

Aid Intensity in Africa

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1. Introduction

The countries of Sub-Saharan Africa are disproportionately among those receiving the most foreign aid per capita in the world. In this paper we assess the *intensity* of aid flows to African countries, defined as the size of these flows relative to the categories of economic activity they are designed to support. In the process we provide a critical overview of standard measures of aid and place the flows currently being received by African countries in a cross-country and intertemporal perspective. We draw examples throughout from Botswana, Burkina Faso, Cameroon, Mali, Mozambique, Uganda and Zambia—seven countries whose aid experience spans that of Sub-Saharan Africa and will subsequently be the subject of intensive study.¹

Measured relative to recipient GNP, the median value of aid to African countries now stands at nearly 10 times the amount received by Western Europe under the Marshall Plan. While a presumption in favor of fundamental effects on welfare and institutions seems uncontested, the term “aid intensity” is deliberately neutral. For most of the paper we steer clear of concepts like “aid effectiveness” and “aid dependence” that presuppose a behavioral analysis of the aid relationship. While intensity and effectiveness may be closely related under particular circumstances, the two are clearly distinct. Burnside and Dollar (1996)), for example, find that when countries of disparate institutional and policy environments are pooled together, there is no systematic relationship between the intensity of aid and its effectiveness in raising the recipient’s economic growth rate. Aid dependence is a murkier concept that is often directly conflated with aid intensity, as by the World Bank in its annual *World Development Indicators*.² But this ignores the essentially intertemporal nature of dependency while implicitly locating dependency in the recipient rather than the donor. The disparate experiences of countries like Botswana and Uganda bring out a clear distinction between the *level* and *evolution* of aid intensity and suggest that case-specific features may overwhelm any mechanical link between the two. We return to these issues at the end of the paper.

The Development Assistance Committee (DAC) of the OECD is the main source of comprehensive and internationally comparable data on aid flows. The DAC’s concept of “official development assistance” (ODA) is widely used in international comparisons, and we begin in section 1 with an overview of recent trends in ODA. Section 2 places the ODA measure in a macroeconomic accounting context and discusses its strengths and weaknesses as a measure of aid receipts. With caveats in place, we move on in section 3 to study the resource intensity of aid and its evolution over time. Measuring aid aggregates relative to GNP, population, imports, investment, and government spending, we compare regional medians and rank the case study countries relative to the full sample. Five of the seven case study countries, and by some measures the African median, fall into the upper quartile of aid intensity in the 1990s, a category we identify as “highly aid intensive.” We then observe that a country’s aid ratios can be high in an absolute sense but low relative to what would have been expected given the country’s structural characteristics. We present adjusted

¹ Intensive case studies of these countries are to be carried out as part of the AERC/ODC Collaborative Research Project on Managing the Transition from Aid Dependence in Sub-Saharan Africa.

² See the “aid dependency” table in the annual summary volume.

rankings that control for population and real income per capita, and speculate about what can be learned from the differences between these and the raw rankings. In section 4 we make a distinction between the resource intensity of aid flows and their transactions intensity. This distinction is central to the HIPC Initiative and further heightens the presumption of high aid intensity in Africa. Section 5 concludes the paper with a summary of our main findings.

2. Recent trends

Foreign aid has declined since the early 1990s. Relative to donor-country GDP, net ODA disbursements fell from an average of 0.35 percent in the two decades up to the early 1990s to a record low of 0.25 percent in 1996. In dollar terms, total net ODA rose by roughly 14 percent between 1990 and 1996, but this represented a fall of some 8% in real terms. Preliminary figures from the OECD suggest that the full nominal gain since 1990 was eliminated in 1997.

African countries have more than participated in this overall decline, with net ODA (to the 45 countries with available data) falling by \$2.2 billion, or 24 percent in real terms, between 1990 and 1996. This followed a very rapid increase throughout the 1980s, however—much more rapid than that experienced by other regions (Figure 1 gives regional comparisons for countries with populations of 800,000 or more in 1990.³). Moreover, the African decline was concentrated in Kenya, Somalia, Sudan and Zaire, where political instability and/or confrontations with donors led to reductions totaling \$2.3 billion. The situation in other African countries is therefore somewhat less dramatic than suggested by the aggregate figures. Nonetheless, it is likely that ODA to the region will fall further in real terms, perhaps substantially, over the next decade. The dominant factors are mainly external to Africa. They include the continued absence (since the late 1980s) of the traditional strategic and ideological props to bilateral aid, the cumulative effects of fiscal stringency in the donor countries, the deepening recession in Japan, and the resource pulls exerted by the transition economies and the Asian financial crisis. Evidence of low aid effectiveness in Africa has made its own contribution, in part by reviving arguments about the negative systemic effects of aid on the recipient. Critics cite the diversion and possible crowding out of domestic institutional development, the creation of rent-seeking opportunities, and the undermining of export incentives through real appreciation.⁴

Against this background, we ask a simple question: how large and persistent are aid flows to Africa, relative to those received by other developing countries?

