Policy Implications for Aid Allocations of Recent Research on Aid Effectiveness and Selectivity

Jonathan Beynon, DFID[1]

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1. Introduction and Summary

Recent research by the World Bank into aid effectiveness and the implications for the allocation of donor aid[2] has prompted a vigorous debate embracing the impact of aid on growth, conditionality and selectivity, and the implications for poor performers. Its importance - for donors, for recipients, for poor people - cannot be understated.

The debate has been healthy, but at times hotly contested. Two opposing viewpoints have emerged. According to one, aid only really works when government policies are good, and a more selective allocation of aid to "good policy / high poverty" countries will lead to larger reductions in poverty. According to the other, aid effectiveness is not conditional on policy and the implications of the former for more selective aid allocations are treated with concern. Participants in the debate will recognise these as crude over-simplifications. But the first viewpoint has gained currency and is already shaping opinion and influencing practice. The purpose of this paper is to review the main arguments and evidence and suggest some policy conclusions.

Section 2 summarises the key findings of the World Bank "Assessing Aid" research, notably that aid is only really effective in accelerating growth when the quality of economic management is good. But "Assessing Aid" also finds that the pattern of actual aid allocations - particularly bilateral aid - is highly inefficient, being only weakly targeted at poor countries and even less at well

[1] The author is an Economic Adviser with the UK's Department for International Development ("j-beynon@dfid.gov.uk"). This paper is a slightly revised version of the original paper (dated 16 January 2001) presented at the seminar. The comments and contributions of seminar participants are gratefully acknowledged. The views presented remain those of the author and do not necessarily represent those of DFID.

[2] Notably "Assessing Aid: What Works, What Doesn't and Why", published by the World Bank in Nov 1998. This draws on earlier work by Burnside and Dollar (1997, 2000), and has been developed further by Collier and Dollar (1999a, 1999b, 2000, 2001).

managed countries. There is therefore great potential for larger numbers of people to be lifted out of poverty through a more efficient allocation of aid focused on “good policy - high poverty” countries.

This potential has been more recently assessed in the Collier/Dollar (CD) poverty efficient aid allocation models, reviewed in Section 3. CD replace the narrow policy index of the earlier WB analysis with the broader “Country Policy and Institutional Assessment” (CPIA) measure, and again conclude that aid only really works in a good policy environment. They then estimate the impact of growth on poverty reduction and optimise aid allocations between countries so as to maximise the number of people lifted out of poverty: a more efficient targeting of aid towards countries with high rates of poverty pursuing good policies could double the number of people lifted out of poverty, as many as could be achieved by a tripling of present aid budgets under current allocations.

A comparison of actual aid allocations with the CD poverty efficient allocations (Section 4) suggests that South and Central Asia appear to be significantly under-funded, even with an artificial constraint imposed on India (which would otherwise get two thirds of all aid). The share going to Sub-Saharan Africa would also rise in a poverty efficient world, even if the Indian constraint were significantly relaxed. East Asia is the only other region that would receive any aid of any significance.

But the underlying analysis and consequent policy conclusions of the WB research have not gone unchallenged (Section 5). *First*, various methodological and econometric criticisms have been made, notably by Hansen and Tarp (2000, 2001) who argue that the original Burnside/Dollar (BD) conclusions are very sensitive to model re-specification, and that the impact of aid on growth is positive irrespective of the policy environment. Aid also has a valuable role to play in assisting countries adjust to external shocks (which may also explain why some studies show aid to have no significant impact on growth). The debate goes on, but there is general agreement that the impact of aid is bigger in the presence of good policies. Significantly, a broader review of the aid effectiveness literature suggests that the overall impact of aid has in fact been reasonably good *and is getting better*.

Second, CD’s own model confirms that the impact of re-allocating aid on the basis of *poverty* criteria is bigger than re-allocating aid according to policy criteria, a point overshadowed by the econometric controversy surrounding the importance of policy. *Third*, the WB’s evidence that aid is fungible (so thwarting donor attempts to target aid at poverty) and that ex-ante conditionality is ineffective (so undermining the case for targeting aid at poor policy countries in expectation of being able to buy policy reform) can also be questioned. *Fourth*, growth is not the only route to poverty reduction, nor is growth the only benefit of aid. Distributional effects are potentially important, as are the health, education and environmental development targets and other facets of poverty concerning vulnerability and security. *Fifth*, adopting the poverty reduction target at the level of each country, as opposed to a

single global target, could significantly alter the pattern of poverty efficient aid allocations, while (*sixth*) a number of other issues not discussed in the paper are relevant and need to be addressed. Collectively, these issues all imply some deviation from the Collier/Dollar allocations (which CD have always acknowledged to be at best a guide) and at least some watering down of the WB's emphasis on policy as the basis for allocating aid.

Five main policy implications for donors are drawn from this analysis (Section 6). The strength of each will of course vary between donors, depending on individual mandates and political priorities, areas of comparative advantage and existing patterns of and processes for aid allocation.

- *First*, aid allocation procedures need to be reformed, more rigorously taking into account measures of aid need and aid effectiveness to better guide and justify the allocation of aid budgets.
- *Second*, there needs to be a significant shift in aid from middle income towards low income countries. Some assistance will still need to be targeted towards less poor but populous countries which still have large numbers of poor people (which tend to be allocated nothing in the Collier/Dollar models), but primarily for pilot projects and technical assistance rather than large scale financial transfers.
- *Third*, some greater focus on "good policy" countries is warranted, but in assessing performance donors need to make allowance for the impact of external shocks, while there remains a powerful case for continued engagement in poorly performing countries. Overall, these points will mean shifting aid away from Eastern Europe and Central Asia, Latin America, and the Middle East and N.Africa towards South Asia (especially India) and (to a lesser degree) Sub Saharan Africa.
- *Fourth*, there does need to be a greater degree of ex-post selectivity and flexibility in aid allocations, coupled with shifts towards more flexible forms of assistance (budget support) where conditions permit, and further progress in improving donor coordination and harmonising donor procedures.
- *Fifth*, evidence that the impact of aid has in fact been reasonably good and is getting better provides powerful support for the case for more aid - a case that would be reinforced by, and perhaps dependent on, donors being seen to be seeking to improve the allocation of their existing budgets.

2. Aid Effectiveness and "Assessing Aid"

Numerous studies assessing the effectiveness of aid have been undertaken over the years, but the latest World Bank research has provoked particular interest. The main conclusions of "Assessing Aid" are summarised in Box 1, a key finding being that aid only really works when government policies are good, and that a reallocation of aid to "good policy / high poverty" countries will lead to larger reductions in poverty.

This finding is informed by two sets of econometric analysis. The first estimates the impact of aid on growth and thence on poverty reduction, from which a "poverty efficient" allocation of aid is derived that maximises the number of people lifted out of poverty for any given aid budget. The second estimates the impact of foreign aid on government policies, and on the level and sectoral distribution of government expenditure (issues of "fungibility"). These two issues are discussed below.

Box 1: "Assessing Aid" - Five aid policy reforms to make aid more effective

- Financial assistance must be targeted more effectively to low-income countries with sound economic management:
  - too much aid is going to middle-income countries that don't need it and countries with poor policies where it is ineffective
- Policy-based aid should be provided to nurture policy reform in credible reformers:
  - conditionality has rarely worked unless there is strong domestic support for reform. In countries with poor policies and no credible reform movement, ideas matter more than money, with assistance better focused on dissemination of ideas and international experience, training future policy-makers and leaders, and stimulating capacity for informed policy debate within civil society
- The mix of aid activities should be tailored to country and sector conditions:
  - aid is highly fungible, so donors need to examine a country's overall budget allocation and efficacy of public spending: the better they are, the stronger the case for budget support. In countries with sound policies but weak capacity for delivering services, project aid is better.
- Projects need to focus on creating and transmitting knowledge and capacity:
  - the key role of development projects should be to support institutional and policy changes that improve public service delivery. Even if money does not "stick" (fungibility), the local knowledge and institutional capacity created by projects can.
- Aid agencies need to find alternative approaches to helping highly distorted countries, since traditional methods have failed in these cases:
  - ideas matter more than money. Donors need to get away from an "approval and disbursement" culture that does not value small-scale, staff intensive activities.

Source: World Bank, 1998 (Overview).

2.1 The Impact of Aid on Growth and Poverty Reduction

"Assessing Aid" (AA) draws on the data set and earlier analysis of Burnside and Dollar (1997 and 1998) [3], covering 56 aid-receiving developing countries over the period 1970-93. It begins by demonstrating that countries with better economic management grow faster[4], and also observes that the simple

[3] It is notable that the original BD research was undertaken partly in response to critics on the right who argued that aid was ineffective and therefore wasted, and to critics on the left who argued that structural adjustment policies were failing (Burnside and Dollar, 1997). This context - declining aid and widespread pessimism about the effectiveness of aid - is important.

[4] This suggests that poor countries have been held back not so much by a financing gap as by an institutions gap and a policy gap. However, well-managed low-income countries grow more slowly than well-managed middle-income countries, possibly because poverty is hampering

relationship between aid and growth is very weak (AA p.35, Fig.1.4). However, incorporating the quality of economic management into the analysis suggests that aid *does* contribute to growth in well-managed countries, but not in poorly managed ones. This positive impact of aid is even stronger when middle-income countries are excluded from the analysis. Overall, an additional 1% of GDP in aid increases growth by about 0.5% in good management countries, equivalent to a rate of return of around 40%, but has an insignificant effect in average or poorly managed countries (see Box 2).

their ability to save and invest. With imperfect capital markets deterring private investment, there may be a catalytic role for foreign aid. AA's analysis suggests that well-managed countries receiving large amounts of aid grow faster (3.7% p.a. per capita) than well-managed countries receiving low amounts of aid (2.2%).

Box 2: The Impact of Aid on Growth: Econometric Evidence from "Assessing Aid"

"Assessing Aid" uses the dataset developed in Burnside and Dollar (1997, 2000), covering 56 developing countries over the period 1970-93. The dependent variable is growth rate of per capita GNP, averaged over six 4-year periods (beginning with 1970-73 and ending with 1990-93). A new measure of aid that adds the grant component of concessional loans to outright grants (converted to constant 1985 dollars), divided by each country's *real* GDP (in PPP$) is used (discussed in Chang et al., 1999). This measure *excludes* all technical assistance.

Regression 1 explains growth as a function of initial conditions and the policy or "incentive" regime (external shocks are captured in an error term). The selected incentive variables are the inflation rate, the budget surplus, the Sachs-Warner measure of trade openness, and the Knack-Keefer measure of institutional quality. Three of these prove to be highly significant (though *not* the budget surplus, which is insignificant). Government consumption is also considered, but is insignificant.

Regression 2 uses an index of economic management (a weighted sum of the four incentive variables where the weights are the coefficients derived in regression 1) in place of the four incentive variables. This management index is highly significant.

Regression 3 introduces aid relative to GDP and "instruments" for it with population and variables reflecting donor strategic interests. It is insignificant. [This technique decomposes aid flows into a part that can be explained by the chosen instruments, and another part explained by all other factors, and only puts the former into the growth regression. It ensures that the aid variable used is not itself correlated with fluctuations in growth, and avoids the problem of aid given *in response to* growth-reducing events (such as natural disasters) producing a negative but spurious causal effect of aid on growth].

But the picture changes if aid is interacted with the management index: regression 4 introduces an A*M and an A^2*M term. The former is positive and significant. The latter is negative (reflecting diminishing marginal returns to aid) but only weakly significant. However, this estimate of diminishing returns is unreliable as it is reliant on the existence of "good policy/high aid" cases, of which there are few in the sample. If they are dropped from the sample the coefficient becomes insignificant. Re-estimating the regression (5) without these outliers or the A^2*M term indicates that the positive coefficient of A*M is quite robust (where "robust" means unaffected by minor changes to sample or model specification).

Repeating regressions 3-5 without the middle-income countries (which have generally received little aid and have better access to international capital markets) reinforces the results (regressions 6-8), in that each of the aid and aid/policy terms have higher and more significant coefficients. Thus the effect of aid - in a good policy environment - is even stronger in low-income countries.

For a given quality of policy and level of aid, regressions 4,5,7 and 8 each provide a different point estimate of the marginal impact of 1% of GDP in aid on growth. Taking the average of these suggests that aid worth an extra 1% of GDP *reduces* growth by 0.3% in a poor policy environment (policy index = 0, though this is insignificantly different from zero), has no effect at all in a mediocre policy environment (policy index = 1.1), but significantly increases growth by 0.5% in a good policy environment (policy index = 2.7).

Source: World Bank, 1998 (Appendix 1).

Box 2 (cont): "Assessing Aid" Regression Results

Dependent variable: growth rate of per capita GNP (four-year average)
Sample: 56 developing countries, four year periods (1970-73 to 1990-93)

	Regression							
	1	2	3	4	5	6	7	8
Initial GDP/hd	-0.60	-0.63	-0.76	-0.74	-0.95	-0.80	-1.14	-1.42
	(1.04)	(1.30)	(1.00)	(0.90)	(1.09)	(0.82)	(1.22)	(1.27)
Financial depth	0.01	0.01	0.02	0.03	0.02	0.03 [a]	0.05 [a]	0.03 [a]
	(0.95)	(1.12)	(1.68)	(1.66)	(1.62)	(1.99)	(1.99)	(1.99)
Political instability	-0.42	-0.42	-0.39	-0.34	-0.34	-0.72	-0.93	-0.69
	(1.50)	(1.57)	(1.43)	(1.15)	(1.19)	(1.15)	(1.75)	(1.32)
Ec. Management (M)	-	1.00 [b]	1.03 [b]	0.50 [a]	0.70 [b]	1.20 [b]	0.01	0.58 [a]
		(7.17)	(7.01)	(1.93)	(3.42)	(7.00)	(0.01)	(2.08)
Trade openness	2.11 [b]	-	-	-	-	-	-	-
	(4.11)							
Inflation	-1.56 [b]	-	-	-	-	-	-	-
	(3.92)							
Budget surplus	4.07	-	-	-	-	-	-	-
	(1.03)							
Institutional quality	0.66 [b]	-	-	-	-	-	-	-
	(3.75)							
Govt.consumption	-2.53	-1.96	-4.38	-1.53	-1.73	-2.38	2.10	1.13
	(0.55)	(0.52)	(0.68)	(0.21)	(0.25)	(0.40)	(0.29	(0.17)
Aid/GDP (A)	-	-	-0.08	-0.15	-0.37	-0.10	-0.28	-0.53
			(0.68)	(0.35)	(0.89)	(0.49)	(0.79)	(1.69)
A * M	-	-	-	0.66 [a]	0.24 [a]	-	0.99 [b]	0.36 [b]
				(2.11)	(2.38)		(2.69)	(3.64)
A^2 * M	-	-	-	-0.07	-	-	-0.09 [a]	
				(1.63)			(2.10)	
R^2	0.41	0.41	0.39	0.35	0.39	0.46	0.36	0.46
N	284	284	272	272	268	189	189	185

[a] significant at 5% level.
[b] significant at 1% level.

Other conclusions highlighted in "Assessing Aid" are that:

- income growth and poverty reduction are highly correlated (Ravallion and Chen, 1997), with on average a 1% increase in per capita income reducing poverty by 2% in developing countries (Bruno et al., 1998);
- aid is effective in reducing infant mortality in good management countries (an extra 1% of GDP in aid leads to a decline in infant mortality of 0.9%), but has no effect in poor management countries (Burnside and Dollar, 1998);
- aid crowds in private investment in good management countries (an extra 1% of GDP in aid increases private investment by 1.9% of GDP), but has a smaller effect (0.5%) in average countries and *reduces* private investment (by 0.5%) in poor management countries (Dollar and Easterly, 1998).

Collectively these findings suggest that aid would be better allocated to poor countries with good policies and management. However, in practice, AA shows that:

- aid is targeted towards poor countries, but imperfectly, with a relatively weak relationship between per capita income and per capita aid receipts (weaker for bilateral than for multilateral aid);
- aid is biased in favour of countries with small populations;
- aid allocations are influenced by political or strategic interests of donors, particularly for bilateral donors;
- good and poor management countries have received roughly equal shares of bilateral aid (as a % of GDP); multilateral aid does discriminate to a degree (good management countries receiving 30% more than poor management countries in the lower-middle income range), but not amongst very low-income countries.

Moreover, the scope for and potential benefits of a more effective allocation of aid are very large, especially after the economic reforms of the 1990s, with 74% of the world's poor living in "good-policy, high-poverty" countries. "Assessing Aid" reports that if an extra $10bn in aid were distributed in line with present aid allocations, 7 million extra people would be lifted out of poverty. But if allocated just to "good-policy, high-poverty" countries, 25m people could be lifted out of poverty. This is the subject of the Collier/Dollar modelling to which we turn in Section 3 below.

2.2 The impact of aid on policy and the fungibility of foreign aid

"Assessing Aid" also presents evidence to suggest that aid flows have limited or no impact on either the level/quality of government policy, or on changes in government policy[5]. Moreover, AA refers to "a mountain of literature" (p.51) questioning the ability of aid conditionality to promote reform - at least in countries where there is no domestic support for or "ownership" of such reforms.

In addition, aid flows appear to be largely fungible so that aid recipients are effectively able to avoid donor attempts to target aid flows (see Box 3)[6]. Both these arguments are used by AA to reinforce their point that aid should be focused on good policy countries. We will return to them in Section 5 below.

[5] Burnside and Dollar (1997, 2000) show that policies can largely be explained by underlying country characteristics such as the rule of law, ethnic splits, and political instability. When aid is added to this econometric analysis, it has no effect on the policy index. Alesina and Dollar (1998), in a sample of 60 countries, identify 87 episodes in which there is a surge in aid. In only six of the 87 episodes was the surge followed by significant policy reform. Interestingly, in 92 cases in which there was a large *decline* in aid, 16 were followed by reform.

[6] Other evidence suggests that there is little relationship between the *level* of sectoral spending and *outcomes* in that sector: quality matters more than quantity.

Box 3: The fungibility of foreign aid

Aid is said to be fungible if the actual amount or focus of any additional expenditure resulting from an aid inflow differs from that intended. "Assessing Aid" considers the case of a donor providing $1m in aid, and asks 3 questions:

- does overall government spending rise by $1million?
- does government *development* spending rise by $1million?
- does government spending in that sector to which aid is targeted rise by $1million?

To the first, it concludes probably not. Strong "flypaper" effects are sometimes observed in individual country case studies and small samples of countries, but not in larger samples: Feyzioglu et al's 1998 study of 14 countries for which detailed sectoral data were available (1971-90) suggests that $1 of aid (grants + concessional loans) leads to an extra 95 cents of total government expenditure; but this falls to 33 cents when a larger sample of 38 countries is considered. Interestingly, $1 of concessional loans "sticks" better than loans and grants combined, yielding additional government expenditure of $1.24 and 63 cents in the two samples respectively - perhaps because the former often require some matching counterpart funds.

To the second, the answer is a more definite no. In Feyzioglu et al's 14 country sample, $1 in foreign aid typically results in just 29 cents of additional public *investment*. The rest is government consumption spending (which, given evidence that government consumption has no positive effect of growth, may explain why the impact of aid on growth is so weak).

To the third, the answer is very variable. Different studies estimating the impact on agricultural spending of a dollar's worth of aid to agriculture produce results ranging from *minus* 5 cents to plus 95 cents. Feyzioglu et al's 14 country study suggests that even though 8.7% of aid is directed to health and education, the net effect of aid after allowing for fungibility is to *reduce* health and education budgets by 6.5%. [However, these results should be treated with *extreme* caution as the analysis only covers concessionary loans (not grants), the explanatory power of the model is very poor, and statistical significance of the coefficients very weak].

AA concludes that government commitment is more important than attempts to target aid. In general, the better organised a country's budget system, the greater control that governments exert over their own and donor finances, and the smaller the scale of donor finance, the greater the scope for full fungibility of aid flows.

Source: World Bank, 1998 (Chapter 3).

3. Collier/Dollar Poverty Efficient Aid Allocations

3.1 The Collier/Dollar models described

Paul Collier and David Dollar (CD), drawing on the earlier Burnside and Dollar (BD) analysis, have developed an aid allocation model designed to determine poverty efficient aid allocations that would maximise the number of people lifted out of poverty[7]. There are 2 versions, the first (CD1, published in January 1999) being cited in "Assessing Aid", the second (CD2, mimeo dated 11/4/99) revised in response to criticisms about the mixing of coefficients from different datasets (see below). Both follow the same 3 steps:

[7] As in the BD paper, the "EDA" measure of aid used combines the grant component of concessional loans to outright grants in constant 1985 dollars, divided by each country's *real* GDP (in PPP$). Using more conventional measures of aid (ODA) produces similar results, though it IS important that the series be divided by *real*, not nominal GDP - see below.

- *Step 1 : estimate the impact of aid on growth*

  CD follow the basic approach of Burnside and Dollar (1997, 2000). However, two improvements are made. First, CD use the World Bank's Country Policy and Institutional Assessment (CPIA) scores[8] as a more comprehensive measure of policy. Second, CD draw on more comprehensive data-sets that allow them to re-estimate the aid-growth relationship for 86 countries (cf. 56 in BD), and ultimately to derive poverty efficient aid allocations for over 100 countries. As in BD, growth is explained as a function of a set of initial conditions (X), policy (P), aid (both A and A^2), and an interactive term combining aid and policy (AP):

  $$G = c + b_1X + b_2P + b_3A + b_4A^2 + b_5AP$$

  The A^2 term (with a *negative* b_4 coefficient) allows for the possibility that there may be "diminishing marginal returns to aid", i.e. that at some point the impact of additional aid on growth falls as the volume of aid increases.

- *Step 2: estimate the impact of growth on poverty reduction*

  The calculation of poverty efficient aid allocations requires information on the level of poverty and the elasticity (responsiveness) of poverty with respect to income. CD experiment with four different approaches to test how sensitive the results are to the measure of poverty (either the PPP$1/day or PPP$2/day poverty line) and the poverty elasticity (either a country specific elasticity derived from information on each country's poverty gap, or a constant headcount elasticity of 2[9]). They demonstrate that the results are ultimately highly correlated[10] and

[8] The (1998) CPIA had 20 different components covering *Macroeconomic Management* (general macroeconomic performance, fiscal policy, management of external debt, macroeconomic management capacity, sustainability of structural reforms); *Structural Policies* (trade policy, foreign exchange regime, financial stability and depth, banking sector efficiency and resource mobilization, property rights and rule-based governance, competitive environment for the private sector, factor and product markets, environmental policies and regulations); *Policies for Reducing Inequalities* (poverty monitoring and analysis, pro-poor targeting and programs, safety nets); and *Public Sector Management* (quality of budget and public investment process; efficiency and equity of revenue mobilization; efficiency and equity of public expenditures; accountability of the public service). Each component is scored on a 1-6 scale by country specialists, and given equal weight in computing the overall policy score. Further revisions have been made since 1998 to strengthen emphasis on poverty, equity, and public sector management (World Bank, 2000).

[9] CD tests these four approaches using data for around 60 countries for which headcount (the % of people below the poverty line) and poverty gap (which also captures depth below the poverty line) data for both poverty lines are available. The poverty gap measure is superior in that it incorporates information on the distribution of income, and measuring the elasticity is straightforward. However, it is only available for these 60 countries. Estimating the elasticity of the headcount index is more complex, so a fixed elasticity of 2 (the average of a large sample of such elasticities estimated by Ravallion and Chen (1997)) is used instead. Note however that many actual elasticities as calculated by Ravallion and Chen deviate significantly from the average, ranging from 0.45 to 8.8 (see Table 2 in CD 1999a, or Table 3 in CD 1999b).

