Global Development Finance except for debt to IMF. Data include arrears on contractual interest except in the case of IBRD, IDA, and AsDP but exclude all penalty interest. IMF credit includes interest arrears and special

² Includes all principal and interest arrears as of **end**-January 2001.

Source: IMF (2001: 21).

Table 2

Public expenditure on health, education, and the military as percentages of GNP in sub-Saharan Africa

	Public Expenditure on Health (% GNP)	Public Expenditure on Education (% GNP)	Military Expenditure (% GNP)
	1990-98	1997	1997
Angola	3.9	---	20.5
Benin	1.6	3.2	1.5
Botswana	2.7	8.6	5.1
Burkina Faso	1.2	1.5	2.8
Burundi	0.6	4.0	6.1
Cameroon	1.0	--	3.0
Central African Republic	1.9	--	3.9
Chad	2.4	1.7	2.7
Congo, Democratic Rep.	1.2	--	5.0
Congo, Rep.	1.8	6.1	4.1
Cote d'Ivoire	1.4	5.0	1.1
Eritrea	2.9	1.8	7.8
Ethiopia	1.7	4.0	1.9
Ghana	1.8	4.2	0.7
Guinea	1.2	1.9	1.5
Kenya	2.2	6.5	2.1
Lesotho	3.7	8.4	2.5
Madagascar	1.1	1.9	1.5
Malawi	2.8	5.4	1
Mali	2	2.2	1.7
Mauritania	1.8	5.1	2.3
Mozambique	2.1	--	2.8
Namibia	3.8	9.1	2.7
Niger	1.3	2.3	1.1
Nigeria	0.2	0.7	1.4
Rwanda	2.1	--	4.4
Senegal	2.6	3.7	1.6
Sierra Leone	1.7	--	5.9
South Africa	3.2	7.9	1.8
Tanzania	1.3	--	1.3
Togo	1.1	4.5	2.0
Uganda	1.8	2.6	4.2
Zambia	2.3	2.2	1.1
Zimbabwe	3.1	--	3.8

Source: DFID (2001: 24-25)

Note: a larger proportion of military spending is 'off budget' compared with education and health spending in many countries. Accordingly, the reported data on military spending should be treated as lower bounds.

Figure 1:
Strategic complements

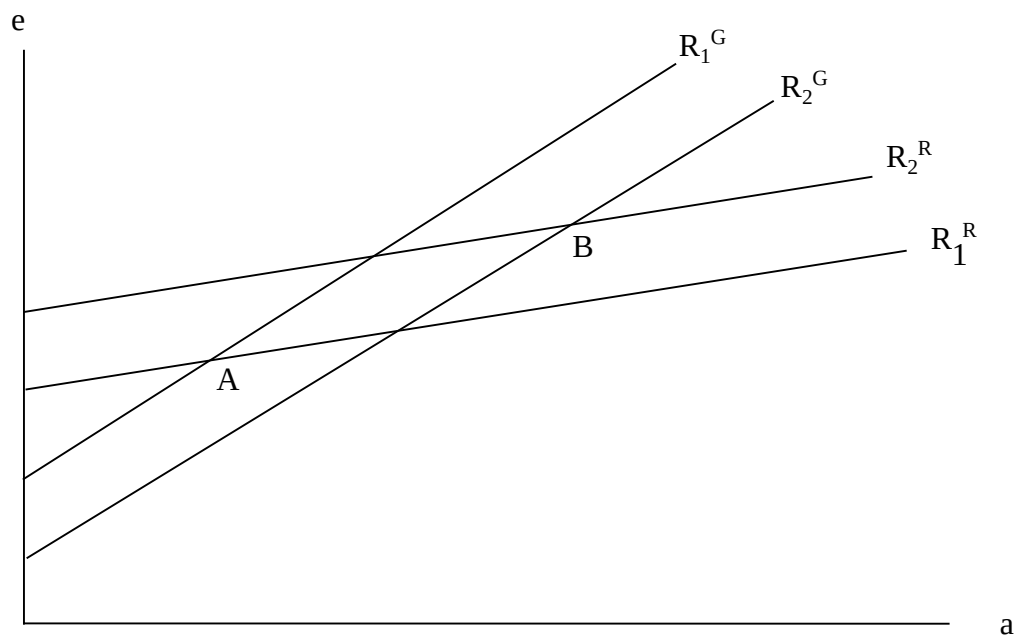
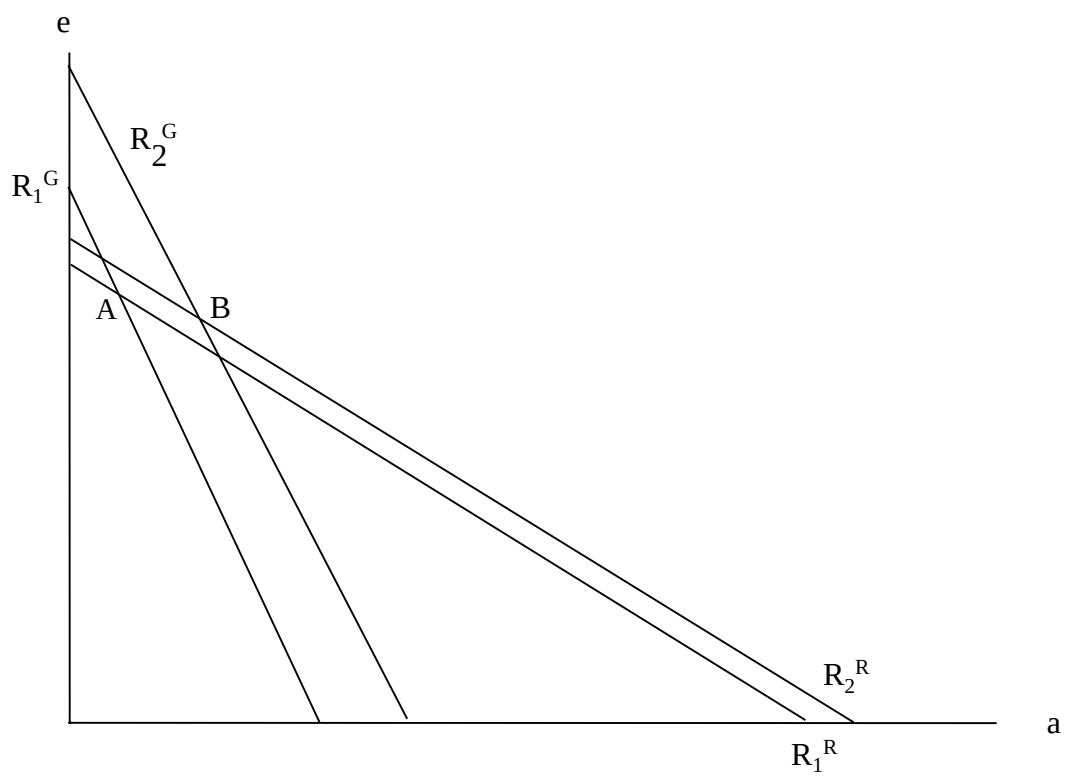


Figure 2:
Strategic substitutes



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