³ The regional totals exclude ODA allocated by donors to regions but not to individual countries (\$945 million for SSA in 1996).

⁴ On institutional impacts, see Bräughtigam and Botchwey (1998). Azam and Fouda (1998) provide a survey of macroeconomic impacts. A key unresolved question is whether the systemic effects identified by aid critics are *inherent* in large aid flows—as in the view of early aid critics like Bauer and Friedman—or are the result of an historical aid regime that was dominated by Cold War conflicts (see van de Walle (1998)).

3. Measuring aid flows

Our interest is in the intensity of aid flows from the recipient's perspective. National accounting procedures vary widely, however, and are not geared towards a systematic capture of aid transactions. The DAC data have their own disadvantages—for example, they cover only a subset of donors and take the perspective of donor cost rather than economic value transferred—but for cross-country comparisons these are outweighed by the advantages of consistency and comprehensiveness.⁵ We therefore begin by developing the relationship between DAC measures and an idealized set of economic accounts of the recipient country.

2.1 The net transfer on aid

Measuring all transactions in a common currency, the following identity applies *ex post* to any well-defined economic unit in the recipient country's accounts:

- (1) Total spending on goods and services – Total net income, excluding grants and asset income = Net sale of financial assets + Net asset income + Net grants received.

When applied to the foreign sector, equation (1) is one way of writing the balance of payments identity. Applied to the domestic sector, it yields the macroeconomic identity between investment, gross national saving, and the current account. Applied to government transactions, it yields the public sector's consolidated budget constraint. We will think of equation (1) as holding on an accruals basis, so that net asset income and asset sales include contractual obligations even when these are not explicitly repaid. The net sale of financial assets therefore includes any rescheduling of interest or change in interest arrears, and grants include cancellation of interest or principal currently due.⁶ The accounting is also at actual transactions prices, implying that grant income excludes implicit transfers delivered through preferential pricing arrangements, including preferential interest rates; we return to this in section 2.3.2. Following World Bank usage (see Appendix 1), we will refer to the right-hand side of equation (1) as the total “net resource transfer”—**net transfer** for short—received in the current period by the sector in question.

An immediately appealing measure of the direct weight of foreign aid for any economic unit is its contribution to the right-hand side of (1). This is the basis of “financing gap” analysis as practiced at the World Bank and elsewhere for decades.⁷

⁵ The DAC data cover in-kind transfers and nearly all financial flows—whether official or private, concessional or non-concessional—between OECD members, multilateral organizations, and Arab countries and individual aid recipients (“nearly” all because non-concessional IMF flows are excluded).

⁶ Note that while the handling of debt restructurings and/or changes in arrears affects gross flows on the right-hand-side of (1), it does not alter the full right-hand-side.

⁷ See for example Culagovsky, et al (1991). Traditional “gap” analysis applies *ex ante* versions of equation (1) to the domestic sector (saving gap), the foreign sector (foreign exchange gap), and sometimes the public sector (fiscal gap). Target levels of investment, imports, and/or government spending are derived in a preliminary step from an overall target for economic growth. Given projections for domestic saving, exports (plus non-aid financing) and/or government revenue (plus non-aid financing), the role of aid is to fill the most binding gap, bridging the largest *ex ante* shortfall