[10] Correlation coefficients range from 0.86 to 0.99. Nevertheless, results for some individual countries vary enormously. For example, Vietnam's poverty efficient aid (as a % of GDP) in CD2 is around 6% using the two $1/day poverty lines, 3.88% using $2/day and the constant

conclude that the choice of measures matters little. They therefore select the $2/day poverty measure and a constant elasticity of 2, which enables more than 100 countries to be included in the analysis. This can then be combined with the growth equation above to estimate for each country the marginal cost of lifting someone out of poverty for any given level of aid.

- *Step 3: optimise aid allocations between countries so as to maximise the number of people lifted out of poverty.*

  This optimisation step completes the process. It allocates the global aid budget of c.$40bn between countries such that the marginal cost of lifting one additional person out of poverty is equalised across all countries (see Box 4). It only works if there are diminishing marginal returns to aid (or else all aid would be allocated to the most deserving country): hence the importance of the A^2 term[11]. In both models, aid to India is constrained to actual (1996) levels to prevent India dominating the allocation results. China is similarly constrained in CD1, but receives a zero allocation anyway in CD2[12].

elasticity of 2, and 0.73% using $2/day and the country-specific elasticity (based on poverty gap information) of 0.41. Similarly, Pakistan gets nothing using $1/day, but 2.98% and 4.23% using the two $2/day options respectively.

[11] An intriguing consequence of this formulation is that poverty efficient aid per person (or per poor person) initially *rises* (other things held constant) with per capita GDP, even though aid/GDP falls (I am grateful to Adrian Wood for this observation). Moreover, the higher the policy score and the higher the poverty rate, the higher the GDP/capita turning point at which aid/head begins to fall. What this reflects are absorptive capacity constraints - which effectively depend on the level of per capita income and the quality of institutions and policies - with the implication that aid should be phased in as absorptive capacity improves (Dollar, personal communication).

[12] With high levels of poverty, low per capita income and reasonably good policies, India would receive about two thirds of global aid. CD take such a reallocation to be politically infeasible and therefore fix India's share at actual levels (0.13% of its GDP). Under such a scenario China then dominates the allocation pattern in CD1 (but not in CD2 - see below), so China's CD1 share is also fixed at actual levels (0.06% of its GDP).

Box 4: Optimising aid allocations

Given an objective of maximising poverty reduction, CD present the optimisation model as:

$$\text{Maximise Poverty Reduction} = \sum G^i \alpha^i h^i N^i \qquad (1)$$

$$\text{subject to:} \quad \sum A^i y^i N^i = \forall, \quad A^i \geq 0 \qquad (2)$$

where:

- G is per capita income growth (derived as a function of aid and policy: step 1)
- α is the elasticity of poverty reduction with respect to income
- h is a measure of poverty (for example, the headcount index)
- N is population (so h*N = numbers of people below the poverty line)
- A is aid (as % of GDP)
- y is per capita income
- $\forall$ is the total amount of aid available

the superscript "i" refers to the i^{th} out of n countries.

The second constraint just means that no country can receive negative amounts of aid. The first constraint is a budget constraint: the sum of aid to all 'n' countries must equal total aid available. It looks cumbersome because A is aid divided by GDP, and the y and N terms are necessary to cancel out unwanted terms:

A * y * N = aid/GDP * GDP/population * population = aid

Using equations (1) and (2), poverty reduction will therefore be maximised when:

$$G_a{}^i \alpha^i h^i N^i = \lambda y^i N^i \qquad (3)$$

where λ is the shadow value of aid (ie. the marginal effect of an additional $ of aid on poverty reduction, to be equalised across all countries so as to maximise the objective function). Rearranging:

$$G_a{}^i = (\lambda y^i N^i) / (\alpha^i h^i N^i) = (\lambda y^i) / (\alpha^i h^i) \qquad (4)$$

Using the estimate of $G_a = 0.18P - 0.07A$ derived from Step 1 (see Box 5a), this can be rewritten as follows:

$$A^i = 2.6P^i - [(\lambda y^i) / (0.07 \alpha^i h^i)] \qquad (5)\ [1]$$

from which CD solve explicitly for each country's aid receipts as a function of its policy (P), poverty level (h), per capita income (y), and elasticity of poverty with respect to income (α). Note that N (total population), and by implication the absolute number of people below the poverty line, *appears* to have dropped out. But by multiplying top and bottom of the final term by N, the equation can alternatively be written as:

$$A^i = 2.6P^i - [(\lambda GDP^i) / (0.07 \alpha^i h^i N^i)] \qquad (6)$$

Thus aid to any country will be higher, the higher that country's policy score, the lower its per capita income (or aggregate GDP), the higher its poverty elasticity, and the higher its poverty rate (or numbers below the poverty line). Note that two countries identical in every respect, with the exception that one has 10 times as big a population and therefore 10 times the number of poor people) would still receive the *same* A. But because A is aid *as a % of GDP*, the absolute $ value of aid also differs by a factor of 10, such that *per capita* aid receipts in the two countries are identical: the model does *not* therefore discriminate against poor people in large countries.

Source: Collier and Dollar, 1999a/b.

[1] CD actually choose to present this as $A^i = 2.6P^i - [(\lambda / 0.07\alpha^i) * (h^i / y^i)^{-1}]$, so that the set of relationships linking aid, policy, and a measure of poverty (the headcount rate divided by per capita income) can be more easily illustrated: see Appendix A.

The two models differ in that step 1 in CD1 is based only on the period 1990-96, and uses the 1997 CPIA policy score throughout[13]. However, the b_4 coefficient proved to be insignificant, so CD used the value of this coefficient (and that for b_3) estimated in the earlier World Bank research by Burnside and Dollar. This is clearly unsatisfactory. To correct for this, in their second model Collier and Dollar construct a CPIA dataset going back to 1977, enabling CD2 to cover the period 1974-97[14] which produces the required negative coefficient for b_4. CD2 thus has the advantage that its coefficients are internally consistent, although the measure of policy has changed over time and early values may be somewhat arbitrary. Thus both models are flawed, but CD2 is preferred. Both are applied to over one hundred developing countries, the only difference being the inclusion of Tanzania in CD2[15].

3.2 Results of the Collier/Dollar models

Econometric results

CD's key finding (in both models) is that the aid coefficient is insignificant (i.e. aid alone has no effect on growth)[16], the policy term is positive and significant, and the aid*policy interactive term is positive and highly significant (details in Box 5a). This has been interpreted as meaning that aid works, but only in a good policy environment (CD actually say "the efficacy of aid depends upon policy").

The effectiveness of aid is illustrated more precisely by calculating the marginal impact of aid on growth for various combinations of policy and levels of aid (Box 5b). For a country with an average policy score (3.3 out of a possible 6) and average aid receipts (2% of GDP), CD2 estimates that an extra 1% of GDP in aid would boost growth annually by 0.47%: equivalent to a "rate of return" of about 40% after allowing for depreciation. Reading down each column clearly illustrates the beneficial effect of better policies (with growth rising by 0.6% p.a. under a policy score of 4). Reading across rows also illustrates the effect of diminishing marginal returns to aid (with growth

[13] Partly by design (CD1 argues that they wish to focus on the post-Cold War period in view of changes in donor aid policy), and partly by necessity (the CPIA criteria were different before 1997: CD1 suggests however that institutional change is slow and argues - somewhat optimistically - that the 1997 scores are likely to be a fair reflection of the entire 1990s for most countries).

[14] The World Bank has produced annual country policy ratings for most countries since 1977, although the set of criteria, the weight attached to each component, and the scoring scale have changed over time. CD have rebased their policy dataset to a 1-6 scale, although this particular scale was only introduced in 1998. However, 1998 CPIA values were apparently used, at least in the CD2 model, for the optimisation step (Dollar, personal communication).

[15] However, the poverty data for Tanzania are highly suspect and CD now concede that there was an additional computational error in their Tanzanian result which surprisingly caused Tanzania to receive a zero allocation in CD2: see below.

[16] When the b_3 coefficient is zero this implies that the initial contribution of aid to growth is six times as large in the best policy environments (P=6) as in the worst policy environments (P=1). When $b_3>0$ this differential is less than six, when $b_3<0$ it is more than six.

rising by 0.32% p.a. when aid receipts reach 4% of GDP). However, it is worth noting that even in relatively poor policy countries (with a policy score of 2.6), an extra 1% of GDP in aid would boost growth by 0.34%. There *is* a policy threshold below which aid is ineffective, but in fact this threshold is quite low: 2.6 for countries with average poverty, and just 1.3 (the *minimum* score is 1) for countries with high poverty (see Appendix A).

Box 5a: Collier and Dollar econometric results

The basic model being tested by CD is:

$$G = c + b_1X + b_2P + b_3A + b_4A^2 + b_5AP$$

CD1 first estimate the model without the A^2 term and demonstrate that OLS and TSLS (instrumenting for the aid and aid*policy terms) results are very similar, effectively concluding that aid can be treated as exogenous. They then use OLS to estimate the full model (column 1), concluding that aid*policy is significant but that aid alone is not. However, the A^2 term is also insignificant, so CD adopt the earlier Burnside and Dollar results (column 2) for both b_3 and b_4 in estimating the marginal impact of aid on growth. This is:

$$G_a = 2.21 + 0.29P - 0.58A \qquad \text{(CD1)}$$

In CD2, the importance of policy is confirmed, while aid and aid squared are negative and *jointly* significant (column 3). Re-estimating without the aid term (column 4) increases the significance of the policy, aid squared and aid*policy terms and produces the necessary significance for the (negative) A^2 term from which diminishing marginal returns can be estimated. Specifically, the marginal impact of aid on growth (with no constant term, because A has been dropped from the regression) is:

$$G_a = 0.185P - 0.072A \qquad \text{(CD2)}$$

Note that the diminishing marginal returns to aid (the coefficient of A) is much lower in CD2.

Collier/Dollar growth regressions (dependent variable = growth rate of GNP/hd)

	1 (CD1)	**2 (CD1)**	**3 (CD2)**	**4 (CD2)**
Method	OLS cross section	TSLS panel	OLS panel	OLS panel
Time period	1990-96	1970-93	1974-97	1974-97
Initial income	0.59	-0.80	0.67	0.85
	(1.84)	(1.22)	(1.08)	(1.49)
Institutional quality			0.28 [c]	0.27
			(1.67)	(1.61)
Policy	0.59	0.19	0.46 [c]	0.64 [b]
	(1.91)	(0.28)	(1.65)	(2.26)
Aid/GDP	-0.02	2.21	-0.54	--
	(0.64)	(1.89)	(1.40)	
$(Aid/GDP)^2$	0.02	-0.29 [b]	-0.02	-0.036 [a]
	(0.60)	(2.06)	(1.60)	(3.07)
Aid/GDP*Policy	0.29 [a]	0.65 [b]	0.31 [a]	0.18 [a]
	(3.38)	(1.96)	(2.94)	(3.06)
N	86	272	349	349
R^2	0.59		0.37	0.36

* [a] significant at 1% level; [b] significant at 5% level; [c] significant at 10% level.
Source: Collier and Dollar (1999a, 1999b).

Box 5b: Estimating the marginal impact of aid on growth

Using the CD2 version of the marginal impact of aid on growth, the derivative of growth with respect to aid at different levels of aid and policy can be calculated:

	Derivative of growth with respect to aid (CD2), evaluated at:			
aid/GDP (%):	**0%**	**2%**	**4%**	**6%**
CPIA:				
2.6	0.48 *	0.34 *	0.19	0.05
3.3	0.61 *	**0.47 ***	0.32 *	0.18
4.0	0.74 *	0.60 *	0.45 *	0.31 *

* Significant at the 2 percent level.
NB: average aid level is 2% and average CPIA (1994-97) score is 3.3 .
Source: Collier and Dollar (1999b).

Allocation results

In terms of country-specific allocations, the ranking of countries in the two models is (virtually) unchanged when countries are ranked according to their poverty-efficient aid as a percentage of GDP. The top six are Ethiopia, Uganda, Mozambique, Malawi, Zambia and Mali[17]. Eighteen of the top twenty are African (see Appendix B, Table 1).

Of greater interest is each country's share of the total aid budget. This is not reported in either CD paper, but can be fairly easily derived[18,19]. This produces a very different ranking with some significant differences between the two models. Africa still fills most of the top twenty positions (11 in CD1, 15 in CD2), but the biggest aid recipients are Asian: the top six CD1 aid recipients are Pakistan (12.7% of all aid), Bangladesh (10.7%), Vietnam (8.0%), Philippines (7.4%), Nigeria (6.9%) and China (6.7%).

In CD2, however, the lower estimate of diminishing marginal returns to aid (see Box 5a) means that more aid can be effectively absorbed by countries

[17] Correcting CD's computational error puts Tanzania in 9th place in CD2, but in 4th place if the poverty rate is also increased from CD's 45.5% to a more plausible 80%.

[18] Country GDP data needed to do this are not reported in either CD paper, but can be derived for each country from CD2 Table 4 data on actual 1996 aid (given in $m and as % of GDP). However, doing so produces implausibly high GDP estimates for Russia (by a factor of about 1000), and results also differ from those derived (for the 42 countries awarded aid) from the same table's poverty efficient aid data. These differences may be partly due to rounding errors, but in some cases exceed 10%. In seeking to resolve these discrepancies, David Dollar kindly provided the source GDP data, which are what are presented here and used in this analysis.

[19] It should also be noted that CD allocations are specific to a given aid budget. If the overall aid budget is for example reduced, countries currently at the bottom end of the ranking (in terms of aid as a % of GDP) would drop off and their shares be reallocated to more "deserving" countries higher up the ranks. This has implications for donors wishing to compare their allocations with the CD results if global aid budgets change, although it remains the case that CD shares based on that global budget (rather than the individual donor's budget) represent the appropriate basis for comparison, since it is in this global context that individual donor allocations need to be examined.

higher up the aid/GDP rankings, so that the total number of aid recipients falls from 60 in CD1 to 40 in CD2 (42 before the Tanzanian adjustments). China is amongst the casualties[20], which collectively accounted for 32% of aid in CD1. When this volume of aid is reallocated to those higher up the aid/GDP rankings, significant differences emerge: the top six CD2 aid recipients are Bangladesh (20.3%), Pakistan (12.1%), Vietnam (10.0%), Nigeria (9.2%), Ethiopia (6.0%) and India (4.9%, constrained), with bigger changes down the list.

Regionally, Sub-Saharan Africa and South and Central Asia would each attract a third of poverty efficient aid in CD1 (Far East Asia accounting for most of the rest). In CD2, SSA (47%) and S.& C.Asia (40%) are even more dominant. Full details are presented in Appendix B (Table 1, Charts 1 and 2).

It should be stressed, however, that these results are entirely dependent on the Indian allocations being constrained at present levels (just under 5% of global aid), which is as arbitrary as allowing it to rise to unconstrained levels (about two thirds of all aid, according to CD) is politically infeasible. If this constraint is relaxed, with Indian allocations allowed to rise to 20% of global aid[21], the CD2 model produces the following top 6: India (20%), Bangladesh (19.2%), Vietnam (8.1%), Nigeria (8.0%), Pakistan (7.1%), Ethiopia (5.8%). Below this point, all countries lose a little, their rankings are only slightly affected, and the total number of recipients falls further from 40 to 37. By region, South Asia gains the most (up from about 40% to 49%), while SSA loses the most (down from 47% to 41%).

Further analysis of the CD2 results is presented in Appendix B, Table 2. This shows poverty efficient allocations as a percentage of GDP, as a percentage of total aid, and per poor person for each country in receipt of aid. It also indicates results for each DAC region, and for each policy-poverty quadrant[22], both with CD2's Indian constraint and with that constraint relaxed to 20% of all aid. We discuss these results further in Section 5.2. It should however be emphasised that the policy scores used to calculate the quadrant shares have

[20] This is due to China's relatively low poverty headcount and relatively high per capita income rather than its (above average) policy rating. Thus although China has a very large number of poor people (680m below PPP$2/day), the sheer size of China's aggregate GDP means that it would require a huge volume of aid to accelerate China's growth rate by enough to have a measurable impact on poverty. The size of China's GDP also means that a relatively modest aid/GDP rating translates into a very large share of total aid, and serves to explain the "ease" with which China has fallen from having had its aid share capped in CD1 to being allocated nothing in CD2.

[21] Twenty per cent is equivalent to the highest ranked country (Bangladesh) in the constrained model, and represents about four times India's share of all aid in the CD model, or eight times India's share of 1998 net bilateral ODA in the DAC database.

[22] Countries are categorised into quadrants by their poverty rates (high or low, with the threshold being a poverty rate of 50%) and the quality of their policies (good or poor, with the threshold being the mid-point (3.5) on the 1-6 scale).

been derived from the data in CD2 using the formulae set out in Box 4, and can only be treated as estimates of the World Bank's CPIA[23].

Implications - the benefits of poverty efficient reallocation

The main conclusion emerging from CD1&2 is that aid could be more efficiently allocated if targeted towards countries with high rates of poverty pursuing good policies. They observe that in practice, however, aid appears to decline or "taper *out*" as policies improve (controlling for poverty), whereas a poverty efficient allocation would require that aid should progressively increase or "taper *in*" with reform[24] (we consider in Section 4 a more detailed comparative analysis of actual with CD "poverty efficient" aid allocations).

Table 1: The two Collier/Dollar models: a summary of key results

	CD1	**CD2**
Time period covered	1990-96	1974-97
No. of countries covered	107	108
Number of aid-receiving countries	60	42
Marginal cost of lifting someone out of poverty: a) constrained model b) unconstrained model	 $1502/hd $665/hd	 $3026/hd $1626/hd
Numbers of poor people currently lifted out of poverty by present $40bn global aid budget	30 million	16 million
Additional numbers that could be lifted out of poverty if aid re-allocated: a) constrained model b) unconstrained model	 27 million 51 million	 9 million 14 million
Benefits of extra $10bn aid in terms of extra people lifted out of poverty: a) existing allocations b) poverty efficient allocations	 7 million 25 million	 2 million 7 million

Notes: Figures do *not* incorporate the Tanzanian adjustments.
Sources: Collier and Dollar (1999a; 1999b).

While the country specific allocations and the absolute costs and numbers for poverty reduction in the two models might differ (see Table 1), the potential benefits of a more efficient allocation of aid are enormous: a re-allocation of existing aid could more than double the number of people lifted annually out of poverty by aid, and could lift as many people out of poverty as would a tripling of current aid budgets under current allocations.

[23] Most estimated scores are understood to deviate from the actual WB CPIA values (1998 values as used in the actual optimisation stage) by less than 0.2 points (the average deviation is about 0.15 points, or 4.5%), though a few exceed 0.3 points. The precise reason for the discrepancies remains unclear. Rounding errors may play a part, anomalies in the GDP data another. However, the biggest errors generally occur amongst countries which receive little or no aid, and the conclusions made on the basis of these policy estimates are believed to be reasonably robust, at least while Indian allocations are not completely unconstrained. Note that the distribution between quadrants is also dependent on the choice of threshold values.

[24] CD estimate equations to explain actual ODA as a percentage of GDP, and find that policy is only a significant variable when included as a quadratic. Thus after initially rising with policy, aid/GDP then begins to fall. The turning point in CD2 (evaluated at median poverty, where poverty is headcount poverty rate *divided by per capita income*) is when P=3.4.

3.3 Some more recent Collier/Dollar analysis

In a more recent paper (Collier and Dollar, 2000: CD3), CD develop a model of poverty efficient aid in which the total volume of aid is endogenous (varying positively with respect to policy). It also specifically allows for the small country bias inherent in most donors' aid allocations. The model is designed to consider prospects for achieving the poverty reduction International Development Target (IDT).

Their baseline scenario assumes present levels of policy and aid remain constant and, using growth projections prepared by Easterly (1999) and the same constant poverty elasticity of 2, projects what the poverty rate will be in 2015. Overall the target will be achieved, with global poverty falling from 61% in 1996 to 31% in 2015. But poverty in Sub Saharan Africa improves only a little (from 72% to 64%), and in Eastern Europe and Central Asia (ECA) it gets worse (from 28% to 43%). CD3 then analyse four different scenarios involving (1) efficient aid, (2) efficient and more generous aid, (3) efficient aid and policy reform (with the CPIA in SSA and ECA assumed to attain the South Asian average), and (4) efficient aid, policy reform *and* more generous aid. Each scenario produces progressively larger reductions in poverty, and the effect of additional generosity is bigger *after* policy reform has occurred. CD3 again conclude that policy reform is critical[25].

A further paper (Collier and Dollar, 2001: CD4) extends some of their earlier analysis a little further. It is not reviewed here, but key points arising are captured in the critique in Section 5.

4. Comparing Actual Aid Allocations with Collier/Dollar's Allocations

This section compares actual aid allocations with the CD2 poverty efficient outcomes. The first part looks at global data as presented in CD2, using the World Bank's "Effective Development Assistance" measure of aid throughout. The second part reviews some evidence on trends in aid flows in the 1990s in relation to the CD proposals.

4.1 Global aid allocations (1996) compared with CD2

CD1 illustrated the sub-optimal allocation of the global 1996 aid budget by comparing the distribution of actual aid between the four policy-poverty

[25] Note, however, that each scenario also involves increasing levels of aid (almost double the first year baseline levels in the case of scenario 4), so we are not quite comparing like with like (even though we *are* in the sense that the marginal utility to Western taxpayers is held constant in scenarios 1 and 3, and in 2 and 4). Nor is the impact of policy reform *without* a more efficient allocation assessed (which would help clarify which of the two was the more important in reducing poverty), and nor do the results reveal whether reallocating existing aid on the basis of poverty or policy information yields the bigger benefit (the biggest benefit to be gained of course on the basis of both).

quadrants with their poverty efficient optimum. This analysis is repeated in Appendix B (Chart 3) on the basis of the CD2 model (with Tanzanian adjustments). Results are also presented by region, using the DAC classification. Some sensitivity analysis to relax the constraint on India is also performed, with allocations calculated assuming an Indian share fixed at 20% of all aid.

The key points to note are that South and Central Asia appears massively under-funded, even with India constrained. Its share rises from 14% of actual aid to 40% in CD2's model and 49% with India adjusted. Sub Saharan Africa's share would also rise in our poverty efficient world (from 37% presently to 47% in CD2), even (41%) with Indian allocations allowed to rise to 20%[26]. The only other regions that would merit some aid are Far East Asia (around 9-11% cf. 16% currently), and North and Central America (1-2% cf. 7% currently).

Analysis by policy-poverty quadrant suggests that there needs to be a substantial shift towards the high poverty sectors, with the Good Policy/High Poverty quadrant meriting the most. However, even with Indian allocations allowed to rise to 20%, a third of all aid would still go to Poor Policy/High Poverty countries. We return to this issue of poverty focus in Section 5.2.

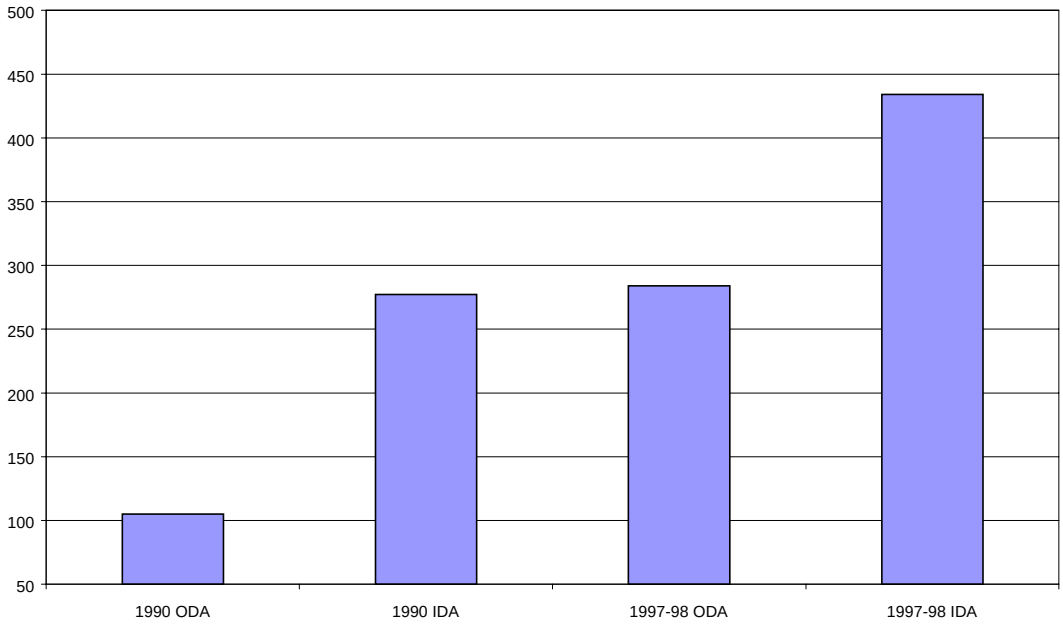
4.2 Trends in aid allocations in the 1990s: a comparison with Collier/Dollar

DAC data on the geographical distribution of bilateral official development assistance (ODA) in the period 1993-1999 shows few consistent trends. Allocations to South and Central Asia have been fairly stable at 10-12% of the total. Sub Saharan Africa's share has fallen quite steeply in the last two years (from 36% in 1997 to 27% in 1999) after hovering just above 30% in the earlier period. The share going to Far East Asia, after reaching a low of 15% in 1996, has since risen sharply to 25% in 1999. Analysis by income group suggests that the share going to least developed countries has actually fallen in the last two years, from 31% to 24% (though the large and uncertain distribution of the unallocated portion makes definitive judgement difficult). See details in Appendix B (table 3). None of these trends are particularly in line with the Collier/Dollar benchmark.

Dollar (2000), however, indicates that aid has become more responsive to country's policies (measured by the CPIA): the responsiveness of ODA overall to a one point improvement in the CPIA jumped from 8% in 1990 to 71% in 197/98 (for IDA, the increase was from 36% to 119%). Combining these results with the CD allocation model, Dollar estimates how the marginal efficiency of aid (in terms of the reduction in numbers of poor people per extra million dollars of aid) has improved. Results are summarised in Figure 1. While the point estimates are to be treated with caution, the results suggest that IDA is more productive than ODA in general, but that the productivity of both has improved substantially in the 1990s.

[26] Analysis suggests that only if Indian allocations were fixed at at least 30% of total aid would SSA appear over-aided.

Figure 1: Marginal Efficiency of Aid
(Reduction in Number of Poor People per Million $)



Source: Dollar (2000)

5. A More Critical Assessment of Burnside/Collier/Dollar

So far this paper has presented an uncritical summary of the World Bank research, and a comparative analysis of the Collier/Dollar poverty efficient aid allocations with the actual distribution of aid. But the underlying analysis and consequent policy conclusions of the WB research have not gone unchallenged. This section reviews the various arguments and available evidence. Part 5.1 focuses on the various methodological and econometric arguments that have been raised, touching also on the broader aid effectiveness literature. Part 5.2 highlights the importance of poverty in the CD analysis, an issue which has tended to be overshadowed by the econometric controversy surrounding the importance of policy. Part 5.3 returns to the issues of fungibility and conditionality on which the B/C/D thesis is so dependent. Part 5.4 reviews the argument that growth is not the only route to poverty reduction, and that growth is not the only benefit of aid, while 5.5 considers the implications of adopting the poverty reduction target at the level of each country, as opposed to a single global target. A number of other issues are touched on in 5.6. Collectively, these issues all imply some deviation from the Collier/Dollar allocations (which CD have always acknowledged to be at best a guide) and at least some watering down of the WB's emphasis on policy as the basis for allocating aid.

5.1 Econometric issues and model specification

Critics of the World Bank research have highlighted shortcomings with cross-section regression analyses, and the selective use and interpretation of policy variables in their analysis. More significantly, the robustness of the original Burnside/Dollar study, and their consequent policy recommendations, have been challenged, with alternative analysis suggesting that aid is effective irrespective of policy conditions. External shocks and aid instability may also impact significantly on the analysis, while a broader review of the literature presents a more positive view of aid effectiveness. Finally, the robustness of the specific poverty efficient aid allocations derived by CD has also been questioned. These issues are considered in turn.

Weaknesses of cross-country regression analysis

Some critics (eg. Lensink and White (LW), 2000b) have highlighted the inherent weaknesses in the use of cross country regression analysis to explain the determinants of growth which may invalidate the findings. For example, different studies have found a large number of variables to have a significant impact on growth, with high attendant risks of any individual model suffering from omitted variable bias and inconsistent estimators[27]. In addition, the pooling of data in cross-section analysis effectively assumes that the productivity of aid is constant across countries and across time periods (except in so far as the interactive aid*policy (A*P) term allows it to vary by policy regime). This is highly unlikely, and tests of parameter stability are frequently rejected[28]. The AA authors acknowledge these weaknesses, but argue that their results are supported by country specific case studies and by project level evidence that donor-assisted projects systematically work better in countries with good institutions and policies.

Selective use and interpretation of policy variables

The selective choice, use and interpretation of the different policy variables have also been questioned (LW, 2000b). Although a large number of variables have been shown to have some significant impact on growth (Renelt, 1991), only a few - such as the investment share, the secondary school enrolment rate, the initial level of income, and different financial

[27] One review (Renelt, 1991) identified about 50 separate independent variables that have been included in at least one study, most of which are shown to have statistically significant partial correlation with growth. But many of these correlations are likely to be spurious, the consequence of omitted variable bias in which included variables are highly correlated with omitted variables (few of the growth regressions can explain more than 40% of the variation in growth). This leads to inconsistent estimators (the value of the estimator does not approach the true value as sample size gets larger). Although the AA authors argue that such a problem is reduced by their use of instruments for all the key variables, Lensink and White (1999) observe that the coefficient on aid is very sensitive to the choice of instrument.

[28] The difference in the BD results with and without middle income countries being one such example. See also comments on model sensitivity below.

indicators - do so robustly[29]. But few of these appear in the AA analysis, and those that do (initial GDP per capita and a measure for financial depth) prove to be insignificant. Measurement of the trade openness variable is particularly problematic[30], while the inclusion of the budget surplus in AA's policy index (in which the coefficients of the individual components are used as weights, with the budget surplus accounting for almost half) is highly suspect as this variable is insignificant when the policy components are regressed individually (see Box 2). The construction of the policy index also ignores the possibility of non linear relationships between explanatory variables and growth (see also Box 6), and is itself likely to suffer from omitted variable bias.

The Collier/Dollar models, based on the broader CPIA measure with 20 components, are less vulnerable to these criticisms. But some potentially important variables for poverty reduction (particularly those directed at redistribution such as land reform) are still omitted (LW 2000b) and the assignation of equal weights to the various components remains pretty arbitrary[31]. Moreover, there remain difficulties in identifying just which are the important variables when composite policy measures are used.

LW (2000b) and Guillaumont (1999) have also highlighted that the A*P interactive term needs to be interpreted with some caution, because it can mean both that the impact of aid on growth increases with the quality of policy, and that the impact of policy on growth increases with the quantity of aid. Although it acknowledges the latter[32], the WB have very much

[29] See Levine and Renelt (1992) and King and Levine (1993). A regression coefficient is said to be "robust" if it does not change too greatly as either model specification or sample are changed. However, Sala-i-Martin's (1997) review suggests that the "extreme bounds" robustness tests commonly applied are probably too strict, and finds that a much larger set of variables are consistently related to growth under less rigorous tests of robustness. These include real exchange rate distortions and the standard deviation of the black market premium (both negative), equipment and non-equipment investment (both positive), the fraction of primary products in total exports (negative) and the fraction of GDP in Mining (positive), the Sachs-Warner measure of openness (positive), the degree of capitalism (positive), and various regional, political and religious variables. Interestingly, variables that fail the robustness tests and therefore appear *not* to be important include all measures of government spending, inflation (and its variance), outward orientation and tariff restrictions (perhaps at odds with the positive finding for the Sachs-Warner measure of openness), and various measures of financial sophistication.

[30] Pritchett (1996) finds that various measures of trade openness used in different growth regressions are largely uncorrelated and may have different effects on growth. The Sachs-Warner composite measure (a zero-one dummy which classifies countries as "closed" if the average tariff on machinery and materials exceeds 40%, if the black market premium exceeds 20% and if government strongly intervenes in the tradable goods sector) used in AA attempts to combine such measures, but its "all or nothing" (open or closed) classification is particularly crude. Moreover, the composite nature of the variable offers few insights into what type of trade policies affect economic growth: a criticism that can be levelled at the AA policy index as a whole.

[31] CD1 demonstrates, however, that various approaches to re-weighting the index make little difference to the results. Moreover, the WB contend that their approach only needs an adequate proxy for policy, not the ideal measure (Dollar, personal communication) - though their results are still likely to be sensitive to the value of that proxy.

[32] For example, AA shows that the impact of a 1 point improvement in its policy index on growth increases with the level of aid (from 1.3% at average aid levels to 1.9% when aid is

emphasised the former. And while the effectiveness of aid conditionality on policy reform is increasingly under question, there are examples where aid does appear to have supported and helped sustain policy reforms (see below).

Model sensitivity to re-specification: the case of Burnside/Dollar

But the most significant challenges are those made by Henrik Hansen and Finn Tarp (HT), who argue that the Burnside/Dollar (BD) model is extremely sensitive to re-specification, and that their own preferred models show aid to be effective irrespective of policy. Earlier versions of their work were reviewed in Beynon (1999). Both protagonists have now produced more recent papers, reviewed below.

HT (2000) first demonstrate that the BD results are highly sensitive to the exclusion of five outliers identified by BD (which, when reinstated, cause the A*P term to become insignificant). They then observe that using A^2 or A*P terms are alternative approaches to modelling a non-linear response of growth to aid, for which economic theory offers no clear preferences. Further, these A^2 and A*P terms are just a subset of a large number of quadratic and interactive second order terms, and may be acting as proxies for each other. In other words, it is possible that a significant A*P term is in fact measuring a significant A^2 effect - and, of course, vice versa. HT (2000) test this by re-specifying the model with a more complete set of quadratic and interactive terms that includes both A^2 and P^2 terms. Individual components of the BD policy index are modelled separately. They conclude that the A*P and P^2 terms are insignificant, whereas the A and A^2 terms are significant - exactly the opposite of CD! This latter finding is confirmed when A*P and P^2 are dropped from the regression (though some of the individual policy terms - openness, inflation and institutional quality - remain significant), and is robust both to minor changes in the sample (the re-exclusion of the 5 “outliers”) and to using instrumental variable estimation techniques.

HT (2001) adopt a similar approach, taking the analysis a stage further by replacing the A^2 term with A*P as in the BD specification (though they retain the individual policy terms). Results for neither A nor A*P are significant. Only when dropping the five outliers identified by BD does A*P become significant. HT conclude therefore that they *can* arrive at the BD results, but only by a statistically invalid reduction of the model and sample data. However, HT 2001 is based on the more conventional ODA measure of aid. Their (and most other analysts’) results have been criticised by Dollar for using a different measure of aid expressed as a percentage of nominal (rather than real) GDP, which is vulnerable to suggesting spurious changes in aid levels in response to rapid changes in the exchange rate[33].

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doubled). Lensink and White (2000b), however, have commented that while the coefficient can be spread across the two interpretations, it cannot be fully attributed to both (which, they argue, is what the WB are effectively doing).

[33] A 50% devaluation that effectively halves the $ denominated level of GDP would imply an instant but erroneous (assuming the bulk of aid dollars to be spent on foreign currency items) doubling in aid.

To counter this, Dalgaard and Hansen (2001) have repeated the HT 2001 analysis using the exact BD dataset (including their policy index rather than the individual policy components)[34]. They then show that there seems little logical basis for choosing these particular "outliers" over other observations which, on the basis of predetermined criteria, would also qualify. Moreover, they illustrate how excluding five alternative "outliers" with high influence (of which 2 are in fact the same as in BD) can produce a regression that shows a positive impact of aid on growth.

DH then go on to test a full model with five aid-policy terms (A, P, A^2, P^2 and A*P). They conclude that A and A^2 are significant but that A*P and P^2 are insignificant (in contrast to BD 2000a, but consistent with HT 2001). Dropping these insignificant variables does not affect the significant parameters. But dropping A^2 and P^2 (to obtain the BD specification, which produces the insignificant value for A) is shown to be invalid, failing a Wald type test for imposed restrictions. The main reason for the differences in their results is due to a different choice of instruments. BD (2000a) rely heavily on time constant variables such as population and proxies for donors' strategic interests. DH replace many of these with lagged versions of the three terms involving A (also used in HT 2001) so that more of the time series variation in aid is explained. In summary, DH have combined the specification of HT (2001) with the dataset of BD (2000a) to reach the same conclusion as HT.

However, BD (2000b) have responded by demonstrating that adding the A^2 and P^2 variables to their model *strengthens* their own results, in that the magnitude and significance of the positive A*P coefficient is increased. This is effectively due to their inclusion of an A^2P variable (ignored in HT), which they argue is consistent with a model of diminishing marginal returns, and would (due to its significance) be inappropriate to leave out. Only if the five outliers are omitted could A^2P be dropped (because it turns insignificant). But A*P is still significantly positive, and remains so even if A^2 (insignificant) and P^2 (significantly positive) are added. In reply, HT have argued that this is not central to their critique and continue to challenge the BD results on their identification of outliers and their choice of instruments. They also argue (HT 2001) that the existence of unmodelled country specific effects causes the true extent of endogeneity of the aid regressors to be understated and renders the traditional instrumental variable estimations invalid. Their alternative GMM estimators produce significantly different results and generally yield an even more positive impact of aid on growth[35].

[34] Though they first observe that the EDA and ODA measures of aid are sufficiently well correlated as to be unlikely to differ much in result, thereby rejecting BD's critique of other analysts' failure to replicate the BD results.

[35] Durbin-Wu-Hausman (DWH) tests for simultaneity bias surprisingly find little evidence of aid being endogenous (instrumental variable (IV) estimates do not deviate significantly from ordinary least squares (OLS) estimates). HT suggest that this is because unobserved country specific effects are correlated with the initial level of income, and with policy, causing IV estimators to be inconsistent and invalidating such tests for endogeneity. They prefer the GMM (Generalised Method of Moments) estimator because it is consistent in the presence of endogenous regressors and country specific effects, though BD continue to defend their own results.

HT (2001) also assess the effect of adding investment and human capital variables to their explanatory set, on the grounds that the main impact of aid on growth is expected to be through investment (by adding to it and/or increasing its productivity). They find that there is no positive effect of aid when controlling for investment, but that aid is effective in increasing domestic capital accumulation[36], concluding therefore that aid *is* generally effective in furthering growth (but with decreasing marginal returns). They emphasise the complexity of the aid-investment-growth relation (see also Lensink and Morrissey, 2000) and the need for better theoretical and empirical models before firm policy conclusions are drawn.

External shocks and aid instability

One particular strand of the literature develops the endogeneity argument by highlighting the significance of external shocks and aid instability. Lensink and Morrissey (LM, 2000) find that uncertainty in aid flows has a negative impact on growth[37], but that when one controls for uncertainty aid has a positive impact on growth. Aid instability overall has no effect, suggesting that it is uncertainty (deviations from expected inflows) that is important rather than aid instability *per se*. They point out that studies that argue that aid is only effective under the correct policy environment may simply be omitting the possibility that aid is positively responsive to unanticipated external shocks that impact negatively on indicators of policy. They conclude that reducing aid because of poor policy performance may simply exacerbate an external shock problem. But further research is required to assess the causes of aid uncertainty and the effect of shocks on aid, and the extent to which these might modify the B/C/D conclusion that favours reallocating aid away from poor performing countries[38].

[36] Specifically, they find that aid has no impact on growth when domestic investment is added to the regression, but aid does have a positive impact when foreign investment is also added. When human capital is added as well, the marginal effect of aid is negative (using GMM - but insignificantly positive using OLS). They interpret these results as indicating that aid may have had a marginal negative impact on total factor productivity in highly aid dependent countries, but that this effect has been dominated by the positive effect working through investment.

[37] Primarily through its adverse effect on investment, a point made earlier by Hadjimichael et al. (1995, p.36). This point may also explain why other studies have tended to show that aid is less effective in Africa (which is more vulnerable to such external shocks), with LM's finding that aid does impact positively on growth when controlling for uncertainty holding true for their sub-sample of African countries. Both sample results are robust to tests for stability. Adding investment to their regressions, they initially find that aid still has a positive effect on growth, suggesting that aid has an additional efficiency-enhancing effect over and above its investment-augmenting effect (though not in their African sub-sample, consistent with the view that the return to capital is lower in Africa (Mosley et al., 1987)). However, this finding is not sustained after tests for stability, and LM conclude that aid, if one controls for uncertainty, has a robust effect on economic growth via investment, but that there is no robust evidence that aid impacts on growth via an efficiency effect.

[38] LM point out that if aid uncertainty is simply due to some natural volatility unconnected with external shocks, then the appropriate policy response would be to ensure a more stable donor-recipient aid relationship.

Guillaumont and Chauvet (1999), however, model this more directly by respecifying the BD formulation to add an "environmental" variable (E) that measures a country's vulnerability to external shocks[39], as well as this variable interacted with aid (E*A). They find that policy, aid, and their environmental variables all have a highly significant impact on growth. They also find that aid effectiveness is higher when vulnerablity is high, but that the A*P term is significantly *negative*[40]. They conclude that additional aid should be given to countries faced by external shocks. Significantly, they also find that external factors impact on policy, such that countries vulnerable to external shocks find it harder to maintain sound policies. Penalising countries for having poor policies may therefore unfairly deprive them of the very assistance that can be effective in helping them to adjust to shocks. Guillaumont and Chauvet recommend therefore that some allowance must be made for the impact of external factors when considering policy performance (see also Guillaumont, 2000).

Wider literature highlights positive impact of aid

A wider review of the aid effectiveness literature over several decades has concluded that the majority of studies - in spite of perceptions to the contrary[41] - show that aid *is* effective in stimulating growth. For example, Hansen and Tarp (2000) review three "generations" of empirical cross-country work on aid effectiveness going back to the 1960s, and conclude that aid *does* improve economic performance, even in countries hampered by an unfavourable policy environment[42] (Box 6). Robert Cassen's (1994) more qualitative review ("Does Aid Work?") was also generally supportive of aid.

Moreover, more recent work suggests that aid effectiveness might have increased since the introduction of structural reforms in the early 1980s: Mosley et al (1999) estimate that the coefficient of aid on growth was insignificantly different from zero in the period 1969-81, but significantly positive from 1981-95. They attribute this partly to the redirection of some aid

[39] GC construct an indicator based on four variables (weighted by their individual impact on growth, in the same way that BD estimate their policy index): the instability of agricultural GDP (weighted by the ratio of agricultural:total GDP) as a measure of climatic shock; the terms of trade and the instability of the real value of exports as measures of long and short term trade shocks; and the logarithm of population, as proxy for the structural exposure of the economy to these shocks (large countries being less vulnerable than small ones).

[40] They speculate that this may be because when the initial quality of policy is poor, the bigger the improvement which can be brought about by aid. The significance of this term is lost, however, using TSLS techniques where aid and policy are instrumented (though it remains negative). Note, however, that their model considers two pooled 12 year periods (1970-81 and 1982-93) in order to adequately capture vulnerability to external shocks, which might effect the aid/policy interactive variable (Guillaumont, 1999).

[41] Bauer (1993) and Zimmerman (1993) have been particularly influential in promoting the view that aid is wasted or even harmful, though Schwalbenberg (1998) suggests that their evidence is largely anecdotal and finds no evidence himself that aid has led to the adoption of harmful economic policies.

[42] Though White (1992a, 1992b) observes that much of the cross-country work suffers from weak economic theory and poor econometric methodology, resulting in inefficient and biased parameter estimates.

direct to the private sector, partly due to an apparent decline in fungibility (arising from the reduction of domestically financed development expenditures in many recipient countries), and (most significantly) to better policies, though the latter are simply proxied by the Sachs-Warner index of trade policy openness. Mosley and Hudson (2000a) produce similar findings, highlighting the increased allocation of aid to human capital increasing functions, as well as reduced scope for fungibility and the increased effectiveness of policy dialogue (notably regarding the exchange rate, public investment and the real interest rate)[43].

Few of these studies, however, formally estimate an economic rate of return to aid. Isenman interprets the HT (2001) findings as suggesting that aid essentially yields similar returns to investment, but notes that investment has historically yielded negative returns in many countries over some time periods. It may therefore be possible that aid with a negative rate of return would still produce a positive return in HT as long as (ignoring its opportunity cost) it has a small but statistically significant impact on growth (Isenman, personal communication)[44]. Lensink and Morrissey's (2000) finding that there may be an additional efficiency-enhancing effect of aid is not robust as noted above, and the issue merits further research. However, it should also be stressed that the benefits of aid extend beyond its simple growth-enhancing attributes (see Section 5.4 below), while donor countries may also benefit from the provision of aid[45]. These benefits are omitted in the BD/HT models, and rates of return implied by them should therefore be interpreted with caution.

[43] Interestingly, it is earlier work by Mosley et al. (1987, 1992) which Hansen and Tarp (2000) cite as having been particularly influential in promoting the view that aid is not effective, in spite of flaws in their analysis: see Box 6.

[44] This is of particular concern in poor policy environments: Collier and Dollar's results suggest that the "rate of return" would fall to around zero in heavily aided countries with below average policy (CD, 1999b: see also Box 5b above). Isenman suggests that aid should at least be generating a positive return if taxpayers are to be persuaded to increase aid.

[45] See, for example, Arvin (1999) for a review of recipient need and donor interest models of foreign aid. Arguments that aid (especially tied aid) promotes trade and donor exports are increasingly being challenged (eg. Lloyd et al., 2000), but other "national interest" benefits are increasingly being highlighted in addition to the moral justification for aid. These include the reduced risks of war and conflict, international crime, trade in illicit drugs, and of the spread of health pandemics like HIV/AIDS (eg. DFID, 2000).

Box 6: Hansen and Tarp's review of the aid effectiveness literature

Hansen and Tarp (HT), noting the apparent inconsistency between the many positive microeconomic evaluations of aid projects with an apparent lack of macroeconomic impact of aid (named the "micro-macro paradox" by Mosley, 1987), review three generations of empirical cross-country work on aid effectiveness going back to the 1960s (covering 131 cross-country regressions drawn from 29 different studies), and conclude that aid *does* improve economic performance:

In 39 **first generation** regressions, aid is treated as an exogenous net increase to the capital stock, effectively ruling out fungibility and skipping over the possibility of aid for consumption purposes. While estimates of aid on savings (measured by the coefficient 'α_1') are generally insignificant or negative (α_1 is significantly positive in only one case), HT demonstrate that only when $\alpha_1<-1$ can it be concluded that the impact of aid on investment (and therefore growth) is harmful. In the range $-1<\alpha_1<0$, aid still leads to an increase in savings, though not by as much as the aid flow. When considering the null hypothesis that $\alpha_1=-1$ rather than $\alpha_1=0$, 18 studies find a significantly positive impact of aid ($\alpha_1>-1$), 20 an insignificant effect, and only 1 a significantly negative effect (17 of the 39 regressions in fact use overall foreign capital inflows as a proxy for aid, though the split between positive and insignificant results is very similar). Given the underlying Harrod-Domar model, the implication is that aid spurs growth.