Here we apply this logic to the foreign sector in order to generate a measure that approximates the widely-used DAC concept of Net ODA. Applying (1) to international transactions, we first separate grants into private and official. We then divide total net transfers into those received from official creditors—governments and multilateral institutions—and those received from private creditors. A separate line captures non-debt-creating flows. Finally, we identify as *concessional* all debt claims with an original grant element (see Appendix 1) of 25 percent or more. Measuring flows in US dollars, equation (1) becomes

$$\begin{aligned}
 (2) \quad & \text{Trade deficit on goods, services and non-asset income} - \text{Net private grants} \\
 = & \quad \text{Net official grants} \\
 & + \text{Net transfer on concessional debt from official creditors} \\
 & + \text{Net transfer on non-concessional debt from official creditors} \\
 & + \text{Net transfer on debt from private creditors} \\
 & + \text{Net transfer on non-debt assets} \\
 = & \quad \text{Net transfer on aid} \\
 & + \text{Net transfer on non-concessional debt from official creditors} \\
 & + \text{Net transfer on debt from private creditors} \\
 & + \text{Net transfer on non-debt assets.}
 \end{aligned}$$

On the financing side of equation (2), we have combined official grants with net transfers on concessional debt to obtain what we call the *net transfer on aid*. It is a short step from this concept to net ODA.

2.2 Net ODA à la DAC

“Net ODA” is defined in DAC data as the sum of grants and net concessional loan disbursements for development purposes (see Appendix 1). While related to our concept, net ODA differs in three main respects:

- *Net ODA includes free-standing technical cooperation (TC) grants.* Such grants (which exclude those tied to implementation of aid-financed investment projects) are large: as indicated in Table 1 they make up a quarter of Net ODA to African countries and 35 percent of aid to non-African countries in the 1990s.⁸ It is generally thought, however, that much of free-standing TC represents payments to

between targeted and projected spending. To derive the saving gap from (1), for example, replace "current non-asset, non-transfer income" with the appropriate concept for the domestic sector, which is GDP. Then subtract current spending C+G from GDP and plug in targeted and projected quantities to get

Required Net External Financing = Targeted Investment - Projected Gross Domestic Saving.

Equation (1), of course, is an identity. It holds *ex post* regardless of whether the behavioral assumptions underlying gap are valid (for a critical view, see Easterly (1997)).

⁸ Figures refer to regional median values of decadal averages for individual countries. Since our focus is on individual country experience, we avoid the use of aggregates weighted by the size of countries. We use medians rather than means in order to reduce the sensitivity of comparisons to outliers.

donor-country nationals for services delivered to donor agencies rather than recipient countries. Since these do not enter the accounts of the recipient, we exclude such grants when calculating gap-inspired measures of aid intensity. In section 4, however, we use the ratio of TC grants to government spending on wages and salaries as one indicator of the intensity of donor inputs into domestic policy management.

- *Net ODA refers only to grants and net disbursements and therefore excludes interest payments.* The result is an overestimate of the net transfer on aid by the amount of interest paid, rescheduled or cancelled on ODA loans (the latter two arrangements leave the net transfer on aid unchanged in equation (2), since an imputed interest repayment is exactly offset by a new disbursement or imputed grant; but measured net ODA would rise). Table 2 uses World Bank data for a subset of DAC recipients to get rough orders of magnitude.⁹ For SSA, net interest payments tend to be roughly 10 percent of concessional net disbursements. This share has risen over time, however, so that the increase in median net *transfers* on Africa’s concessional debt between the 1970s and 1990s—a concept close to the net transfer on aid but including non-developmental concessional loans and excluding grants—is less than a quarter of the increase in median net loan disbursements. Outside of SSA, interest payments have been much larger, both in per-capita terms and relative to net loan disbursements, and have grown even faster over time. The omission of net interest therefore produces an overstatement of net transfers to *all* aid recipients, and a more dramatic overstatement in the 1990s than earlier. Since the required adjustment is smaller for African countries, there is some tendency in the ODA data to overstate the both the relative *level* and the relative *increase* in net transfers to African countries.
- *Net ODA excludes concessional finance that is non-developmental in purpose (e.g., military aid) or that is received from non-DAC, non-Arab donors (e.g., China or the former Soviet Union).* Since the World Bank data are classified by concessionality alone and purport to cover all creditors rather than just DAC and Arab-country donors (see Appendix 2), we can get some sense of the effect of this exclusion comparing the first two columns of Table 2. For SSA, the DAC measure of Net ODA disbursements exceeds net concessional disbursements calculated using World Bank data. The opposite is true for other developing countries until the 1990s. This difference suggests that concessional net disbursements excluded from Net ODA have been larger for African countries than others.

2.3 ODA and resource transfers

Before leaving equation (2) we note two further caveats in the interpretation of Net ODA. First, higher aid need not be associated with a larger *overall* net transfer from creditors. As suggested by the previous discussion, aid can and does finance debt service. Second, the DAC measure aggregates grants and loans and excludes the transfers implicit in trade preferences. A more thorough use of the logic of “grant

⁹ World Bank data are available for 75 of the 95 “large” countries (populations exceeding 800,000 in 1990) in the DAC sample. The World Bank data come from the Debtor Reporting System and do not distinguish concessional official debt by purpose.

equivalents” would put the calculation of transfers on a sounder economic footing and could produce major changes in measured aid flows. We discuss these caveats in turn.

2.3.1 Aid in total net transfers

From an accounting perspective, aid can as easily finance net transfers to *other* creditors on the right-hand-side of equation (2) as net imports of goods and services. Automatically included in this category is any debt restructuring that converts non-concessional or non-developmental loans, whether from private or official creditors, to ODA loans. Also included is the use of ODA flows to repay senior, nonconcessional official loans such as IMF or IBRD credits. More generally, of course, any use of fungible aid flows to increase debt service will mean an offset elsewhere in net transfers. The “financing gap” logic in equation (2) is misleading in this respect, as it implicitly assumes a counterfactual in which other net transfers—including debt service on non-ODA debt—are predetermined with respect to aid flows.¹⁰ Devarajan, Rajkumar, and Swaroop (1998) provides econometric evidence of the use of ODA disbursements for debt service.

Table 3 uses World Bank data to examine the relationship between the net transfer on aid and successively more inclusive measures of net transfers on the right-hand side of equation (2). For comparison purposes, column 1 shows the DAC measure of Net ODA (excluding TC). As discussed above, this is close to the net transfer on aid—approximated in column 2 by the net transfer on concessional debt and grants—but exceeds it by the 1990s, reflecting the omission of interest payments. Starting in column 2 and reading to the right, we find that the rapid increases in aid to SSA between the 1970s and 1990s were accompanied by declines in *all* other categories of net transfer. The offset is striking: even within official flows, net transfers to nonconcessional official creditors “eliminate” eighty percent of the increase in net concessional transfers.¹¹ Outside SSA, the reduction in net transfers on

¹⁰ From the perspective of financing gaps, of course, what matters is the contribution of aid flows to total net transfers *relative to a reasonable counterfactual*. Constructing the counterfactual is difficult, but the central question is clear: to what degree would the aid recipient have reduced net imports in order to service non-aid financial obligations, if aid had been smaller? At one extreme, such obligations would have been fully honored, in which case Net ODA accurately captures the increase in net total transfers relative to the counterfactual. At the other extreme, the borrower would have accumulated additional arrears in the amount of reduced aid. In this case, the net transfer is received by other creditors rather than by the aid recipient, with no impact on the right-hand side of (2) relative to the counterfactual.

¹¹ A similar table could be produced using only DAC data, since these data cover non-ODA financial flows as well as ODA flows. As discussed earlier, however, the World Bank data have the advantage of including net interest (and profit remittances in the case of aggregate net transfers). A second advantage is that the DAC data exclude nonconcessional IMF flows. Since these claims are being repaid on net in the 1990s, the DAC data give an overinflated impression of the growth in net official transfers. An extreme example is Zambia. In 1995, the IMF converted well over \$2 billion in (mainly overdue) debt service on nonconcessional IMF loans into a concessional loan, in a transaction that itself produced a net official transfer of zero. The concessional part of the transaction is properly reflected in both the DAC data and the World Bank data, with the result that Net ODA (DAC) and net transfers on concessional debt (WB) are above \$2 billion for 1995. But the associated repurchase (= repayment) of nonconcessional IMF is not recorded in the DAC data, which therefore show “total receipts, net” (the widest DAC measure, covering official and private flows from *all* DAC sources) of over \$2 billion. In Table 4, this shows up in the large disparity between net ODA and net official transfers for the 1990s.

non-concessional debt and grants is even greater, and there is no increase in Net ODA. Aggregate net transfers fall over time, rescued only partially by a dramatic increase in non-debt-creating flows in the 1990s. For African countries, the stability of net official transfers at the median suggests a picture in which *ex ante* loan obligations to official creditors are either rolled over into higher debt or converted *ex post* into grants.