Of 18 **second generation** studies, in which the different financing components of investment (domestic savings, aid, and other foreign capital inflows) are separated, 17 found a significantly positive effect of aid on investment and only 1 (covering a pre-1970 period) an insignificant effect. In a second strand of the second generation literature covering 72 regressions which directly model the impact of aid on growth, 40 show a positive effect of aid on growth, 1 a negative impact, and 31 an insignificant effect. But HT demonstrate that the insignificance of the aid coefficient can only be valid if the coefficient on the savings variable is significant, effectively ruling out 12 of the 31 insignificant results (including most of the highly influential findings by Mosley et al, 1987 and 1992). In fact, in the 32 regressions where this identifying assumption *is* fulfilled, there are 23 significant coefficients for aid and only 9 insignificant results.

The **third generation** studies represent the most recent, but smallest sample, and break new ground by a) covering large numbers of countries over a number of years, b) incorporating measures of economic policy and the institutional environment, c) explicitly addressing the endogeneity of aid, and d) explicitly modelling the aid-growth relationship as non-linear. Boone's innovative study (1994) finds no significant impact of aid on growth but his results are described as "surprising" by Tsikata (1998) and his approach criticised by HT (2000). Hadjimichael et al (1995) focus on 31 Sub-Saharan African countries (1987-92) and conclude that aid (and aid squared) significantly affect the growth rate, as do a number of policy variables (government investment, human capital, population growth, terms of trade, real effective exchange rate, and the budget deficit). Similarly, Durbarry et al (1998), drawing on a larger sample of 58 countries (1970-93), also provide robust evidence that greater foreign aid inflows have a beneficial impact on growth, as again do several policy/economic variables (domestic saving, private net inflows, terms of trade, inflation and the budget deficit). HT themselves, using Burnside and Dollar's dataset, show that BD's findings are sensitive to model re-specification and conclude that aid *does* have a positive impact on growth irrespective of policy (see main text).

In summary, HT conclude that the perception that aid has been ineffective has been fanned by a few highly influential studies that are *not* supported by the majority of the evidence. In short, there is no micro-macro paradox to resolve. To quote, "the unresolved issue in assessing aid effectiveness is not whether aid works, but how and whether we can make the different kinds of aid instruments at hand work better in varying country circumstances".

Source: Hansen and Tarp (2000) .

Model sensitivity and data anomalies: the case of Collier/Dollar

Many of the challenges to BD can effectively be levelled at the CD poverty efficient aid allocation models as well, based as they are on the same BD approach. Moreover, the specific distribution of aid derived by CD remains very sensitive to the value of parameter estimates. The difference in the results of the CD1 and CD2 models is a prime illustration of this. Lensink and White (2000a) demonstrate this further. They derive their own estimates of the marginal impact of aid on growth[46] to produce their own "poverty efficient aid allocations". These differ markedly from the CD results with a significantly more restrictive set of countries (30, with India constrained) and some large country specific variations. More importantly, they then demonstrate the sensitivity of their own results to changes in the aid and aid squared coefficients[47], with the number of aid recipients rising from 30 to 63.

In addition, CD's individual country results *are* significantly affected by the choice of poverty elasticity, in spite of findings that aid allocation results are highly correlated whichever measure is used. Moreover, their results can be further challenged on the basis of some suspect data, notably with respect to poverty measures (particularly Tanzania, as noted above), while there also appear to be some inconsistencies in their GDP data (see above). In addition, constraining India's share to present levels is as arbitrary as allowing it to rise to the unconstrained level is infeasible.

Each of these points suggest that some caution needs to be exercised in using the CD results. They may inform discussion, but should not be used mechanistically as an allocative tool - a point with which CD fully agree (CD 2001).

Summary

In summary, while the question of whether aid is effective irrespective of policy remains disputed, there is at least agreement that aid works *better* in good policy environments (Robinson and Tarp, 2000). Neither of the extreme views caricatured in the introduction can be supported and most protagonists have stepped back from such positions. It is also worth emphasising here that there remain significant unexplained determinants of growth in all these models. Moreover, many of the factors in the rest of this section also signify an element of mis-specification in these models when account is taken of the broader set of development objectives at which aid is addressed. We return to the implications for aid policy in Section 6.

[46] They first demonstrate, using 1975-92 data, a significant impact of aid on growth but an insignificant interactive aid*policy term (whether using a policy index or separate policy terms covering openness, inflation and the budget deficit). The marginal impact of aid on growth is then $G_a = 0.1736 - 0.0035A$.

[47] The aid and aid squared coefficients are both adjusted by 2 standard errors (from 0.1736 to 0.059 and from -0.00175 to -0.00378 respectively). The revised marginal impact of aid on growth is thus $G_a = 0.059 - 0.00756A$.

5.2 Importance of poverty

The emphasis given in "Assessing Aid" and in the CD papers to good policy, and the heated debate that this has provoked, has caused the importance of poverty to be overlooked (Beynon, 1999). And yet the impact of re-allocating aid on the basis of poverty criteria in the CD models is *bigger* than re-allocating aid according to policy criteria. This finding and the broader significance of poverty is not mentioned in AA, and is given scant if any attention in CD1 or CD2, but is apparent in a number of ways.

First, CD2 report that if current aid flows are reallocated on the basis of equalising aid per capita, the number of people lifted out of poverty would rise by 2 million. If allocations also take account of information on country specific levels of poverty, an additional 9m will be lifted out of poverty. If information on differences in policy is also factored in, a further 3m people benefit[48].

Second, the policy threshold below which aid is ineffective is actually quite low, especially for very poor countries (about 1.3 on the 1-6 CPIA scale: see Section 3.2 above and Appendix A).

Third, when the various components of the aid allocation formula are each plotted in scatter diagrammes against the CD2 poverty efficient aid allocations, there appears to be very little relationship between the policy score and the poverty efficient aid allocation (as a % of GDP), but a *very* clear relationship between the poverty efficient aid allocation and both per capita income and the headcount poverty rate[49]. When aid as a % share of the global aid budget is used instead of aid as a % of GDP, the clearest relationship is between aid and the total *number* of people in poverty, *subject to* per capita income being less than the c.PPP$2,500 threshold observed above[50]. Policy, once again, appears to be largely uncorrelated with poverty efficient aid allocations (see Appendix B, Charts 4 and 5)[51]. Moreover, this

[48] Changing the order of the adjustments "may make some small difference" (Dollar, personal communication). Note, however, that these estimates are for the unconstrained model. If Indian allocations are constrained, the total falls from 14m to 9m, though reallocating by poverty criteria would still emerge as the dominant factor. It is understood that the measure of poverty used here is the headcount rate *divided by per capita income* (as in their aid optimisation formula), rather than simply the simply the headcount rate of poverty (as used in the policy-poverty quadrants), though the text is not explicit.

[49] Aid/GDP falls steadily and steeply as per capita income rises, with no aid going to countries with GDP/hd greater than c.*$PPP* 2,500/hd. Aid/GDP also rises steadily with the poverty rate: only 1 country with a poverty rate below 50% gets aid; the high poverty outliers with no aid are the Czech Republic (poverty rate of 85% surely an error), Equatorial Guinea (v.low policy) and Guatemala (relatively high income). The extreme bottom right point with little aid is India (constrained).

[50] Thus the countries with large numbers of people in poverty that get no aid (points at the right hand end of the bottom axis) are the relatively high income countries of China, Indonesia, Brazil, Philippines, Mexico, Turkey and Egypt. The extreme right hand point is of course India (constrained).

[51] This is not inconsistent with the evidence that countries with better economic management grow (and so reduce poverty) faster: after all, the point above demonstrates that poverty

pattern continues to hold even if all countries above the PPP$2,500/hd threshold are excluded from the charts[52], or if the Indian constraint is relaxed[53]. However, when (poverty efficient) aid *per person* is plotted in the scatter diagrammes to more clearly separate out the effect of population, there is a somewhat clearer positive relationship between aid/hd and policy, particularly when the higher income countries are excluded (Appendix B, Chart 6).

Fourth, the policy-poverty quadrants presented in CD1 show that whether constrained or not, far more aid (*all* of it in the unconstrained version) goes to high poverty countries than to low poverty countries, or indeed to good policy countries. Poor Policy/High Poverty (PP/HP) countries take precedence over Good Policy/Low Poverty (GP/LP) countries. This picture is confirmed by analysis of CD2 (Section 4.1, and Appendix B Chart 3). In fact, in some scenarios the Poor Policy/High Poverty quadrant obtains a *higher* share of poverty efficient aid than the Good Policy/High Poverty (GP/HP) quadrant[54].

Fifth, CD2's estimates of poverty efficient aid allocations *per poor person* are negligible in the low poverty quadrants. More interestingly, allocations per poor person are about three times *higher* in the PP/HP quadrant (c.PPP$36/hd) than in the GP/HP quadrant (PPP$13/hd)[55]. This result is again robust to some relaxation of the Indian constraint, with allocations per poor person in PP/HP countries still being twice those in GP/HP countries at an Indian allocation of 30%.

Sixth, a larger proportion of countries in the GP/HP quadrant receive a *zero* allocation of aid than in the PP/HP quadrant under almost all scenarios, including partial relaxation of the Indian constraint (to 30%).

Finally, more detailed analysis of these last three points using a 3x3 policy-poverty matrix shows that poverty efficient aid would be heavily concentrated in the Medium Policy/High Poverty sector in all scenarios. The GP/HP sector never attracts more than 5% of poverty efficient aid, and while allocations per poor person are generally highest in this sector, allocations per poor person in the PP/HP sector (which attracts up to 20% of aid depending on scenario) are often higher than those in MP/HP (see Appendix B, Table 4).

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reduction will be greater still if aid allocations are informed by poverty *and* policy criteria. Nor does it imply that aid-induced poverty reductions that are not grounded in a sound policy framework are transitory and unsustainable - they *may* be, but this would only occur if both the GDP growth rate *and the level* of GDP were to revert back to pre-aid levels if aid were withdrawn.

[52] To test concerns that the picture is being obscured by the inclusion of many middle income countries. Doing so makes no difference to the visual impression of the charts.

[53] The scatter diagrammes with India fixed at 20% show a very similar picture. Even at 60% the basic relationships hold true, though clearly with far fewer countries receiving any aid at all.

[54] Recall that the quadrants reflect policy scores and headcount poverty rates. Scenarios vary according to choice of threshold points (average, median, or mid point on each scale) and policy variable (actual CPIA or the estimates derived from CD2).

[55] If the World Bank's own CPIA scores are used, the ratio is understood to be around 4:1.

In their latest paper, CD4 do give greater prominence to the significance of poverty, describing it as the most important component of the CD allocation rule and as that aspect of aid allocation which provides most scope for improvement. They also show that a "policy-blind" allocation of aid (which just takes diminishing returns and poverty into account) would have a negative correlation with the CPIA score of -0.31 (ie. aid would be skewed in favour of countries with poor policies). Taking policy into account as well then yields an allocation which is virtually neutral with respect to policy (correlation between aid and policy is 0.07). In effect, this simply counters the bias towards poor policy countries implicit in taking poverty into account, and should not be viewed as being harshly selective. Moving from a "policy-blind" to a "poverty efficient" allocation would in practice simply result in shifts in aid from Burma, Sudan, Somalia, Nepal and Afghanistan to Uganda and Ethiopia, which they suggest even their critics would not find controversial (Collier and Dollar, 2001).

It remains likely, however, that the relative significance of policy would be enhanced if explicit account was taken of the well known and persistent small country bias in aid allocations. Collier and Dollar do this in their regional analysis of prospects for meeting the international development targets (CD3, 2000), but not in their country-level aid allocation models. This merits further analysis.

5.3 Fungibility, conditionality, and implications for selectivity

The policy conclusions of "Assessing Aid" and Collier/Dollar depend significantly on assuming that aid is fungible (so that donor attempts at targeting assistance to benefit poor people are thwarted), and that policy conditionality does not work (so undermining the case for targeting aid at poor policy countries in expectation of being able to buy policy reform). The evidence they present to support these assumptions was summarised in Section 2.2. But both assumptions can be challenged.

Is aid really fungible?

Evidence demonstrating high degrees of aid fungibility, used to explain why attempts to target aid at poverty reducing measures are unlikely to succeed, is not as conclusive as the World Bank research suggests. McGillivray and Morrissey (2000) and Lensink and White (2000b) both highlight shortcomings in the Feyzioglu et al. (1998) study. Moreover, the evidence in favour of sectoral fungibility is actually quite weak (see Box 3), while wide disparities in results across countries suggest that fungibility is neither inherent nor inevitable. McGillivray and Morrissey (2000) argue that there are a number of practical ways in which donors can influence budget allocations and outturns[56]. They also criticise "Assessing Aid"'s treatment of fungibility for

[56] The allocation in Uganda of additional donor funds to target sectors through the Poverty Action Fund may also be presented as evidence of additionality, not fungibility (Manuel, personal communication).

overlooking the possibility of aid-financed reductions in tax revenue: a review of seven additional studies from the fiscal response literature suggests that aid often has a strongly negative impact on tax revenue, although these studies do not generally support the WB conclusion that aid is primarily spent on consumption rather than investment. Holmqvist (2000) also questions the reliability of many studies on fungibility.

Cassen (1986, 1994) notes a number of conceptual reasons for questioning the significance of fungibility. Lensink and White (2000b) highlight the possible quality effects from donor involvement in specific projects, and the limits to fungibility where governments are clearly unable or unwilling to devote their own resources to specific activities[57]. Mosley and Hudson (2000a) argue that the scope for fungibility has diminished as a result of the reduction (if not extinction) of domestic funding for the development budget in many recipient countries, and suggest this as one reason why aid effectiveness appears to have increased.

Is policy conditionality really ineffective?

The view that policy conditionality is largely ineffective has gained widespread support, even amongst those otherwise critical of "Assessing Aid". But some partial reassessment may be necessary. Although Burnside and Dollar (1997) show econometrically that aid has *on average* no effect on policy, and Guillaumont and Chauvet (1999) also reject the hypothesis that aid influences policy reforms, Guillaumont (1999) recognises that these estimations have a limited scope (they only cover macro policy) and may not be adequately specified. This issue is of more than academic interest. If aid can lead a country to adopt better policies, the poorer the initial policy, the larger the room for improvement (Guillaumont and Chauvet, 1999).

Morrissey (2000) re-evaluates the performance of conditionality, particularly with respect to trade liberalisation, and suggests that earlier critiques (including his own) were excessively negative if a longer term view is taken. Lancaster (1999) highlights the positive role of conditionality in promoting necessary but resisted exchange rate devaluations in the 1980s, while Mosley and Hudson (2000a) and Schwalbenberg (1998) also suggest that policy improvements can partly be ascribed to structural adjustment and conditional aid. Killick's (1998) largely negative conclusions about the impact of conditionality may be in part due to his focus on cases of hard core conditionality (promises of action made at the insistence of the donor). The IMF's (2001) own review of structural conditionality finds that the majority of conditions are fully implemented, with prior actions having the highest implementation rate[58].

[57] It is questionable, for example, as to whether the Expanded Programme of Immunisation would have succeeded to the same extent without targeted donor finance, or whether HIV/Aids awareness campaigns in some countries would have been as well supported without donor finance.

[58] In a survey of 24 recent Fund supported programmes, 83% of prior actions and 66% of performance criteria were considered to have been "fully implemented", albeit with considerable delay in a substantial number of cases. The lighter the penalty for non-

Recent case study evidence suggests that conditionality can have a constructive role, particularly during early and rapid phases of reform when conditionality can strengthen the hand of the reformers, as in Ghana (mid-1980s) and Uganda (late 1980s) (Devarajan et al, 2000). The IMF (2001) also find that implementation of conditionality is greater where commitment and ownership are strong, and similarly highlight the role of conditionality in underscoring this commitment[59].

Pressures to disburse, which frequently turn apparent positions of donor strength into ones of weakness (vividly illustrated for Ghana in the early 1990s by Kanbur, 2000) may be problems of practice, rather than principle. Amongst Kanbur's proposed reforms are for there to be a more of an arms length relationship between donors and recipients, and "a new toughness in standing firm on conditionalities" (p.422) [60].

Implications for and merits of selectivity

The above arguments may weaken but do not overturn the case for greater ex-post selectivity in aid allocations, but a number of criticisms (reviewed in Gunning, 2000), have been levelled at selectivity. First, that selectivity would leave poor people living under bad governments to fend for themselves. Second, that countries with good policies do not need aid. Third, that selectivity still ties a country's allocation to some assessment of its policies, and is therefore as likely as ex-ante conditionality to end up in bargaining (and to identifying the wrong policies). Fourth (and similarly), that selectivity still conflicts with ownership[61].

Gunning dismisses the first by commenting that as aid to such governments is unlikely to be effective, the poor would be no worse off without aid, and a

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compliance, the lower the implementation rate: only 57% of structural benchmarks were fully implemented. Overall, 65% of measures were fully implemented, with 18% partly implemented, 10% not implemented, and 7% not known. Implementation rates were highest in Asian crisis countries (87% fully implemented), and lowest in transition economies and ESAF/PRGF countries (57% and 59% fully implemented respectively). Policy implementation in the macroeconomic area was judged to have been higher (IMF, 2001).

[59] Dollar and Svensson's (2000) analysis of 220 adjustment programmes highlights the importance of domestic political economy factors in determining the success of reform programmes. They find, for example, that reform programmes under a new, democratically elected government have a 95% probability of success, compared to 67% under an authoritarian government in power for 12 years. Adding extra conditions or additional administrative resources for preparation and supervision is unlikely to make much difference. The implication is that donors should be seeking to identify, not create, reformers, and to be more selective in their aid allocations (Dollar and Svensson, 2000).

[60] In the absence of such a "commitment technology", Svensson (2000) argues that donor preferences for poor countries create a moral hazard problem that adversely affects the aid recipients' incentives to undertake structural reform. He suggests that the delegation of part of the aid budget to an (international) aid agency that is less averse to poverty, and the use of tied project aid, will improve the welfare of the poor.

[61] Gunning argues that conditionality is incompatible with ownership and undermines government accountability, and is therefore undesirable even if it were feasible.

more selective approach does not preclude aid channelled directly to the poor rather than to their governments. The second is dismissed as "simply false" on the grounds that savings and investment are often slow to respond to changed polices, and that the cost of domestic taxation is typically quite high. But the third and fourth are more serious and may warrant an outcomes-based (rather than a policy-based) approach to selectivity. However, outcomes are more difficult to monitor than policies, performance may only be discerned after some considerable time lag, and outcomes are invariably the result of a host of factors, not just policy choices. Gunning recommends, therefore, that donors base their aid decisions on a small number of outcome measures (such as GDP growth and some measure of poverty reduction), and a limited set of policy measures. The latter would be designed to ensure that aid is given to countries that maintain macro-economic stability (the policy-based condition being simply that the country passes an IMF monitoring test), to prevent the pursuit of clearly inappropriate strategies (eg. environmental destruction), and to compensate for the long lags between policy implementation and their ultimate outcome effect.

5.4 Other routes to poverty reduction and other benefits of aid

Growth is not the only route to poverty reduction

Growth is not the only route to poverty reduction. Other factors such as investments in human capital and other targeted social sector spending, and measures to increase the assets of the poor will also have a positive impact, not just on poverty reduction but also on the other international development targets[62]. Moreover, the impact of growth on poverty reduction is highly sensitive to the pattern of income distribution, a factor which is repressed by CD's use of constant poverty elasticities with respect to income[63].

Guillaumont (1999) observes that if aid has an impact on distribution, it both modifies the growth elasticity of poverty and may have a direct impact on poverty. Aid allocations that fail to capture these effects are unlikely to be poverty efficient[64]. The latest Word Development Report on poverty (World

[62] Ramirez et al (1997, discussed in White, 1999a) show that countries that focus on growth alone have poor performance with respect to both growth and human development indicators, whereas countries which emphasise investments in human development will also reap benefits of higher growth. Hanmer and Naschold (1999) demonstrate that certain patterns of growth (notably agricultural growth) are particularly pro-poor (also citing Ravallion and Datt, 1996; Bourguignon and Morrisson, 1998), and argue that inequality *is* a policy outcome. See also DFID's Target Strategy Paper on Halving World Poverty (DFID, 1999), and the comprehensive review in World Bank (2000).

[63] Although income distribution *is* incorporated indirectly, since CD's aid allocation formula also includes per capita GDP such that countries with a high headcount measure of poverty relative to per capita GDP get less aid than countries with a more equal distribution (other things being equal). CD suggest that this explains why their results using poverty gap and headcount measures of poverty are so well correlated (since using poverty gap data does not in fact add much new information).

[64] The WB do recognise these issues, but argue that income growth and poverty reduction *are* highly correlated (Ravallion and Chen, 1997: see above). Dollar and Kraay (2000a) argue that the poor benefit as much from growth as other income groups, though this view remains

Bank, 2000) acknowledges the scope for policies to have positive distributional effects and cites some "win-win" examples where efficiency and redistribution are achieved simultaneously, even though the broader evidence is not strong and the language remains cautious.

Growth is not the only benefit of aid

Moreover, aid may have an impact on other anti-poverty targets apart from the reduction of income poverty. For example, improvements in health, education, and environmental quality are ends in their own right reflected in the IDTs. The less fungible is aid, and the less correlated is the scope for improvements in these sectors with the overall quality of the policy environment, the stronger the case for aid allocations to deviate from the CD benchmarks. DAC data on aid flows further suggest that only about a third of aid is for economic infrastructure and production services (which may approximate to physical investment), with a further third for human capital investment.

Vulnerability and insecurity are also increasingly recognised as important elements of poverty (World Bank, 2000). There is therefore a case for allocating aid to help smooth adjustment to exogenous shocks, and to reduce conflict or the risk of conflict. The former has already been discussed. Regarding the latter, Grossman (1992) and Azam (1995) have suggested that aid increases the risk of conflict by making capture of the state more attractive. Collier and Hoeffler (2000) refute this however. They suggest that by affecting the rate of growth and the dependence on primary commodity exports, aid (and policy improvement) *can* indirectly reduce the risk of conflict. More generally then, there may be circumstances, particularly in situations of conflict but also in the context of regional development, when the strategic importance of certain countries may justify higher allocations than the present model would suggest[65].

5.5 National or global poverty reduction?

The CD approach to optimising aid allocations might be appropriate given an objective of maximising the number of people to be lifted out of poverty - but would *not* be appropriate if the objective is to see progress towards the poverty reduction International Development Target *in each country* simultaneously. These two objective functions are quite different. To achieve the latter, the model would need to take into account the extent to which each country's *unaided* growth path is already sufficient to achieve the IDT, the implication being that countries that look to be successfully on course to achieve the target should receive no aid, or at least less aid than the CD

contentious. CD explicitly assume that aid is distributionally neutral - a position informed by the apparent high degree of fungibility of aid and evidence that changes in public expenditure and taxation are themselves *on average* distributionally neutral - but do comment this is not an empirically grounded result, but rather a neutral assumption pending evidence which would enable distribution to be endogenised with respect to aid.

[65] A point recognised by CD, who similarly observe that aid to newly reformed countries may be justified as a catalyst in raising private investment during an initial adjustment phase.

model currently suggests. This could have significant implications for aid allocations, likely to favour Sub Saharan Africa.

An alternative line of argument would be that it remains best to allocate aid where returns are highest, but that aid should be rapidly switched away from countries once poverty rates have fallen significantly. This is effectively the approach taken in CD3 (Collier and Dollar, 2000), which shows for example how aid flows to Uganda would initially be significantly higher and rising due to their high rates of poverty and good policy, but that after some years aid would begin to fall and by 2015 would be lower than at present. Either way, the objective function in the optimisation process would need to be respecified.