2.3.2 Aid as a generalized grant equivalent

The aid measures we have been discussing aggregate grants with concessional loans, even though these transactions have very different net discounted value to the recipient. They also ignore any grant element in non-developmental or non-concessional financial transactions with donors. Finally, they ignore any transfers implicit in trade preferences or non-market pricing of aid-financed imports. A natural (though currently impractical) way to address these drawbacks is to calculate aid as *the present value of the net contribution to the recipient's resources of all current transactions with donor entities*. A transaction would qualify as aid if and only if it shifted out the recipient's intertemporal budget constraint, and in precisely the amount of the shift. In Appendix 2 we call this measure the *ex ante grant equivalent* of current transactions. Here we briefly consider what impact this concept has on interpreting Net ODA.

Consider first the DAC practice of aggregating concessional loans with grants. From the perspective of tracking *ex ante* grant equivalents over time, the appropriateness of this depends on whether repayment is anticipated at the time loans are made. Since a loan is an *ex ante* grant only if repayment is never anticipated, the DAC practice embodies an implicit counterfactual of non-repayment. If repayment is the appropriate counterfactual, then aggregating loans with grants overestimates aid at the time a loan is made and underestimates it as repayments arrive. Over time, of course, the *ex post* grant equivalent of any set of debt transactions gradually reveals itself in the discounted sum of actual and imputed net cash flows—and this *ex post* measure is robust to the counterfactuals used to classify year-to-year flows.¹² The lack of a convincing set of country-specific counterfactuals therefore provides a strong reason for using long time averages of Net ODA when making cross-country comparisons.

Consider next the practice of ignoring any grant element in non-developmental or non-concessional financial transactions with donors. For a country that is credit-rationed in international financial markets, even a “non-concessional” official loan carries an *ex ante* grant element. This is true even if repayment is anticipated, since the recipient obtains the current inflow at lower cost in terms of future outflows than could be obtained either on the private international market—where rationing has prevented further borrowing—or via a reduction in domestic investment. This portion

¹² The *ex post* grant equivalent of a set of debt transactions over a given span of time can be approximated by the discounted sum of Net ODA flows over the period in question (again with the caveat that interest should be included), minus the change in discounted debt obligations between the beginning and end of the period. If the change in discounted debt stocks is small, then looking at long enough time averages of Net ODA provides an obvious way of reducing the arbitrariness in classifying year-to-year flows. The need to specify a counterfactual never really disappears, of course, since some assumption must be made about whether contractual obligations remaining at the end of the period are real or notional.

of the grant equivalent of current transactions is missed by Net ODA. The underestimate is larger if new nonconcessional loans are not expected to be repaid. Table 3 gives some indication (in the difference between columns 3 and 2) of the evolution of non-concessional net official transfers for African and non-African countries. Both groups show a pattern at the median of net inflows in the 1970s and net outflows in the 1980s and 1990s. Initial flows are larger and subsequent repayments smaller for African countries, however, suggesting greater continued recourse to nonconcessional official finance, whether in the form of rollovers or new loans. Incorporating the grant equivalent of these transactions would therefore tend to increase measured aid to African countries by more than to other developing countries.

A final implication of shifting to grant equivalents would be to incorporate resources transferred via trade transactions. Trade preferences received by African countries under the Lomé Convention and other arrangements increase the prices received by African exporters above those that would otherwise prevail. The grant equivalent of these preferences can be approximated by the price differential multiplied by the volume of exports in the affected categories. The implied grant equivalent may be large. Kennan and Stevens (1998), for example, estimate the annual value of Lomé preferences for a subset of ACP states whose status may change with the expiry of Lomé IV in 2000. The calculated value of nearly 800 million ECU amounts to over 40 percent of the aid given by the European Development Fund to all ACP countries in 1994.¹³ Our own back-of-the-envelope calculation for Mauritius suggests that garment and textile preferences in European and U.S. markets alone (under Lomé and other arrangements) may be worth 1.5 percent of GDP on an annual basis.¹⁴

An implicit transfer goes in the opposite direction if imports financed by tied aid carry above-market prices. In such cases a portion of the aid represents a transfer back to donors (in the end, this is a transfer within the donor country, from general budget to exporters). This portion—again approximated by the price differential multiplied by the volume of affected imports—should be subtracted when calculating the grant equivalent of the aid flow to the African recipient. As with trade preferences, the implied adjustment may be large in some cases. Osei (1998), for example, finds that in Ghana in 1990-95, the unit values of aid-financed imports in a given 5-digit SITC code are often more than 4 times higher than the unit values of non-aid imports in the same category and year. While much of this differential may be attributable to quality differentials and the bundling of export credit into trade transactions, the possibility of a substantial reverse transfer to donors is strong. Yeats (1990) uses a

¹³ The calculation applies to countries not classified as least developed. The EC Commission has proposed that these countries lose their Lomé preferences when Lomé IV expires in February 2000. 800 million ECU is the loss of revenue these countries would have suffered on their 1994 exports of protected commodities if these exports had faced tariffs specified in the Generalized System of Preferences rather than in Lomé IV. Two-thirds of this loss is generated by the loss of sugar preferences.

¹⁴ Garment and textile exports from Mauritius get duty-free access to EEC markets via the Lomé Convention and face relatively generous textile quotas in the US market. Exports from the Export Processing Zone are roughly 15% of GDP and 95 percent go to these two markets. A 10 percent preference margin would therefore be equivalent to roughly 1.5% of GDP on a flow basis, equivalent to Mauritius' average net ODA receipts in the 1990s.

large cross-country sample and controls for quality by focusing on the pricing of iron and steel imports from the same source. He finds that 20 West African countries that were formerly French colonies paid an average 20-30 percent more for iron and steel imports from France than did other developing countries. Similar premia prevailed on the iron and steel exports of Belgium, Britain and Portugal to their former African colonies. If these findings are attributable in important degree to overpricing of aid-financed imports, the implication is that (other things equal) Net ODA numbers overstate the aid received by African countries relative to other developing countries.

2.4 *Summing up*

We have identified three main weaknesses in the DAC data. These data exclude interest payments; they aggregate grants and loans; and they ignore the transfers implicit in trade preferences or aid tying. With the exception of the aid tying effect, the net result of these shortcomings is probably to underestimate the concessional resource transfer received by African countries relative to that received by other developing countries. To the degree that this is true, *rankings* based on time averages of the unadjusted data—which already tend to place African countries near the top—may be relatively robust to these shortcomings.¹⁵ We now turn to these rankings.

3. The resource intensity of aid

In this section and the next we present alternative measures of the intensity of aid flows to African countries, in cross-regional perspective. We start in this section with the *resource intensity* of aid, looking at the standard set of gap-inspired measures in the 1990s. We then focus on the aid-to-GNP ratio, where the data allow a comparison both across regions and over time. Finally we re-examine aid-to-GNP rankings after controlling for real income and population. In section 4 we use debt transactions to examine the *transactions intensity* of aid.

3.1 *Gap-inspired measures*

Table 4 presents a full set of traditional aid-intensity indicators for the period 1990-95. Columns 3, 4 and 5 correspond to the three financing gaps of traditional aid analysis, measuring the “contribution” of aid flows to imports, domestic investment, and government spending. Technical cooperation grants are excluded. Africa’s relative position in these tables is consistent with the overall aid-to-GNP measure given in column 2 (inclusive of TC): for each measure, the African median is near or above the 75th percentile for the full sample. The comparison is most striking with government spending and gross investment, where the median African country receives aid equal to 50 and 71 percent, respectively, of these spending categories. Rank correlations are high and statistically significant between any two of these measures. The central

¹⁵ This is not to claim that adjusting for these features might not alter individual rankings substantially, particularly in year-to-year data. Moreover, we have avoided discussing the relationship between these data and measures of aid drawn from the macroeconomic accounts of individual countries. Large differences are common, not only between donor-based and national sources but also across alternative national sources. These differences are often difficult to reconcile even with detailed country-specific study.

message is clear: when aid is measured relative to GNP or its spending sub-aggregates, African countries tend to cluster in the upper quartile of the aid intensity rankings.¹⁶

Column 1 shows real aid per capita. For a given aid-to-GNP ratio, real aid per capita is an increasing function of real income per capita.¹⁷ Since real incomes vary widely in the sample and tend to be negatively correlated with aid-to-GNP ratios (holding population constant; see the next section), the rankings for individual countries can differ substantially from the rankings by GNP or its components. Botswana and Uganda provide clear illustrations. The former's high real income implies that large real aid flows per capita—at the 89th percentile of the full sample—are required to deliver an aid-to-GNP ratio at the 46th percentile. For Uganda, aid flows look much larger when measured relative to GNP (83rd percentile) than when measured in real terms per capita (53rd percentile), reflecting very low real income per capita.