The choice of objective is thus quite important. An objective function that used the $1/day as opposed to the $2/day measure would further enhance the claims of the poorest over the less poor developing countries. An objective function that adopted a poverty gap measure of poverty (to take into account the mean distance below the poverty line as well as the poverty rate), would further enhance the claims of Sub Saharan Africa where poverty tends to be deepest. Furthermore, one would need to make explicit what weight or value to assign to further increases in income of those already above the poverty line. The UNDP's Human Development Reports have consistently argued that these can hardly be valued at zero, nor was this ever the intention of the poverty reduction IDT (Isenman, personal communication).

5.6 Other issues

Finally, there are a number of other issues not yet touched on but which are relevant to the discussion. The first concerns the *distinction between financial aid and technical assistance*. The WB's "Effective Development Assistance" (EDA) measure of aid explicitly excludes technical assistance. But to the extent that TA is directed at policy and institutional reform, its relationship with growth and aid effectiveness might be quite different from financial assistance. Thus even though B/C/D and their critics have demonstrated that using EDA or ODA makes (perhaps surprisingly) little difference to their respective results, some attempts to disaggregate the effects of financial aid and TA are merited - particularly for those donors which focus on the latter. To the extent that governments are unable (due to capacity constraints) rather than unwilling to implement policy reforms, TA may have a particularly valuable role in "poor policy" environments.

Second, the risks of *aid dependency* may limit the extent to which already highly aided countries can or should be provided with additional aid, regardless of their policy and poverty status. However, Collier (1999) has challenged the main arguments of the aid dependency school: aid has not been the cause of slow growth in Africa and the level at which aid (as a percentage of GDP) produces negative returns is in fact very high (at least in good policy environments); any disincentive effects on the national work effort are negligible, and indeed there may be positive incentives arising from the reduced distortionary effects of the tax system; aid is more likely to crowd in

rather than deter private investment, at least where policies are good; aid flows are actually less volatile than government revenue; and it is by no means necessarily the case that aid flows are in terminal decline.

Third, *governance* issues are being seen as increasingly important. Standards of public expenditure management are being more closely assessed, particularly in the context of HIPC, PRSPs and the shift by many donors towards budget support. Whether these, or broader measures of governance, are given sufficient priority in country policy and institutional assessments remains debatable. Dollar and Kraay (2000b), for example, argue that countries with good measures of economic governance (property rights and the rule of law) tend to grow faster, but that measures of democracy or political governance have no significant effect on growth. However, aid allocations appear to discriminate mildly *against* countries with good rule of law, while favouring those with political democracy, suggesting some scope for more efficient reallocation [66].

Fourth, the implications of differential *access to private capital markets* has not been addressed. Nor (fifth) has the issue of how *debt relief* commitments might be incorporated into consideration of optimal aid allocations.

6. Conclusions and Policy Implications

This section concludes by considering some policy implications for donors of the foregoing analysis. The first point to stress is that there remain many contested areas of debate, and many caveats and uncertainties which warrant further analysis and research. But there is a substantial area of common ground, and some practical pointers for policy makers in the donor community that can already be made. The strength of these recommendations will of course vary between donors, depending on their own mandates, political priorities, areas of comparative advantage, and existing patterns of aid distribution.

- *Reform aid allocation processes*

There are potentially substantial gains to be had from a more efficient allocation of aid. But while there are clearly limitations to the CD model as an allocative tool, and some practical limitations on the speed with which redirecting aid budgets can be achieved. Nevertheless, there is a strong case for adopting more rigorous processes that attempt to better guide and justify the allocation of aid budgets. These are likely to be based on composite measures of aid need and aid effectiveness (including governance). Steps in

[66] These findings look likely to stimulate further heated debate. Moore et al (1999), for example, find that a country's "income conversion efficiency ratio" (ICER, the efficiency with which a given volume of GNP/hd is converted into human development) is *negatively* correlated with a composite measure of the quality of government institutions produced for international investors by the International Risk Guide. This comprises five measures covering government corruption, bureaucratic quality, risk of expropriation, rule of law, and risk of repudiation of contracts by government.

this direction by the European Commission and the main multilateral agencies are welcome. But the weights to be attached to each will need to take into account the assessment above which emphasises poverty more than policy as the key allocation criterion. A more objective and transparent basis for aid allocations is likely to further enhance the credibility of aid Ministries and enable them to better focus their spending on their core objectives.

Further research is strongly recommended to better understand the relationships between aid, investment, growth and poverty reduction. Specific issues encountered during this paper include the endogeneity of aid and the causes of aid instability, the impact of incorporating variable poverty elasticities, the effect of small country bias in aid allocations, the consequences of varying the objective function to consider the poverty (and other) targets at country rather than global level, and the differential effects of technical assistance and financial aid. The potential pay-offs to such research are very high indeed[67].

- *Reallocate aid to poor countries*

It remains very clear, however, that, if the poverty reduction IDT is to remain the centrepiece of development assistance (and more donors, both bilateral and multilateral, are making this an increasingly explicit objective), then more aid needs to be reallocated from middle to low income countries. In particular, this means shifting aid away from Eastern Europe and Central Asia, Latin America, and the Middle East and North Africa, and towards South Asia and (to a lesser degree) Sub-Saharan Africa. India is the one country above all that would appear to merit more aid, but the recommendation that SSA's aid share be increased remains robust even allowing for significant increases to India. This point would be further reinforced if early progress towards the poverty reduction IDT is to be sought in all countries simultaneously, rather than just globally.

However, this recommendation raises the question of what donors should do to support the large numbers of poor people living in less poor countries[68]. To a large degree this depends on the extent to which donors believe their resources can be exclusively targeted at poor people. Indeed, in a world of zero fungibility, equalising aid per poor person may be an appropriate basis for a decision rule for allocating aid. But precision targeting is not possible. Moreover, many poor people reside in countries which have considerable resources of their own, and reasonable access to private sector capital (supplemented by non-concessional finance from developed countries and the International Financial Institutions). The priority here is to provide

[67] A back of the envelope calculation by David Dollar (Dollar, 2000), attributing just 1% of the 200% improved efficiency of aid in the 1990s to the $1m the WB spent on aid effectiveness research, suggests that the return on that research *in the first year* was 120,000% of the return on the typical aid dollar in 1990, being responsible for lifting 120,000 people out of poverty compared to the 100 people that an equivalent $1m of aid achieved in 1990!

[68] Part of the "difficulty" is that such countries are frequently characterised by high levels of inequality, such that growth is less effective in reducing poverty.

technical assistance to improve the effectiveness of government and redistribution of income. Where the political will to address internal inequalities is weak, assistance would be better focused on support to civil society to enable it to better motivate for change. Either way, the case for large scale financial transfers is weak.

- *Reallocate - somewhat - to good performers*

This remains the biggest area of contention. The extreme view that aid should be exclusively channelled to good performers, and that poor performers should be cut off from aid completely cannot be supported. Collier/Dollar's own analysis confirms that, and yet the emphasis in early presentations and discussion of the WB research - and one which has been widely adopted - is close to this view. To the extent that we are concerned with multiple poverty-related objectives (not just the reduction of income poverty), the good policy focus recommendation is further watered down. But it is hard to escape the conclusion that some reallocation towards better performers is warranted. Critics of the B/C/D school still generally agree that aid is more effective when the policy environment is good. The key questions are: how do we measure performance, how much aid should poor performers get, and in what form can it best be provided?

The first question remains controversial, but some form of CPIA type measure would be desirable, notwithstanding criticisms about both its content and process that would need to be addressed first. A key point emerging from the review above is that assessments of performance need to take account of external shocks. A mechanistic application of outcome measures, particularly of the macroeconomic variety, are more likely to damage than help[69]. Joint assessments, possibly in the context of PRSP reviews, should be considered, though individual donors will legitimately have their own judgments to make in interpreting such assessments of performance in the light of their own priorities and areas of comparative advantage.

The answer to the second question is surely "less" - but how much less remains difficult to judge. The strength of the argument depends in part on the strength of fungibility and the weakness of policy conditionality (see below). One option to consider might be for donors to set targets for the reduction of the proportion of their aid going to poor policy countries (in the same way that some do for the proportion of their aid going to poor countries) over a certain time period. But these targets should be modest and regularly reviewed. The case for doing this will vary significantly between donors, depending on the scale of their aid budgets and nature of assistance (being more appropriate for large scale donors providing significant financial transfers). Adopting a general DAC-wide target or principle, rather than donor specific targets, would present an alternative and softer approach: a yardstick

[69] Collier and Dollar (2000) comment that to the extent that there are significant additional aid flows to priority countries, this will increase conventional deficit measures and so reinforces the arguments in favour of considering deficits *after* grants (this could be further extended to deficits after grants *and* the grant element of concessional loans).

against which donors can measure progress and, in some cases, reasonably justify deviations.

The third question of how best to support poor people in poor policy environments remains a difficult one. But an increased emphasis on policy dialogue and technical assistance, the selective use of aid to alleviate distress in the short term, support for civil society to encourage social and political change[70], and more "joined up" government and use of non-aid instruments to ensure that such efforts are mutually reinforcing are likely to be key features. In *some* circumstances it may also be possible to work directly with provincial or local governments that are thought to be pursuing pro-poor policies, particularly where each has a significant degree of financial autonomy.

- *More flexible aid delivery systems*

Ex-ante conditionality and ex-post selectivity need not be thought of as two mutually exclusive approaches. But more performance related aid, linked to emerging thinking (eg World Bank, 2000) on ways of delivering aid, will imply a greater degree of ex-post selectivity and greater flexibility in aid allocations. This will also imply more decentralised decision-making within aid agencies, including the use of "policy and performance funds" that managers are responsible for allocating and spending in the light of emerging needs (including external shocks) and changing performance. A key consequence of this is that, at least at the country programme manager and possibly at the regional programme manager level, "spending the aid budget" should not be a measure of individual performance.

This in turn will imply a further shift towards more flexible forms of assistance (budgetary support) where conditions permit, and require further progress in improving donor coordination and harmonising donor procedures. It is also likely to further highlight the need for measurable progress in standards of financial management in recipient countries. More flexible donor procedures and allocative systems would also enable a more flexible response to missed conditions, in which partial fulfillment is met with partial release of funds. Such a graduated response may simultaneously serve to enhance the credibility and hence effectiveness of conditionality.

- *Lobby for more aid*

Finally, an overwhelming conclusion of this paper is that the overall impact of aid has in fact been reasonably good *and is getting better*. The fact that there remains a widespread perception that aid is largely ineffective suggests a case for a concerted PR campaign to highlight the successes of aid. It also represents a powerful justification for aid Ministries to lobby for increased aid budgets, to make progress towards the UN's 0.7% of GNP target for those yet to meet it. The case would be further reinforced by, and perhaps dependent

[70] This approach is obviously straying into sensitive territory, yet is one which DFID has explicitly advocated in its latest White Paper (DFID, 2000, para 291).

on, donors being seen to be seeking to improve the allocation of their existing budgets.

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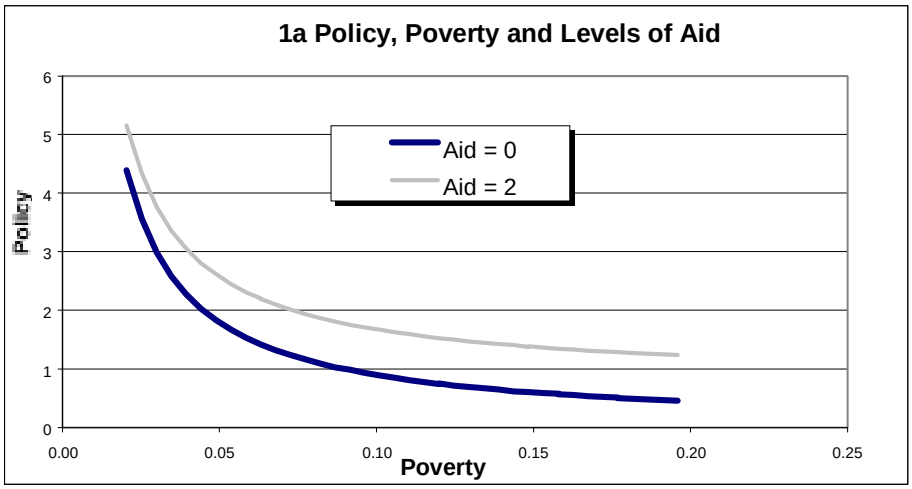
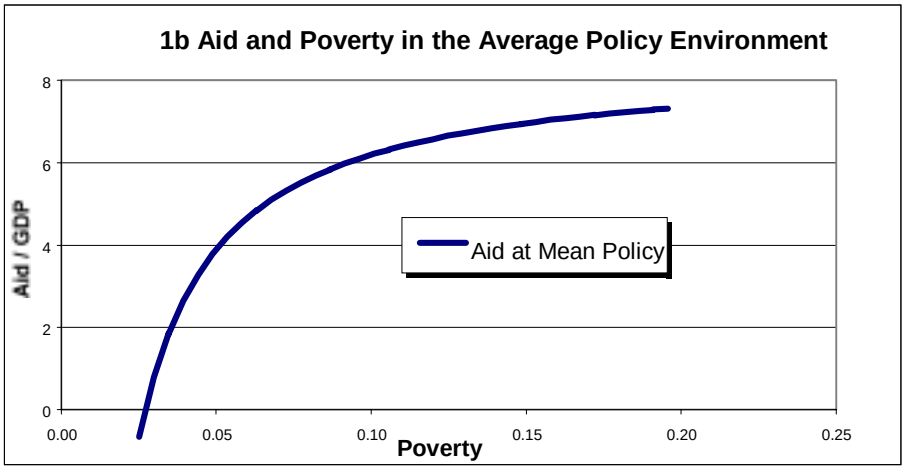
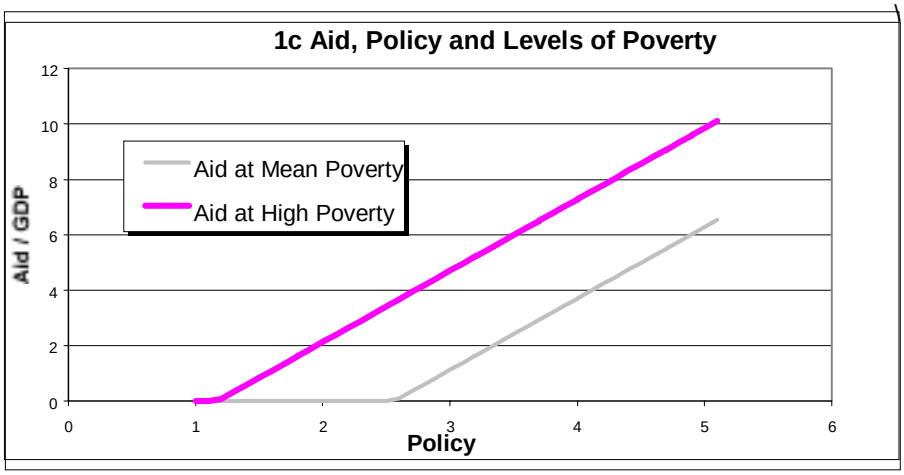
Appendix A: The Relationship between Policy, Poverty, and Levels of Aid (from CD2)







Notes to Accompany Appendix A charts

The three charts illustrate the set of relationships linking aid (as a % of GDP), policy, and an index of poverty (that measures the headcount rate *divided by per capita income*,) using the formula set out in Box 4:

$$A^i = 2.6P^i - [(\lambda / 0.07\alpha^i) * (h^i / y^i)^{-1}]$$

Chart 1a: holds aid constant: each isoquant shows combinations of policy and poverty that would justify a certain level of aid. The poorer the country, the lower is the policy quality required to justify a certain volume of aid. The isoquant Aid=0 is the dividing line between countries that receive aid in the poverty efficient allocation, and those that receive none.

Chart 1b: for any given level of policy, the relationship between aid and poverty is upward sloping (higher levels of poverty justify higher levels of aid), but with diminishing marginal returns to aid.

Chart 1c: holding poverty constant, the optimal relationship between aid and policy is linear but kinked: there is a threshold of policy below which even the first dollar of aid is ineffective. The higher the level of poverty, the lower is the level of this policy threshold.

Source: Collier and Dollar, 1999b.

Appendix B: Results and Analysis of the Collier/Dollar "Poverty Efficient" Aid Allocation Models

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    - policy scores / per capita income / numbers in poverty / headcount poverty rate

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    - policy scores / per capita income / numbers in poverty / headcount poverty rate

TABLE 1: A SUMMARY OF COLLIER/DOLLAR BASELINE DATA AND POVERTY EFFICIENT AID ALLOCATION RESULTS

		GDP data (PPP$)		Pop. below PPP$2/day			Actual Aid 1996			Poverty-Efficient Aid: CD version 1						Poverty-Efficient Aid: CD version 2 (Tanz. corrected: note 5)					
	Country (note 1)	Aggregate GDP ($bn)	GDP/hd	%	million	% of global poverty	as % of real GDP	$m	as % of total aid	as % of real GDP	total aid $m	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)	as % of real GDP	total aid $m	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)
				(note #)																	
1	ETHIOPIA	29.3	538	89.0%	48.5	1.83%	2.90%	849	2.13%	3.75%	1,101	20.2	22.7	2.83%	-252	8.12%	2,382	43.7	49.1	5.97%	-1,533
2	UGANDA	20.5	1,136	92.2%	16.6	0.63%	3.34%	673	1.69%	3.68%	753	41.8	45.3	1.94%	-80	7.75%	1,587	88.0	95.5	3.98%	-914
3	MOZAMBIQUE	10.0	632	100.0%	15.9	0.60%	9.21%	919	2.30%	3.56%	357	22.5	22.5	0.92%	562	7.47%	748	47.2	47.2	1.88%	171
4	MALAWI	7.1	764	96.0%	8.9	0.34%	7.09%	501	1.26%	3.49%	246	26.6	27.7	0.63%	255	7.08%	500	54.0	56.3	1.25%	1
5	ZAMBIA	8.2	959	98.1%	8.3	0.31%	7.53%	614	1.54%	3.46%	282	33.2	33.8	0.73%	332	6.94%	565	66.5	67.8	1.42%	49
6	MALI	7.3	789	92.8%	8.5	0.32%	6.95%	505	1.27%	3.44%	250	27.2	29.3	0.64%	255	6.89%	501	54.4	58.7	1.26%	4
7	BANGLADESH	122.9	1,059	87.6%	101.7	3.84%	1.02%	1,255	3.15%	3.38%	4,152	35.8	40.8	10.69%	-2,897	6.60%	8,112	69.9	79.7	20.34%	-6,857
8	RWANDA	4.3	620	88.7%	6.1	0.23%	15.75%	674	1.69%	3.22%	138	19.9	22.5	0.35%	536	6.02%	258	37.3	42.1	0.65%	416
9	BURKINA FASO	10.2	1,036	86.4%	8.5	0.32%	4.11%	418	1.05%	3.09%	315	32.0	37.1	0.81%	103	5.49%	559	56.9	65.8	1.40%	-141
10	NIGER	8.7	1,029	92.0%	7.8	0.29%	2.97%	259	0.65%	3.03%	264	31.2	33.9	0.68%	-5	5.25%	457	54.0	58.7	1.15%	-198
11	SIERRA LEONE	2.4	560	77.5%	3.3	0.13%	8.11%	196	0.49%	3.01%	73	16.9	21.8	0.19%	123	5.23%	126	29.3	37.8	0.32%	70
12	GUINEA-BISSAU	1.1	1,119	96.7%	1.0	0.04%	15.67%	180	0.45%	3.00%	34	33.6	34.8	0.09%	146	5.14%	59	57.6	59.5	0.15%	121
13	MADAGASCAR	12.8	1,017	93.2%	11.8	0.44%	2.84%	364	0.91%	3.00%	385	30.5	32.7	0.99%	-21	5.14%	660	52.3	56.1	1.65%	-296
14	CHAD	6.0	980	85.4%	5.2	0.20%	5.07%	305	0.76%	3.00%	180	29.4	34.4	0.46%	125	5.13%	309	50.3	58.9	0.77%	-4
15	BENIN	7.1	1,363	79.9%	4.1	0.16%	4.15%	293	0.73%	2.99%	211	40.7	50.9	0.54%	82	5.03%	355	68.5	85.7	0.89%	-62
16	LAO, PDR	5.9	1,351	83.4%	3.6	0.14%	5.73%	333	0.84%	2.80%	165	37.8	45.3	0.43%	168	4.29%	254	58.0	69.5	0.64%	79
17	LESOTHO	3.5	1,825	74.1%	1.4	0.05%	3.09%	107	0.27%	2.79%	97	50.8	68.6	0.25%	10	4.17%	144	76.0	102.6	0.36%	-37
18	SENEGAL	14.4	1,827	79.6%	6.3	0.24%	4.03%	580	1.45%	2.78%	401	50.8	63.8	1.03%	179	4.15%	599	75.8	95.2	1.50%	-19
19	BURUNDI	3.8	644	88.0%	5.2	0.20%	5.31%	204	0.51%	2.77%	106	17.9	20.3	0.27%	98	4.31%	165	27.8	31.6	0.41%	39
20	KENYA	31.8	1,254	78.1%	19.8	0.75%	1.91%	606	1.52%	2.72%	865	34.1	43.7	2.23%	-259	3.99%	1,270	50.1	64.1	3.19%	-664
21	NEPAL	23.7	1,163	86.7%	17.6	0.67%	1.70%	392	0.98%	2.70%	639	31.4	36.2	1.64%	-247	3.94%	933	45.8	52.9	2.34%	-541
22	VIETNAM	118.3	1,669	80.0%	56.7	2.14%	0.78%	927	2.32%	2.64%	3,125	44.1	55.1	8.04%	-2,198	3.36%	3,977	56.1	70.1	9.97%	-3,050
23	NIGERIA	102.5	975	59.9%	63.0	2.38%	0.19%	192	0.48%	2.62%	2,680	25.5	42.6	6.90%	-2,488	3.59%	3,681	35.0	58.5	9.23%	-3,489
24	HAITI	8.3	1,210	68.3%	4.7	0.18%	4.51%	375	0.94%	2.52%	210	30.5	44.6	0.54%	165	3.20%	267	38.8	56.8	0.67%	108
25	GHANA	32.1	1,980	68.3%	11.1	0.42%	2.04%	644	1.61%	2.49%	799	49.3	72.2	2.06%	-155	2.97%	952	58.8	86.1	2.39%	-308
26	HONDURAS	13.0	2,328	75.7%	4.2	0.16%	2.82%	367	0.92%	2.39%	311	55.7	73.6	0.80%	56	2.58%	335	60.0	79.2	0.84%	32
27	MAURITANIA	4.5	2,057	68.4%	1.5	0.06%	6.15%	274	0.69%	2.36%	105	48.5	70.9	0.27%	169	2.45%	109	50.4	73.7	0.27%	165
28	NICARAGUA	9.3	2,266	74.5%	3.1	0.12%	10.21%	952	2.39%	2.31%	216	52.4	70.3	0.56%	736	2.27%	212	51.4	69.0	0.53%	740
29	PAKISTAN	214.3	1,744	57.0%	70.0	2.65%	0.41%	876	2.20%	2.31%	4,952	40.3	70.7	12.75%	-4,076	2.26%	4,838	39.4	69.1	12.13%	-3,962
30	TAJIKISTAN	5.3	947	47.8%	2.7	0.10%	2.12%	113	0.28%	2.25%	120	21.4	44.7	0.31%	-7	2.16%	115	20.4	42.8	0.29%	-2
31	TOGO	7.1	1,843	65.3%	2.5	0.10%	2.33%	166	0.42%	2.23%	159	41.1	63.0	0.41%	7	1.96%	140	36.2	55.4	0.35%	26
32	COTE D'IVOIRE	24.7	1,875	54.8%	7.2	0.27%	3.91%	968	2.43%	2.20%	545	41.3	75.4	1.40%	423	1.79%	444	33.6	61.4	1.11%	524
33	CAPE VERDE	0.8	2,134	56.6%	0.2	0.01%	15.49%	120	0.30%	2.17%	17	46.2	81.6	0.04%	103	1.61%	13	34.4	60.7	0.03%	107
34	KYRGYZ REP.	9.4	2,107	55.3%	2.5	0.09%	2.45%	232	0.58%	2.16%	204	45.5	82.3	0.52%	28	1.57%	148	33.0	59.7	0.37%	84
35	MONGOLIA	4.7	1,975	57.3%	1.4	0.05%	4.34%	201	0.50%	2.13%	100	42.1	73.5	0.26%	101	1.52%	71	30.1	52.5	0.18%	130
36	CENT. AFR. REP.	4.9	1,559	70.2%	2.2	0.08%	3.41%	167	0.42%	2.07%	101	32.3	46.0	0.26%	66	1.42%	70	22.2	31.6	0.17%	97
37	CONGO, DEM. REP.	40.8	989	70.7%	29.2	1.10%	0.41%	167	0.42%	1.98%	807	19.6	27.7	2.08%	-640	1.16%	472	11.4	16.2	1.18%	-305
38	CAMEROON	26.4	2,102	58.5%	7.3	0.28%	1.57%	413	1.04%	1.86%	492	39.2	67.0	1.27%	-79	0.46%	122	9.7	16.6	0.31%	291
39	GUYANA	2.1	2,535	60.2%	0.5	0.02%	6.96%	144	0.36%	1.81%	38	46.0	76.5	0.10%	106	0.19%	4	4.8	8.1	0.01%	140
40	ZIMBABWE	25.9	2,459	68.2%	7.2	0.27%	1.45%	368	0.92%	1.77%	458	43.6	63.9	1.18%	-90	0.11%	29	2.7	4.0	0.07%	339
41	CONGO, REP.	4.9	1,947	64.8%	1.6	0.06%	8.86%	430	1.08%	1.73%	84	33.6	51.8	0.22%	346		-				430
42	GUINEA	12.1	1,930	50.2%	3.1	0.12%	2.45%	296	0.74%	1.64%	199	31.8	63.3	0.51%	97		-				296
43	COMOROS	0.9	1,907	64.0%	0.3	0.01%	4.49%	40	0.10%	1.64%	15	31.4	49.0	0.04%	25		-				40
44	AZERBAIJAN	11.5	1,556	36.1%	2.7	0.10%	0.93%	106	0.27%	1.33%	152	20.6	57.1	0.39%	-46		-				106
45	EL SALVADOR	16.4	3,030	52.4%	2.8	0.11%	1.94%	317	0.79%	1.24%	203	37.6	71.6	0.52%	114		-				317
46	PHILIPPINES	245.6	3,657	64.5%	43.3	1.64%	0.36%	879	2.20%	1.17%	2,865	42.7	66.1	7.38%	-1,986		-				879
47	GUATEMALA	42.4	4,218	76.8%	7.7	0.29%	0.51%	216	0.54%	1.06%	450	44.8	58.3	1.16%	-234		-				216
48	ANGOLA	22.2	2,192	68.2%	6.9	0.26%	2.45%	544	1.36%	0.93%	206	20.3	29.8	0.53%	338		-				544
49	MALDIVES	0.9	3,685	56.6%	0.1	0.01%	3.77%	31	0.08%	0.88%	8	32.3	57.1	0.02%	23		-				31
50	EGYPT	169.1	3,026	51.9%	29.0	1.10%	1.31%	2,212	5.55%	0.83%	1,409	25.2	48.6	3.63%	803		-				2,212
51	SRI LANKA	42.5	2,409	41.2%	7.3	0.27%	1.16%	495	1.24%	0.83%	354	20.1	48.7	0.91%	141		-				495
52	SOLOMON ISL.	0.9	2,511	54.2%	0.2	0.01%	4.79%	42	0.11%	0.83%	7	20.8	38.3	0.02%	35		-				42
53	MOLDOVA	6.3	1,458	30.6%	1.3	0.05%	0.59%	37	0.09%	0.75%	47	10.9	35.6	0.12%	-10		-				37
54	PAPUA NEW GUIN.	13.4	3,258	58.5%	2.4	0.09%	2.87%	382	0.96%	0.55%	74	18.0	30.8	0.19%	308		-				382
55	VANUATU	0.5	3,070	51.5%	0.1	0.00%	6.36%	31	0.08%	0.48%	2	14.6	28.4	0.01%	29		-				31
56	EQUATORIAL GUIN.	1.3	3,413	78.1%	0.3	0.01%	2.39%	31	0.08%	0.38%	5	12.9	16.5	0.01%	26		-				31
57	INDONESIA	681.0	3,629	58.7%	110.2	4.16%	0.16%	1,112	2.79%	0.26%	1,756	9.4	15.9	4.52%	-644		-				1,112
58	SWAZILAND	3.1	3,647	55.9%	0.5	0.02%	0.99%	31	0.08%	0.25%	8	9.0	16.1	0.02%	23		-				31
59	**INDIA**	1,517.6	1,690	88.8%	797.2	30.11%	0.13%	1,936	4.85%	**0.13%**	**1,936**	**2.2**	**2.4**	**4.98%**	**0**	**0.13%**	**1,936**	**2.2**	**2.4**	**4.86%**	0
60	**CHINA**	4,088.5	3,474	57.8%	680.3	25.70%	0.06%	2,616	6.56%	**0.06%**	**2,617**	**2.2**	**3.8**	**6.74%**	**-1**		-				2,616
61	TURKMENISTAN	9.2	2,191	25.8%	1.1	0.04%	0.26%	24	0.06%						24		-				24
62	BELARUS	45.2	4,387	6.4%	0.7	0.02%	0.16%	73	0.18%						73		-				73
63	UZBEKISTAN	60.0	2,739	43.4%	9.5	0.36%	0.15%	87	0.22%						87		-				87
64	ECUADOR	59.6	5,434	65.8%	7.2	0.27%	0.44%	261	0.65%						261		-				261
65	PARAGUAY	17.4	3,811	40.7%	1.9	0.07%	0.56%	97	0.24%						97		-				97
66	UKRAINE	114.6	2,213	30.5%	15.8	0.60%	0.33%	379	0.95%						379		-				379
67	BULGARIA	37.2	4,376	23.5%	2.0	0.08%	0.46%	170	0.43%						170		-				170
68	RUSSIA	630.7	4,252	10.9%	16.2	0.61%	0.00%	1,225	3.07%						1,225		-				1,225
69	ROMANIA	104.7	4,583	70.9%	16.2	0.61%	0.21%	218	0.55%						218		-				218
70	FIJI	3.4	4,429	37.5%	0.3	0.01%	1.33%	45	0.11%						45		-				45
71	VENEZUELA	185.6	8,879	32.2%	6.7	0.25%	0.02%	44	0.11%						44		-				44
72	ALGERIA	139.9	5,209	17.6%	4.7	0.18%	0.22%	309	0.77%						309		-				309
73	BELIZE	1.0	4,714	45.3%	0.1	0.00%	1.87%	18	0.05%						18		-				18
74	JAMAICA	9.1	3,670	24.9%	0.6	0.02%	0.66%	57	0.14%						57		-				57
75	GABON	8.4	8,029	54.4%	0.6	0.02%	1.51%	127	0.32%						127		-				127
76	DOMINICAN REP.	36.1	4,781	47.7%	3.6	0.14%	0.29%	101	0.25%						101		-				101
77	**TANZANIA**	19.4	695	80.0% 45.5%	22.4	0.85%	4.46%	894	2.24%	-					894	**7.19%**	**1,398**	**50.0**	**62.5**	**3.51%**	**-504**
78	KAZAKHSTAN	53.4	3,184	12.1%	2.0	0.08%	0.23%	124	0.31%						124		-				124
79	MEXICO	743.8	8,417	40.0%	35.3	1.34%	0.04%	289	0.72%						289		-				289

		GDP data (PPP$)		Pop. below PPP$2/day			Actual Aid 1996			Poverty-Efficient Aid: CD version 1						Poverty-Efficient Aid: CD version 2 (Tanz. corrected: note 5)					
	Country (note 1)	Aggregate GDP ($bn)	GDP/hd	%	million	% of global poverty	as % of real GDP	$m	as % of total aid	as % of real GDP	total aid $m	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)	as % of real GDP	total aid $m	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)
80	MOROCCO	92.8	3,634	19.6%	5.0	0.19%	0.70%	651	1.63%						651		-				651
81	TURKEY	374.7	6,302	47.9%	28.5	1.08%	0.06%	233	0.58%						233		-				233
82	JORDAN	15.7	4,091	23.5%	0.9	0.03%	3.26%	514	1.29%						514		-				514
83	THAILAND	412.4	7,117	23.5%	13.6	0.51%	0.20%	832	2.09%						832		-				832
84	BRAZIL	1,047.4	6,766	43.5%	67.3	2.54%	0.04%	408	1.02%						408		-				408
85	SLOVAK REPUB	40.0	7,514	85.1%	4.5	0.17%	0.35%	141	0.35%						141		-				141
86	NAMIBIA	8.3	5,651	50.3%	0.7	0.03%	2.27%	188	0.47%						188		-				188
87	LITHUANIA	16.5	4,422	18.9%	0.7	0.03%	0.54%	89	0.22%						89		-				89
88	ST. KITTS & NEV	0.3	7,685	36.2%	0.0	0.00%	2.19%	7	0.02%						7		-				7
89	KOREA, REP.	600.9	13,619	30.4%	13.4	0.51%	-0.02%	-147	-0.37%						-147		-				-147
90	COSTA RICA	22.3	6,896	43.8%	1.4	0.05%	-0.03%	-7	-0.02%						-7		-				-7
91	MALAYSIA	224.3	11,671	26.6%	5.1	0.19%	-0.20%	-454	-1.14%						-454		-				-454
92	PERU	109.8	4,800	50.1%	11.5	0.43%	0.37%	410	1.03%						410		-				410
93	ST. LUCIA	0.8	5,481	34.1%	0.1	0.00%	4.62%	39	0.10%						39		-				39
94	SOUTH AFRICA	287.0	8,020	50.2%	18.0	0.68%	0.13%	361	0.91%						361		-				361
95	TRINIDAD & TOB.	8.7	6,842	32.3%	0.4	0.02%	0.19%	17	0.04%						17		-				17
96	COLOMBIA	262.2	7,380	21.7%	7.7	0.29%	0.10%	251	0.63%						251		-				251
97	LATVIA	9.1	3,513	30.3%	0.8	0.03%	0.86%	79	0.20%						79		-				79
98	URUGUAY	25.1	7,976	34.1%	1.1	0.04%	0.20%	51	0.13%						51		-				51
99	CZECH REP.	113.5	10,991	55.1%	5.7	0.21%	0.11%	122	0.31%						122		-				122
100	MAURITIUS	10.3	9,426	33.6%	0.4	0.01%	0.19%	19	0.05%						19		-				19
101	PANAMA	19.3	7,595	46.2%	1.2	0.04%	0.46%	90	0.23%						90		-				90
102	ARGENTINA	339.9	10,038	36.0%	12.2	0.46%	0.08%	277	0.69%						277		-				277
103	BOTSWANA	11.3	8,198	61.0%	0.8	0.03%	0.71%	81	0.20%						81		-				81
104	TUNISIA	43.9	5,067	22.7%	2.0	0.07%	0.29%	126	0.32%						126		-				126
105	ESTONIA	6.8	4,490	32.5%	0.5	0.02%	0.91%	62	0.16%						62		-				62
106	POLAND	232.3	6,047	15.1%	5.8	0.22%	0.36%	830	2.08%						830		-				830
107	HUNGARY	70.9	6,888	10.7%	1.1	0.04%	0.26%	185	0.46%						185		-				185
108	CHILE	173.2	12,583	38.5%	5.3	0.20%	0.12%	203	0.51%						203		-				203
	TOTAL	**14,735**	**3,413**	**61.3%**	**2,647**	**100%**	**0.27%**	**39,877**	**100%**	**0.26%**	**38,850**	**9.0**	**14.7**	**100%**	**1,027**	**0.27%**	**39,877**	**9.2**	**15.1**	**100%**	**0**
	REGIONAL TOTALS																				
	WB Classification																				
	SUB SAHARAN AFRICA (40)	847			374	14.1%	1.74%	14,768	37.0%	1.50%	12,737	25.0	34.0	32.8%	2,031	2.20%	18,673	36.7	49.9	46.8%	-3,905
	MIDDLE EAST & N.AFRICA (5)	461			42	1.6%	0.83%	3,812	9.6%	0.31%	1,409	11.7	33.9	3.6%	2,403	0.00%	0	-	-	0.0%	3,812
	SOUTH ASIA (6)	1,922			994	37.5%	0.26%	4,985	12.5%	0.63%	12,042	10.2	12.1	31.0%	-7,057	0.82%	15,820	13.5	15.9	39.7%	-10,835
	EAST ASIA & PACIFIC (13)	6,400			931	35.2%	0.11%	6,799	17.0%	0.17%	10,711	6.5	11.5	27.6%	-3,912	0.07%	4,302	2.6	4.6	10.8%	2,497
	LATIN AMERICA AND CARIB. (24)	3,153			187	7.0%	0.16%	4,984	12.5%	0.05%	1,427	3.3	7.6	3.7%	3,557	0.03%	818	1.9	4.4	2.1%	4,166
	EUROPE & CENTRAL ASIA (20)	1,952			120	4.5%	0.23%	4,529	11.4%	0.03%	524	1.2	4.4	1.3%	4,005	0.01%	263	0.6	2.2	0.7%	4,266
	TOTAL (108 countries)	**14,735**			**2,647**	**100.0%**	**0.27%**	**39,877**	**100.0%**	**0.26%**	**38,850**	**9.0**	**14.7**	**100.0%**	**1,027**	**0.27%**	**39,877**	**9.2**	**15.1**	**100.0%**	**0**
	DAC Classification																				
	EUROPE (2 countries)	381			30	1.1%	0.07%	270	0.7%	0.01%	47	0.7	1.6	0.1%	223	0.00%	0	-	-	0.0%	270
	AFRICA N. OF SAHARA (4)	446			41	1.5%	0.74%	3,298	8.3%	0.32%	1,409	12.0	34.6	3.6%	1,889	0.00%	0	-	-	0.0%	3,298
	AFRICA S. OF SAHARA (40)	847			374	14.1%	1.74%	14,768	37.0%	1.50%	12,737	25.0	34.0	32.8%	2,031	2.20%	18,673	36.7	49.9	46.8%	-3,905
	N. & C. AMERICA (14)	931			65	2.5%	0.30%	2,838	7.1%	0.15%	1,390	10.1	21.3	3.6%	1,448	0.09%	814	5.9	12.5	2.0%	2,024
	S.AMERICA (10)	2,222			121	4.6%	0.10%	2,146	5.4%	0.00%	38	0.1	0.3	0.1%	2,108	0.00%	4	0.0	0.0	0.0%	2,142
	MIDDLE EAST (1)	16			1	0.0%	3.27%	514	1.3%	0.00%	0	-	-	0.0%	514	0.00%	0	-	-	0.0%	514
	S.& C.ASIA (12)	2,071			1,015	38.3%	0.27%	5,671	14.2%	0.60%	12,519	10.1	12.3	32.2%	-6,848	0.78%	16,084	13.0	15.9	40.3%	-10,413
	FAR EAST ASIA (9)	6,381			928	35.0%	0.10%	6,299	15.8%	0.17%	10,627	6.5	11.5	27.4%	-4,328	0.07%	4,302	2.6	4.6	10.8%	1,997
	OCEANIA (4)	18			3	0.1%	2.75%	500	1.3%	0.46%	84	15.5	28.2	0.2%	416	0.00%	0	-	-	0.0%	500
	CEECs/NIS (12)	1,422			70	2.6%	0.25%	3,573	9.0%	0.00%	0	-	-	0.0%	3,573	0.00%	0	-	-	0.0%	3,573
	TOTAL (108 countries)	**14,735**			**2,647**	**100.0%**	**0.27%**	**39,877**	**100.0%**	**0.26%**	**38,850**	**9.0**	**14.7**	**100.0%**	**1,027**	**0.27%**	**39,877**	**9.2**	**15.1**	**100.0%**	**0**
	Notes/Sources:	D.Dollar (note 2)	derived	CD1 tab.3 (note 3)	CD1 tab.3 (note 3)	derived	CD2 tab.4	CD2 tab.4	derived	CD1 tab.3 (note 4)	derived	derived	derived	derived	derived	(note 6)	derived	derived	derived	derived	derived

- note 1: Countries are listed in the order in which they appear in CD1, with the addition of Tanzania (excluded in CD1) which is positioned after Dominican Republic as in CD2
- note 2: Aggregate GDP data not presented in either CD1 or CD2, though can be derived from CD2 data on actual (1996) aid (expressed both as % of GDP and in $m for all countries). However, there are some anomalies: derived Russian data is impossibly high, and there are some significant (>10%) variations with GDP data derived from CD2 data on *poverty efficient* aid for those 42 countries that are awarded aid. The data presented here have been provided separately by David Dollar, and are used in derivation of policy scores.
- note 3: Tanzanian poverty rate (%) from CD1.table 2, Tanzanian poverty numbers (million) from CD2.table 4 (which show same as CD1 tab.3).
- note 4: poverty efficient allocations (as % of real GDP) to India and China are constrained to actual levels (as % of GDP) to prevent them dominating aid allocations
- note 5: The "zero" result for Tanzania in CD2 is due to an error in CD calculations (D.Dollar, pers.com). The results shown here have been corrected for this error (author's calculations)
- note 6: CD2 is modeled over a longer time period (1974-97 cf. 1990-96 in CD1) and incorporates Tanzania (excluded in CD1). Indian allocations are constrained to actual levels as in CD1, but China receives no aid in this model.
- note #: where poverty rates have been adjusted to correct for some implausible numbers in CD data (notably Tanzania at 45.5%), the original CD poverty rate is stated here.

Sources:

CD1: Paul Collier and David Dollar (1999a), "Aid Allocation and Poverty Reduction", World Bank Policy Research Working Paper 2041, January 1999.
CD2: Paul Collier and David Dollar (1999b), "Aid Allocation and Poverty Reduction", revised, mimeo, dated April 11th, 1999.

TABLE 2: SUMMARY CD2 POVERTY EFFICIENT AID ALLOCATION RESULTS

			SCENARIO A (India constrained)					SCENARIO B (India at 20%)				
		Actual aid	Pov.Efficient Aid with Indian constraint as in CD2					Pov.Eff. Aid with India constrained at 20% of total aid				
	Country	% of total aid (1996)	as % of real GDP	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)	as % of real GDP	aid per person ($/hd)	aid per poor person ($/hd)	as % of total aid	degree of over/under-funding ($m)
1	ETHIOPIA	2.13%	8.12%	43.7	49.1	5.97%	-1,533	7.94%	42.7	48.0	5.84%	-1,479
2	UGANDA	1.69%	7.75%	88.0	95.5	3.98%	-914	7.37%	83.8	90.8	3.79%	-837
3	MOZAMBIQUE	2.30%	7.47%	47.2	47.2	1.88%	171	7.28%	46.0	46.0	1.83%	190
4	MALAWI	1.26%	7.08%	54.0	56.3	1.25%	1	6.83%	52.2	54.3	1.21%	18
5	ZAMBIA	1.54%	6.94%	66.5	67.8	1.42%	49	6.64%	63.6	64.9	1.36%	73
6	MALI	1.27%	6.89%	54.4	58.7	1.26%	4	6.63%	52.4	56.4	1.21%	23
7	BANGLADESH	3.15%	6.60%	69.9	79.7	20.34%	-6,857	6.23%	66.0	75.3	19.21%	-6,404
8	RWANDA	1.69%	6.02%	37.3	42.1	0.65%	416	5.81%	36.0	40.6	0.62%	425
9	BURKINA FASO	1.05%	5.49%	56.9	65.8	1.40%	-141	5.13%	53.1	61.4	1.31%	-104
10	NIGER	0.65%	5.25%	54.0	58.7	1.15%	-198	4.90%	50.5	54.9	1.07%	-168
11	SIERRA LEONE	0.49%	5.23%	29.3	37.8	0.32%	70	5.01%	28.1	36.2	0.30%	75
12	GUINEA-BISSAU	0.45%	5.14%	57.6	59.5	0.15%	121	4.79%	53.6	55.4	0.14%	125
13	MADAGASCAR	0.91%	5.14%	52.3	56.1	1.65%	-296	4.80%	48.9	52.4	1.55%	-253
14	CHAD	0.76%	5.13%	50.3	58.9	0.77%	-4	4.78%	46.9	54.9	0.72%	17
15	BENIN	0.73%	5.03%	68.5	85.7	0.89%	-62	4.51%	61.5	76.9	0.80%	-25
16	LAO, PDR	0.84%	4.29%	58.0	69.5	0.64%	79	3.80%	51.3	61.5	0.56%	109
17	LESOTHO	0.27%	4.17%	76.0	102.6	0.36%	-37	3.42%	62.3	84.1	0.30%	-11
18	SENEGAL	1.45%	4.15%	75.8	95.2	1.50%	-19	3.45%	63.0	79.2	1.25%	82
19	BURUNDI	0.51%	4.31%	27.8	31.6	0.41%	39	4.09%	26.3	29.9	0.39%	47
20	KENYA	1.52%	3.99%	50.1	64.1	3.19%	-664	3.50%	44.0	56.3	2.79%	-508
21	NEPAL	0.98%	3.94%	45.8	52.9	2.34%	-541	3.53%	41.1	47.4	2.10%	-444
22	VIETNAM	2.32%	3.36%	56.1	70.1	9.97%	-3,050	2.73%	45.5	56.9	8.09%	-2,298
23	NIGERIA	0.48%	3.59%	35.0	58.5	9.23%	-3,489	3.10%	30.2	50.4	7.96%	-2,980
24	HAITI	0.94%	3.20%	38.8	56.8	0.67%	108	2.66%	32.2	47.2	0.56%	153
25	GHANA	1.61%	2.97%	58.8	86.1	2.39%	-308	2.08%	41.3	60.4	1.68%	-24
26	HONDURAS	0.92%	2.58%	60.0	79.2	0.84%	32	1.64%	38.1	50.4	0.53%	154
27	MAURITANIA	0.69%	2.45%	50.4	73.7	0.27%	165	1.53%	31.6	46.1	0.17%	206
28	NICARAGUA	2.39%	2.27%	51.4	69.0	0.53%	740	1.34%	30.4	40.8	0.31%	827
29	PAKISTAN	2.20%	2.26%	39.4	69.1	12.13%	-3,962	1.32%	23.1	40.5	7.12%	-1,963
30	TAJIKISTAN	0.28%	2.16%	20.4	42.8	0.29%	-2	1.55%	14.7	30.8	0.21%	30
31	TOGO	0.42%	1.96%	36.2	55.4	0.35%	26	1.10%	20.3	31.1	0.20%	87
32	COTE D'IVOIRE	2.43%	1.79%	33.6	61.4	1.11%	524	0.75%	14.1	25.7	0.47%	783
33	CAPE VERDE	0.30%	1.61%	34.4	60.7	0.03%	107	0.46%	9.8	17.4	0.01%	116
34	KYRGYZ REP.	0.58%	1.57%	33.0	59.7	0.37%	84	0.41%	8.6	15.5	0.10%	194
35	MONGOLIA	0.50%	1.52%	30.1	52.5	0.18%	130	0.47%	9.3	16.2	0.06%	179
36	CENT. AFR. REP.	0.42%	1.42%	22.2	31.6	0.17%	97	0.75%	11.6	16.6	0.09%	130
37	CONGO, DEM. REP.	0.42%	1.16%	11.4	16.2	1.18%	-305	0.73%	7.2	10.2	0.75%	-131
38	CAMEROON	1.04%	0.46%	9.7	16.6	0.31%	291				0.00%	413
39	GUYANA	0.36%	0.19%	4.8	8.1	0.01%	140				0.00%	144
59	**INDIA**	4.85%	**0.13%**	**2.2**	**2.4**	**4.86%**	**0**	**0.53%**	**8.9**	**10.0**	**20.00%**	**-6,039**
77	TANZANIA	2.24%	7.19%	50.0	62.5	3.51%	-504	6.93%	48.1	60.2	3.38%	-452
	TOTAL	**100%**	**0.27%**	**9.2**	**15.1**	**100%**	**0**	**0.27%**	**9.2**	**15.1**	**100%**	**0**
REGIONAL TOTALS												
WB Classification												
	SUB SAHARAN AFRICA (40)	37.0%	2.20%	36.7	49.9	46.8%	-3,905	1.94%	32.3	43.8	41.2%	-1,647
	MIDDLE EAST & N.AFRICA (5)	9.6%	0.00%	-	-	0.0%	3,812	0.00%	-	-	0.0%	3,812
	SOUTH ASIA (6)	12.5%	0.82%	13.5	15.9	39.7%	-10,835	1.00%	16.4	19.4	48.4%	-14,325
	EAST ASIA & PACIFIC (13)	17.0%	0.07%	2.6	4.6	10.8%	2,497	0.05%	2.1	3.7	8.7%	3,328
	LATIN AMERICA AND CARIB. (24)	12.5%	0.03%	1.9	4.4	2.1%	4,166	0.02%	1.3	3.0	1.4%	4,424
	EUROPE & CENTRAL ASIA (20)	11.4%	0.01%	0.6	2.2	0.7%	4,266	0.01%	0.3	1.0	0.3%	4,408
	TOTAL (108 countries)	**100.0%**	**0.27%**	**9.2**	**15.1**	**100.0%**	**0**	**0.27%**	**9.2**	**15.1**	**100.0%**	**0**
DAC Classification												
	EUROPE (2 countries)	0.7%	0.00%	-	-	0.0%	270	0.00%	-	-	0.0%	270
	AFRICA N. OF SAHARA (4)	8.3%	0.00%	-	-	0.0%	3,298	0.00%	-	-	0.0%	3,298
	AFRICA S. OF SAHARA (40)	37.0%	2.20%	36.7	49.9	46.8%	-3,905	1.94%	32.3	43.8	41.2%	-1,647
	N. & C. AMERICA (14)	7.1%	0.09%	5.9	12.5	2.0%	2,024	0.06%	4.1	8.6	1.4%	2,278
	S.AMERICA (10)	5.4%	0.00%	0.0	0.0	0.0%	2,142	0.00%	-	-	0.0%	2,146
	MIDDLE EAST (1)	1.3%	0.00%	-	-	0.0%	514	0.00%	-	-	0.0%	514
	S.& C.ASIA (12)	14.2%	0.78%	13.0	15.9	40.3%	-10,413	0.94%	15.7	19.2	48.7%	-13,760
	FAR EAST ASIA (9)	15.8%	0.07%	2.6	4.6	10.8%	1,997	0.05%	2.1	3.7	8.7%	2,828
	OCEANIA (4)	1.3%	0.00%	-	-	0.0%	500	0.00%	-	-	0.0%	500
	CEECs/NIS (12)	9.0%	0.00%	-	-	0.0%	3,573	0.00%	-	-	0.0%	3,573
	TOTAL (108 countries)	**100.0%**	**0.27%**	**9.2**	**15.1**	**100.0%**	**0**	**0.27%**	**9.2**	**15.1**	**100.0%**	**0**
By Policy-Poverty Quadrant												
	I Good Policy - High Poverty	49.4%			12.7	60.7%	-4,526			13.8	66.3%	-6,778
	II Poor Policy - High Poverty	30.2%			34.9	39.0%	-3,507			30.0	33.4%	-1,287
	III Poor Policy - Low Poverty	6.9%			1.7	0.3%	2,651			1.3	0.2%	2,683
	IV Good Policy - Low Poverty	13.5%			-	0.0%	5,382			-	0.0%	5,382
	TOTAL (108 countries)	**100.0%**			**15.1**	**100.0%**	**0**			**15.1**	**100.0%**	**0**

Notes/Sources: Policy-poverty quadrant thresholds set at mid-points on each scale (3.5 for policy, 50% for poverty)
Only countries in receipt of poverty effcient aid are listed. Over/underfunding totals take account of actual aid to all 108 countries in CD2 sample
see also T1-CD1&2

TABLE 3: NET DISBURSEMENTS OF ODA BY DAC COUNTRIES COMBINED, 1993-99 ($ m.)

	1993	1994	1995	1996	1997	1998	1999
REGIONAL TOTALS ($m)							
Europe	1,777	1,151	1,338	1,170	980	1,151	2,496
N.Africa	2,696	3,212	2,487	2,750	2,137	2,095	1,892
Sub-Saharan Africa	10,861	11,321	10,744	10,085	9,246	9,124	8,399
Latin America/Caribbean	4,264	4,550	4,799	5,757	3,927	4,016	4,240
Middle East	2,087	3,062	1,715	3,600	1,361	1,227	1,536
S.& C. Asia	3,156	4,160	3,653	3,423	2,745	3,416	3,414
Far East Asia	6,993	6,709	7,207	4,999	4,078	5,749	7,773
Oceania	1,445	1,666	1,711	1,698	1,433	1,526	1,370
Total	33,279	35,830	33,654	33,482	25,906	28,304	31,120
Unallocated	6,138	5,492	7,067	5,676	6,537	6,927	6,818
Grand Total	39,417	41,322	40,721	39,158	32,443	35,231	37,938
REGIONAL TOTALS (%)							
Europe	5.3%	3.2%	4.0%	3.5%	3.8%	4.1%	8.0%
N.Africa	8.1%	9.0%	7.4%	8.2%	8.3%	7.4%	6.1%
Sub-Saharan Africa	32.6%	31.6%	31.9%	30.1%	35.7%	32.2%	27.0%
Latin America/Caribbean	12.8%	12.7%	14.3%	17.2%	15.2%	14.2%	13.6%
Middle East	6.3%	8.5%	5.1%	10.8%	5.3%	4.3%	4.9%
S.& C. Asia	9.5%	11.6%	10.9%	10.2%	10.6%	12.1%	11.0%
Far East Asia	21.0%	18.7%	21.4%	14.9%	15.7%	20.3%	25.0%
Oceania	4.3%	4.6%	5.1%	5.1%	5.5%	5.4%	4.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Unallocated	18.4%	15.3%	21.0%	17.0%	25.2%	24.5%	21.9%
Grand Total	118.4%	115.3%	121.0%	117.0%	125.2%	124.5%	121.9%
INCOME GROUPS ($m)							
LLDCs	8,644	9,342	8,930	7,754	7,346	7,344	6,827
Other LICs	7,868	9,608	9,706	8,539	6,637	7,922	8,559
LMICs	11,461	10,549	9,887	9,609	8,001	8,437	10,836
UMICS	1,673	1,778	1,724	1,179	935	1,359	1,093
HICs	883	722	1,060	782	678	794	738
Sub-total	30,530	31,999	31,307	27,863	23,598	25,857	28,053
Unallocated	7,510	8,041	8,933	8,994	8,828	9,347	9,810
MADCT	1,317	1,262	387	2,262	-	-	-
TOTAL	39,356	41,302	40,628	39,119	32,427	35,204	37,862
INCOME GROUPS (%)							
LLDCs	28.3%	29.2%	28.5%	27.8%	31.1%	28.4%	24.3%
Other LICs	25.8%	30.0%	31.0%	30.6%	28.1%	30.6%	30.5%
LMICs	37.5%	33.0%	31.6%	34.5%	33.9%	32.6%	38.6%
UMICS	5.5%	5.6%	5.5%	4.2%	4.0%	5.3%	3.9%
HICs	2.9%	2.3%	3.4%	2.8%	2.9%	3.1%	2.6%
Sub-total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Unallocated	24.6%	25.1%	28.5%	32.3%	37.4%	36.1%	35.0%
MADCT	4.3%	3.9%	1.2%	8.1%			
TOTAL	128.9%	129.1%	129.8%	140.4%	137.4%	136.1%	135.0%

Notes: regional unallocated sums (fo Africa, America and Asia) have been distributed across sub-regions in proportion to the sub-regional shares.

Source: DAC

TABLE 4: ANALYSIS OF COLLIER/DOLLAR (CD2) POVERTY EFFICIENT AID ALLOCATION RESULTS, BY REGION AND BY POLICY/POVERTY SECTOR

SCENARIO A
(India constained)

adjusted for Tanzania (policy AND poverty)
Indian alloc. set at cd value (0.13%) of Indian GDP
Policy variable jb estimate of CPIA
lambda = 340.04

choice of threshold points: (see note * for options)

	Policy	Poverty
	0	0
	3.50	50.0%

* options:

Med. Pol.	Good Pol.	Med. Pov.	High Pov.
per	per	per	per
3.30	3.88	43.7%	68.2%

CD2 poverty efficient aid results

REGIONAL TOTALS	$m	as % of total aid	96 degree of over/under-funding ($m)
WB Classification			
SUB SAHARAN AFRICA (40)	18,673	46.8%	-3,905
MIDDLE EAST & N.AFRICA (5)	0	0.0%	3,812
SOUTH ASIA (6)	15,820	39.7%	-10,835
EAST ASIA & PACIFIC (13)	4,302	10.8%	2,497
LATIN AMERICA AND CARIB. (24)	818	2.1%	4,166
EUROPE & CENTRAL ASIA (20)	263	0.7%	4,266
TOTAL (108 countries)	**39,877**	**100.0%**	**0**
DAC Classification			
EUROPE (2 countries)	0	0.0%	270
AFRICA N. OF SAHARA (4)	0	0.0%	3,298
AFRICA S. OF SAHARA (40)	18,673	46.8%	-3,905
N. & C. AMERICA (14)	814	2.0%	2,024
S.AMERICA (10)	4	0.0%	2,142
MIDDLE EAST (1)	0	0.0%	514
S.& C.ASIA (12)	16,084	40.3%	-10,413
FAR EAST ASIA (9)	4,302	10.8%	1,997
OCEANIA (4)	0	0.0%	500
CEECs/NIS (12)	0	0.0%	3,573
TOTAL (108 countries)	**39,877**	**100.0%**	**0**

Analysis of policy/poverty sectors

A: Using CD policy/poverty quadrants

Summary	I (GPHP)	II (PPHP)	III (PPLP)	IV (GPLP)	total
no. of poor people (m)	1913.4	445.2	66.1	222.7	2647.5
% share of total poor	72.3%	16.8%	2.5%	8.4%	100.0%
actual aid 1996 ($m)	19680	12049	2766	5382	39877
% share of total actual aid	49.4%	30.2%	6.9%	13.5%	100.0%
actual aid/poor person ($)	10.29	27.07	41.82	24.16	15.06
pov.efficient aid ($m)	24206	15556	115	0	39877
% share of total pov.eff. aid	60.7%	39.0%	0.3%	0.0%	100.0%
pov.eff aid/per poor person ($)	12.65	34.94	1.74	0.00	15.06
number of countries	32	34	14	28	108
- of which, zero aid	13	12	13	28	66
- % of countries with zero aid	41%	35%	93%	100%	61%

Sector references indicate policy-poverty category (so, eg, GPHP=Good Policy, High Poverty)

* avg = (unweighted) average of policy scores/poverty rates
* med = median of policy scores/poverty rates
* default (blank) setting = mid points on scale (3.5 for policy, 50% for poverty)

B: Using JB 3*3 policy/poverty sectors

Summary	A (GPHP)	B (MPHP)	C (PPHP)	D (GPMP)	E (MPMP)	F (PPMP)	G (GPLP)	H (MPLP)	I (PPLP)	total
no. of poor people (m)	18.0	1061.2	199.4	797.5	125.5	194.5	142.6	57.4	51.4	2647.5
% share of total poor	0.7%	40.1%	7.5%	30.1%	4.7%	7.3%	5.4%	2.2%	1.9%	100.0%
actual aid 1996 ($m)	780	11308	5816	5817	5440	3116	3950	1407	2243	39877
% share of total actual aid	2.0%	28.4%	14.6%	14.6%	13.6%	7.8%	9.9%	3.5%	5.6%	100.0%
actual aid/poor person ($)	43.25	10.66	29.17	7.29	43.36	16.02	27.69	24.50	43.66	15.06
pov.efficient aid ($m)	1732	18734	9835	165	5615	3796	0	0	0	39877
% share of total pov.eff. aid	4.3%	47.0%	24.7%	0.4%	14.1%	9.5%	0.0%	0.0%	0.0%	100.0%
pov.eff aid/per poor person ($)	96.04	17.65	49.34	0.21	44.75	19.52	0.00	0.00	0.00	15.06
number of countries	2	17	17	15	12	9	19	7	10	108
- of which, zero aid	0	2	2	12	7	7	19	7	10	66
- % of countries with zero aid	0%	12%	12%	80%	58%	78%	100%	100%	100%	61%

Sector references indicate policy-poverty category (so, eg, GPMP=Good Policy, Medium Poverty)

* per = 33.3rd (medium) and 66.7th (good/high) percentile values for policy scores/poverty rates
* cen = adopting centered values (3.0 and 4.0 for policy, 40% and 60% for poverty) which reduce size of central box (medium policy, medium poverty)
* default (blank) setting = splitting policy and policy scales into equal thirds (2.67 and 4.33 for policy, 33.3% and 66.7% for poverty)

SCENARIO B
(India at 20%)

adjusted for Tanzania (policy AND poverty)
Indian alloc. set at 20% of global aid
Policy variable jb estimate of CPIA
lambda = 383.95

choice of threshold points: (see note * for options)

	Policy	Poverty
	0	0
	3.50	50.0%

* options:

Med. Pol.	Good Pol.	Med. Pov.	High Pov.
per	per	per	per
3.30	3.88	43.7%	68.2%

CD2 poverty efficient aid results

REGIONAL TOTALS	$m	as % of total aid	96 degree of over/under-funding ($m)
WB Classification			
SUB SAHARAN AFRICA (40)	16,415	41.2%	-1,647
MIDDLE EAST & N.AFRICA (5)	0	0.0%	3,812
SOUTH ASIA (6)	19,310	48.4%	-14,325
EAST ASIA & PACIFIC (13)	3,471	8.7%	3,328
LATIN AMERICA AND CARIB. (24)	560	1.4%	4,424
EUROPE & CENTRAL ASIA (20)	121	0.3%	4,408
TOTAL (108 countries)	**39,877**	**100.0%**	**0**
DAC Classification			
EUROPE (2 countries)	0	0.0%	270
AFRICA N. OF SAHARA (4)	0	0.0%	3,298
AFRICA S. OF SAHARA (40)	16,415	41.2%	-1,647
N. & C. AMERICA (14)	560	1.4%	2,278
S.AMERICA (10)	0	0.0%	2,146
MIDDLE EAST (1)	0	0.0%	514
S.& C.ASIA (12)	19,431	48.7%	-13,760
FAR EAST ASIA (9)	3,471	8.7%	2,828
OCEANIA (4)	0	0.0%	500
CEECs/NIS (12)	0	0.0%	3,573
TOTAL (108 countries)	**39,877**	**100.0%**	**0**

Analysis of policy/poverty sectors

A: Using CD policy/poverty quadrants

Summary	I (GPHP)	II (PPHP)	III (PPLP)	IV (GPLP)	total
no. of poor people (m)	1913.4	445.2	66.1	222.7	2647.5
% share of total poor	72.3%	16.8%	2.5%	8.4%	100.0%
actual aid 1996 ($m)	19680	12049	2766	5382	39877
% share of total actual aid	49.4%	30.2%	6.9%	13.5%	100.0%
actual aid/poor person ($)	10.29	27.07	41.82	24.16	15.06
pov.efficient aid ($m)	26458	13336	83	0	39877
% share of total pov.eff. aid	66.3%	33.4%	0.2%	0.0%	100.0%
pov.eff aid/per poor person ($)	13.83	29.96	1.26	0.00	15.06
number of countries	32	34	14	28	108
- of which, zero aid	14	14	13	28	69
- % of countries with zero aid	44%	41%	93%	100%	64%

Sector references indicate policy-poverty category (so, eg, GPHP=Good Policy, High Poverty)

* avg = (unweighted) average of policy scores/poverty rates
* med = median of policy scores/poverty rates
* default (blank) setting = mid points on scale (3.5 for policy, 50% for poverty)

NB: A score ON the threshold value is treated as exceeding it

B: Using JB 3*3 policy/poverty sectors

Summary	A (GPHP)	B (MPHP)	C (PPHP)	D (GPMP)	E (MPMP)	F (PPMP)	G (GPLP)	H (MPLP)	I (PPLP)	total
no. of poor people (m)	18.0	1061.2	199.4	797.5	125.5	194.5	142.6	57.4	51.4	2647.5
% share of total poor	0.7%	40.1%	7.5%	30.1%	4.7%	7.3%	5.4%	2.2%	1.9%	100.0%
actual aid 1996 ($m)	780	11308	5816	5817	5440	3116	3950	1407	2243	39877
% share of total actual aid	2.0%	28.4%	14.6%	14.6%	13.6%	7.8%	9.9%	3.5%	5.6%	100.0%
actual aid/poor person ($)	43.25	10.66	29.17	7.29	43.36	16.02	27.69	24.50	43.66	15.06
pov.efficient aid ($m)	1629	23435	8391	42	3125	3255	0	0	0	39877
% share of total pov.eff. aid	4.1%	58.8%	21.0%	0.1%	7.8%	8.2%	0.0%	0.0%	0.0%	100.0%
pov.eff aid/per poor person ($)	90.32	22.08	42.09	0.05	24.90	16.74	0.00	0.00	0.00	15.06
number of countries	2	17	17	15	12	9	19	7	10	108
- of which, zero aid	0	3	2	13	8	7	19	7	10	69
- % of countries with zero aid	0%	18%	12%	87%	67%	78%	100%	100%	100%	64%

Sector references indicate policy-poverty category (so, eg, GPMP=Good Policy, Medium Poverty)

* per = 33.3rd (medium) and 66.7th (good/high) percentile values for policy scores/poverty rates
* cen = adopting centered values (3.0 and 4.0 for policy, 40% and 60% for poverty) which reduce size of central box (medium policy, medium poverty)
* default (blank) setting = splitting policy and policy scales into equal thirds (2.67 and 4.33 for policy, 33.3% and 66.7% for poverty)

Chart 1: CD1 Aid Allocations (as % of total aid)

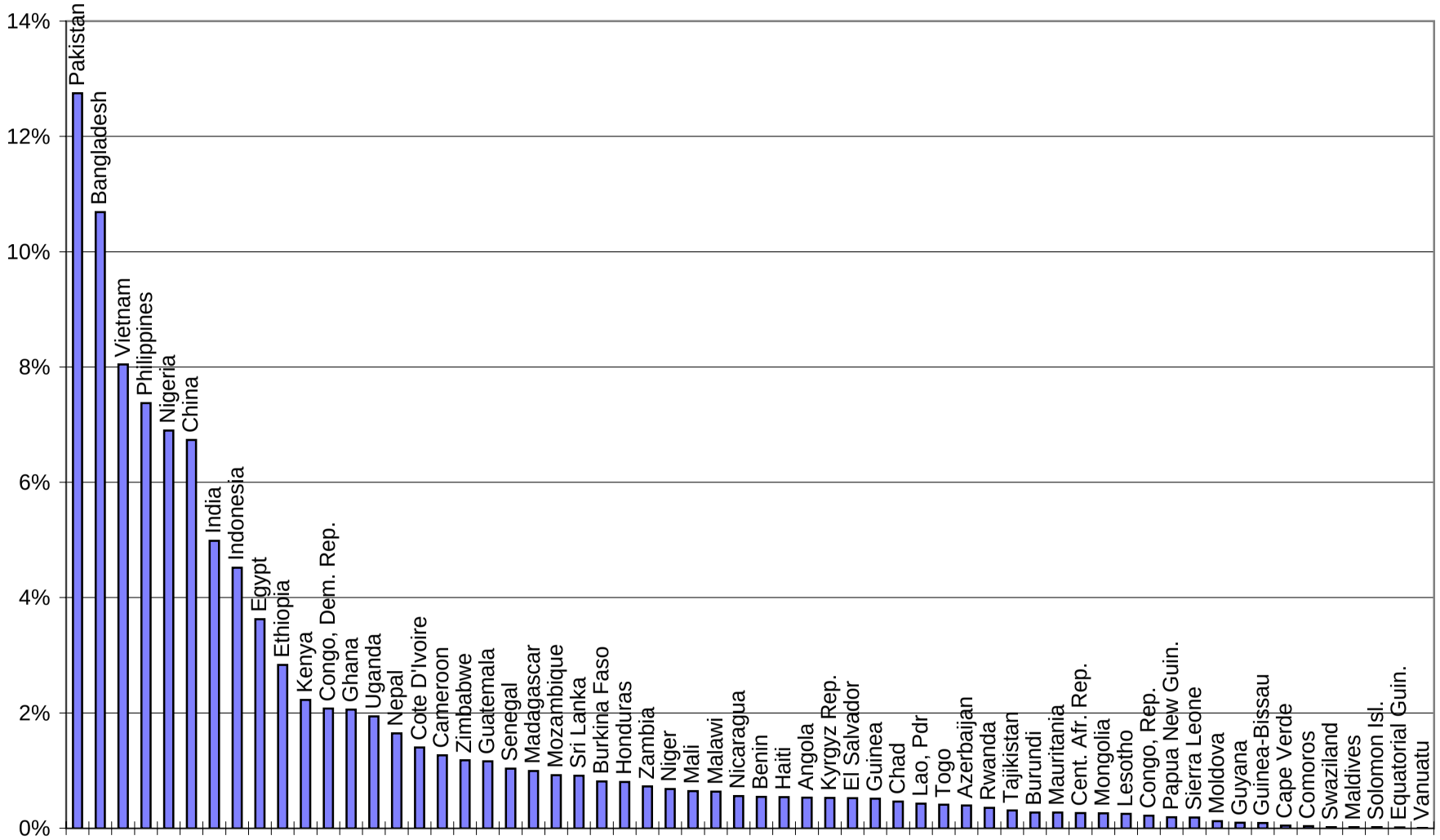


Chart 2: CD2 Aid Allocations (as % of total aid) with Tanzanian adjustment

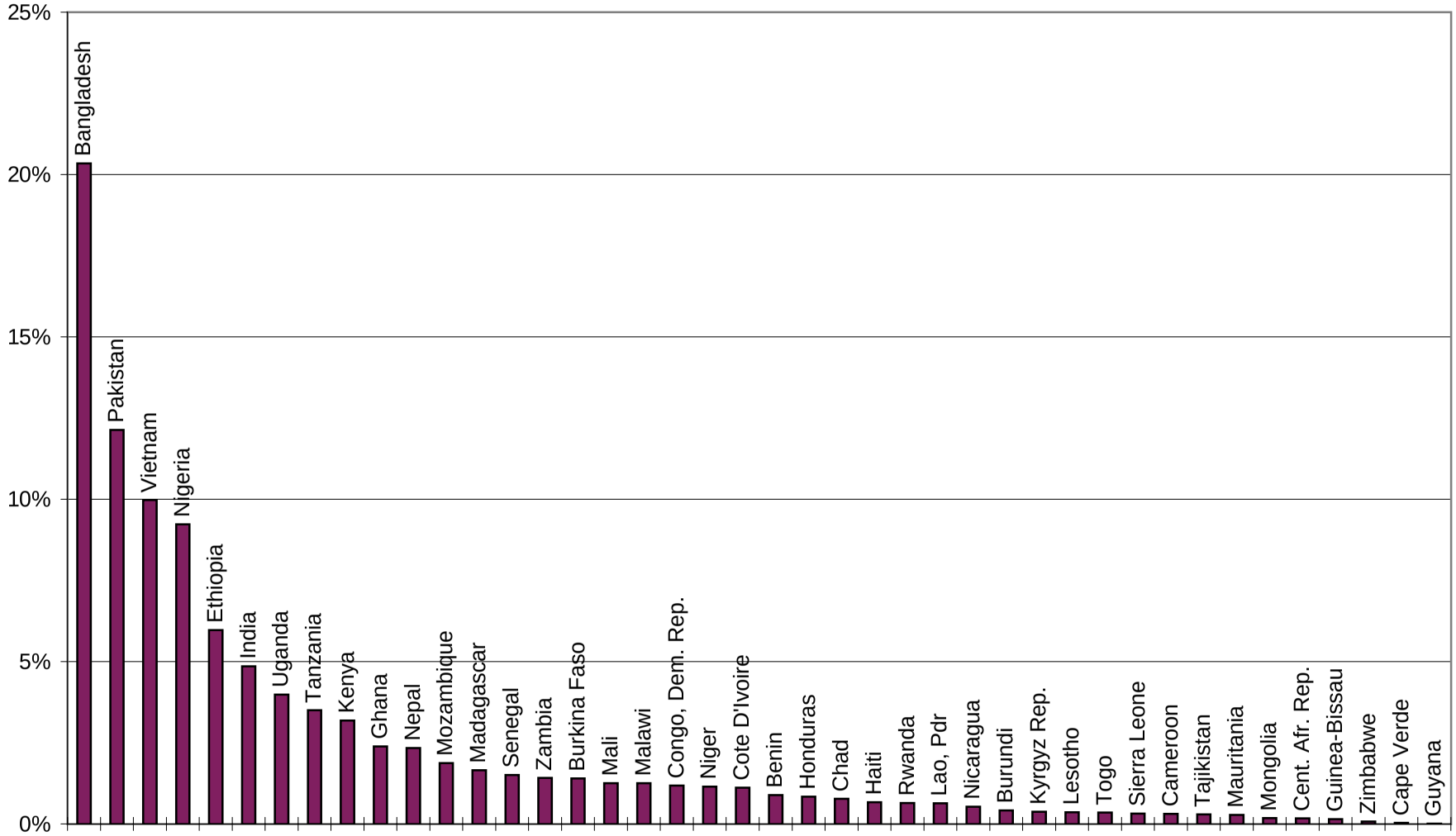
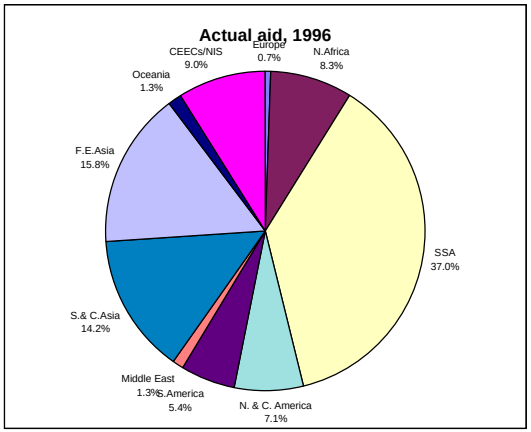
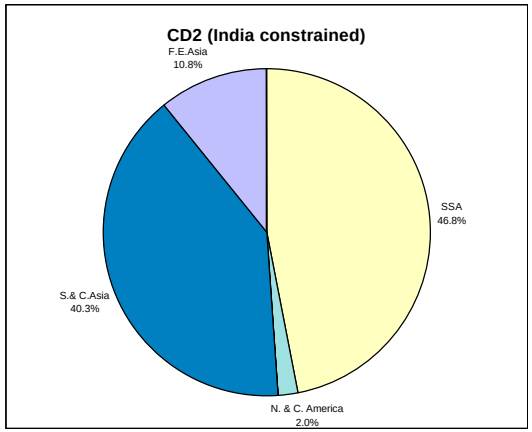
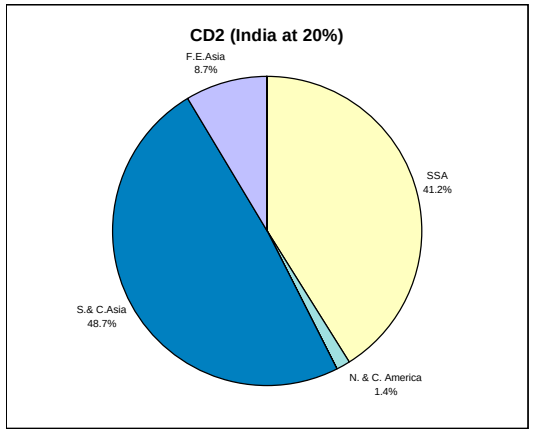
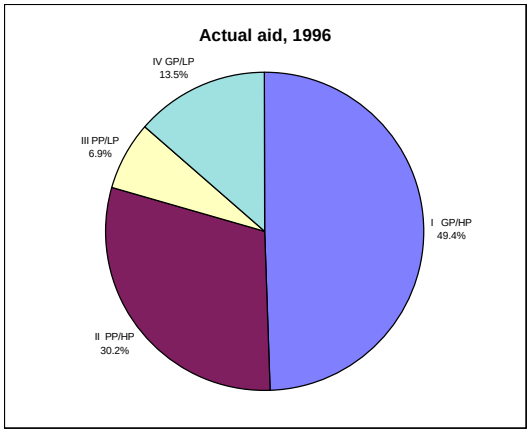


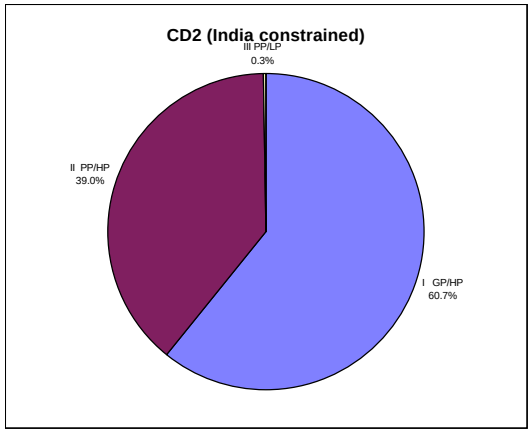
Chart 3: Percentage share of actual and CD2 poverty efficient aid by DAC region, and by Policy-Poverty Quadrant











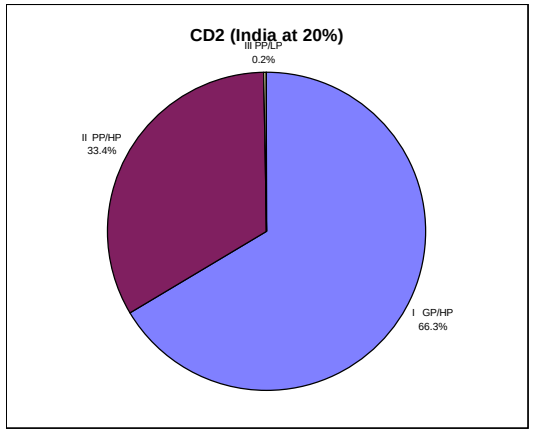
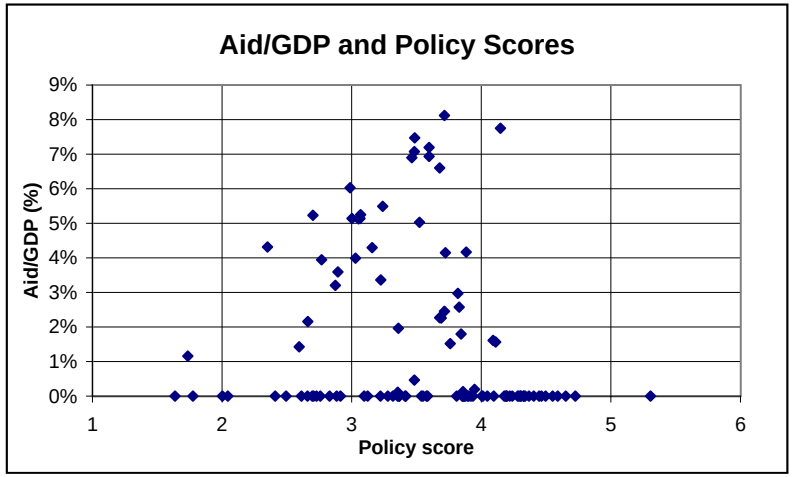
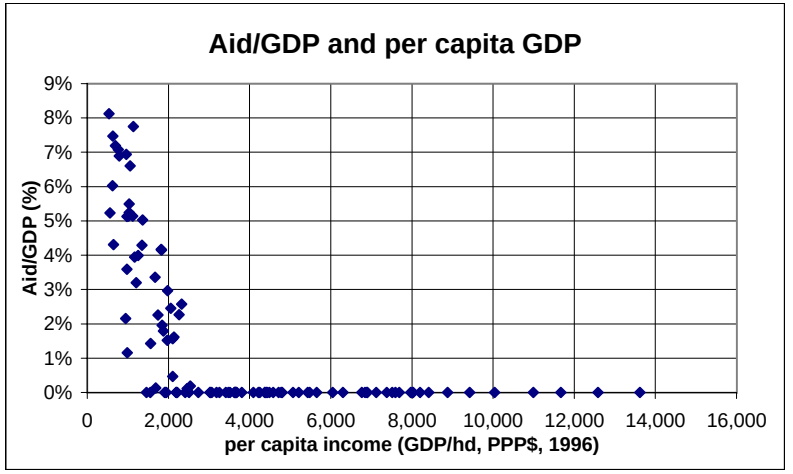
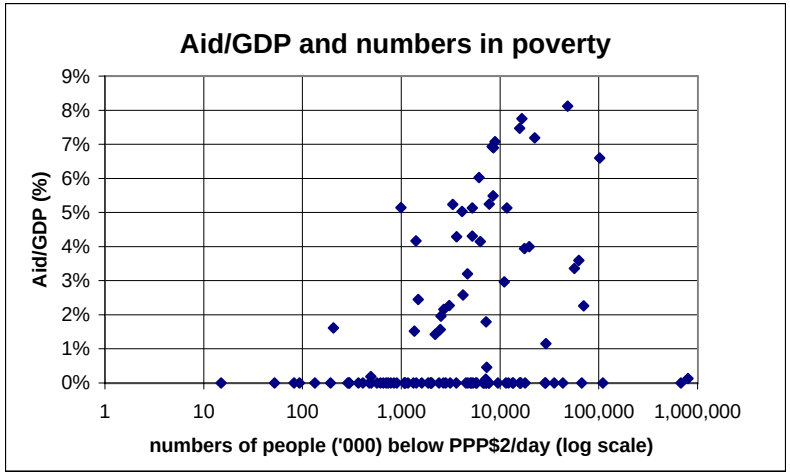


Chart 4: Scatter diagrammes of aid/GDP v. different components of the Collier/Dollar poverty efficient aid allocation formula, 108 countries, CD2







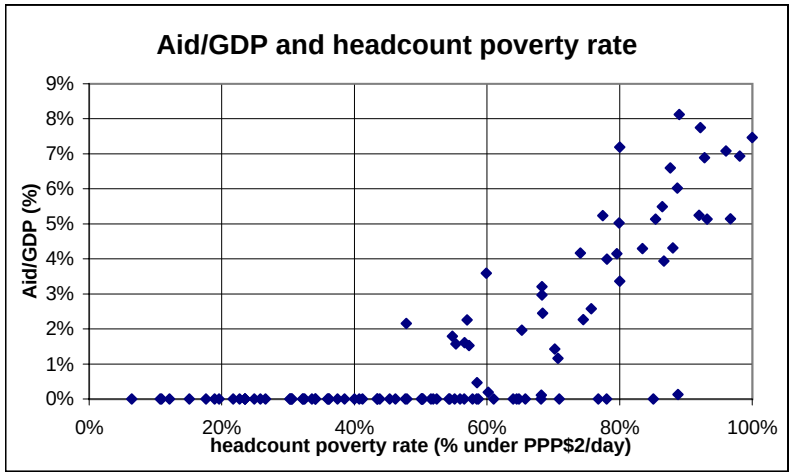
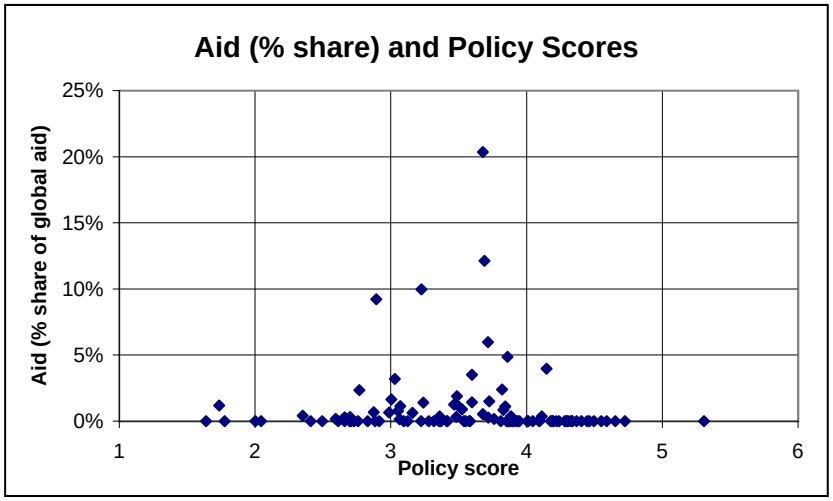
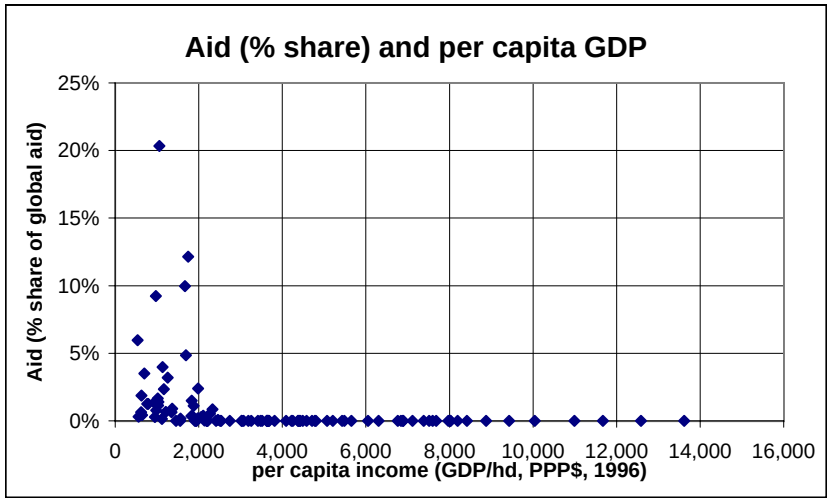
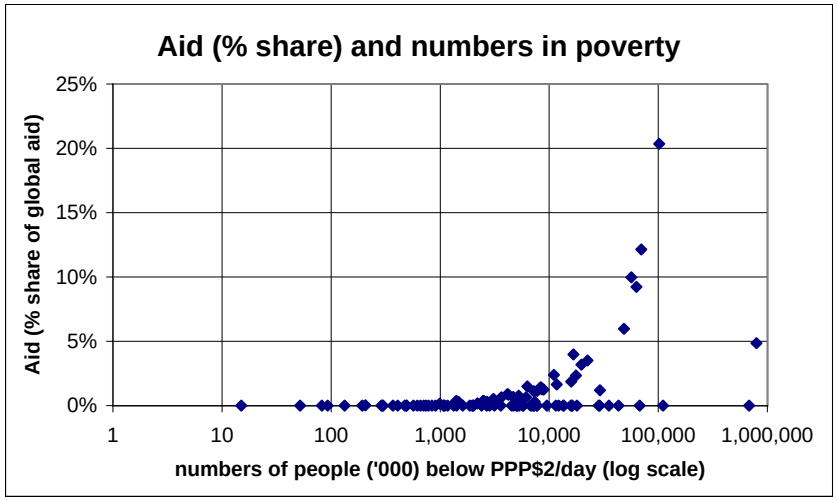


Chart 5: Scatter diagrammes of aid (% share of all aid) v. different components of the Collier/Dollar poverty efficient aid allocation formula
(108 countries, CD2)







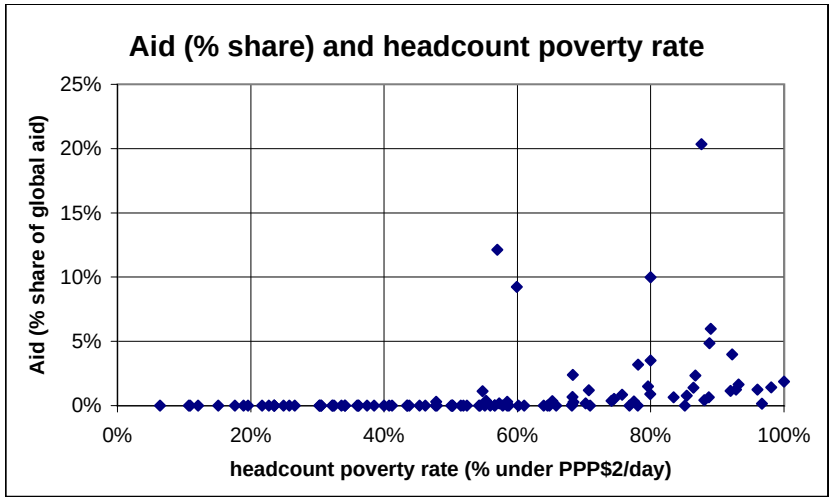
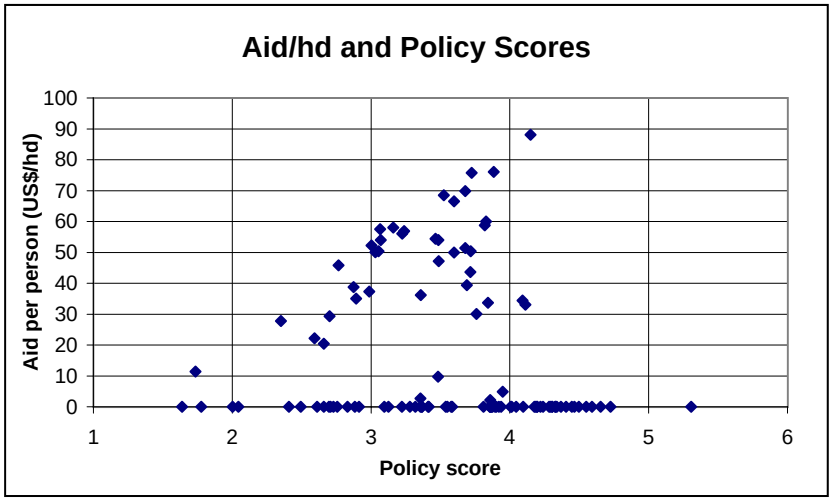
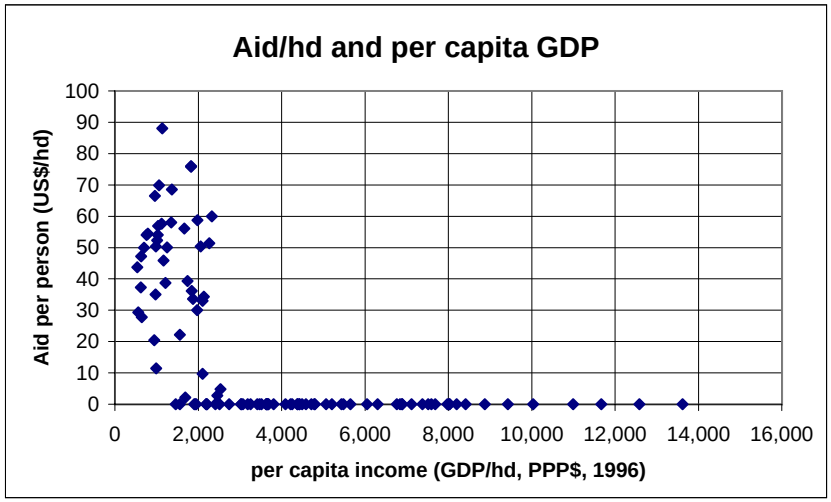
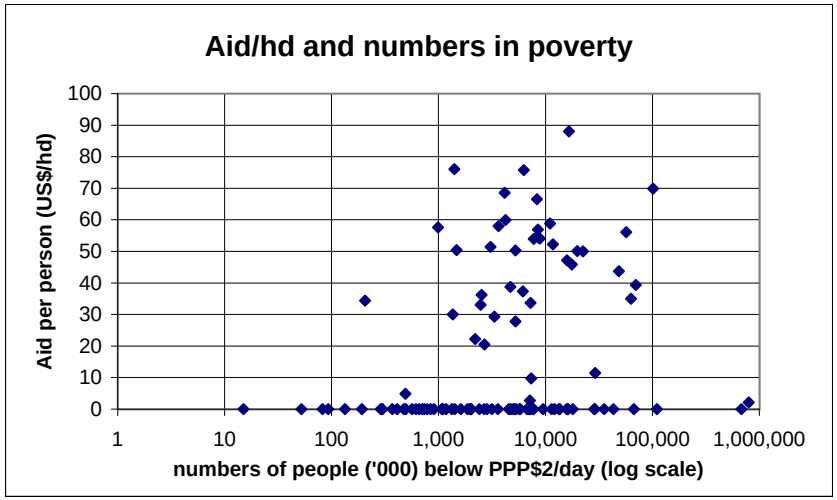
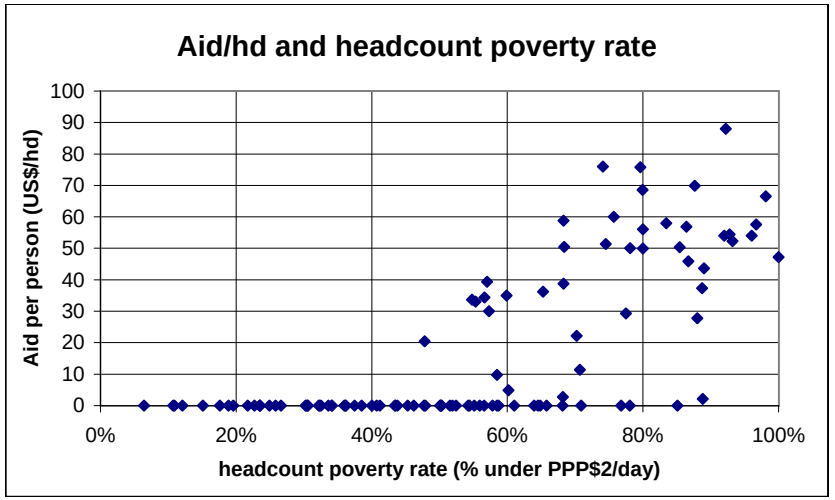



Chart 6: Scatter diagrammes of aid per person (US$/hd) v. different components of the Collier/Dollar poverty efficient aid allocation formula
(108 countries, CD2)