The final column of Table 4 shows the ratio of technical cooperation grants to government spending on wages and salaries. By this measure, the relative contribution of foreign-financed as opposed to domestic government expertise in policy development is large in Africa. This is true even though TC grants are relatively low as a share of total grants in SSA, and though their share in total Net ODA has fallen over time while rising elsewhere (Table 1).

3.2 Aid intensity over time

Table 5 examines changes in aid intensity over time. Column 1 shows the ratio of Net ODA (including TC grants) to GNP for 1970-79, 1980-89, and 1990-96. We also show the ratio of net official transfers to GNP, for comparison purposes; as discussed earlier, this includes nonconcessional official transactions and net interest, and excludes TC grants. The remaining columns show the position of the seven African case study countries, both in absolute terms and relative to the available sample, for each measure.

The data in Table 5 bring out a distinction between the *level* of aid flows and their *change over time*. Africa's median aid was already high by historical standards in the 1970s, but it nonetheless doubled over the next two decades. The increase is even faster relative to GNP than in real dollar terms per capita (cf. Table 1), the difference being attributable to stagnating real per-capita incomes in the 1970s and 80s and sustained real exchange rate depreciation beginning in the early 1980s.¹⁸ African aid ratios in the 1990s are therefore high not only in cross-regional perspective, but also relative to historical experience. The differences suggested by Table 5 are statistically

¹⁶ One way of summarizing the close correlation across gap-inspired measures is that the cross-country variation in aid-to-GNP ratios apparently dominates the cross-country variation in the ratios of imports, investment, or government spending to GNP.

¹⁷ If A is aid in dollars, P is a dollar price index, Y is real GNP, and N is population, then real aid per capita (column 1 in Table T9) is $(A/P)/N$, and the aid-to-GNP ratio (column 2) is A/PY . The two measures are related by $(A/P)/N = (A/PY)*(Y/N)$, where Y/N is real income per capita.

¹⁸ Real depreciation began in earnest in the mid-1980s outside of the CFA zone, and in many cases (including the CFA countries in 1994) it continued to depress nominal-dollar GNP figures through the 1990s.

significant.¹⁹ In striking contrast to the African experience is that of the High-Performing Asian economies (HPAEs). Already small in the 1970s, aid to these countries essentially fell to zero.

Columns 4 and 6 give percentile ranks for the seven African case study countries. These are robust to the measure of aggregate aid: in no case does the rank differ by more than 10 percentage points. When we control for sample (using only the 75 countries for which both measures are available), the rank correlation between the two measures is high and statistically significant. The case study countries show a dispersion of patterns, against a background of high average levels. Botswana's "graduation" out-does that of the HPAEs, with aid falling from nearly 20 percent of GDP to just over 3 percent. This experience is unique in SSA: Mauritius is the only other large country in SSA in which aid fell relative to GDP between the 70s and 90s.²⁰ Moreover, even after graduation, Botswana's aid is higher than the roughly 2.5 percent of GDP received from the U.S. by Western Europe under the Marshall Plan, and nearly half of that received by Korea before the reduction of US aid in the early 1960s.²¹ Mozambique, Uganda and Zambia are at the other extreme: aid is initially low but rises very rapidly over time. Burkina Faso and Mali are intermediate cases that reflect the African median, with aid initially high but rises further over time.

Figure 2 plots aid-to-GNP ratios and percentile ranks for the 1970s and 1990s for the countries covered in Table T4. The full distributions of country averages are given outside the border, with horizontal and vertical lines within the border indicating quartiles of these distributions. Inside the box the Sub-Saharan African countries are identified with "+" and the case study countries are highlighted (Table 10 provides data and rankings for all countries with data available for the 1990s). Aid intensity declined between the two periods only in Botswana and Mauritius. By the 1990s these two, plus Gabon and Nigeria, were the only African countries with aid intensity below the median for the full sample. The most common situation for African countries was to begin in the high-intensity upper quartile and to remain there. Of the remaining countries only Laos shares this feature.

¹⁹ To assess statistical significance, we regressed country/decade ratios underlying columns 1 and 2 of Table T4 on dummy variables for region and decade. We excluded SSA in the 1990s from the list of dummies in order to interpret the coefficients on other dummy variables as differences in country/decade means relative to SSA in the 1990s. All point estimates were negative for both measures, and with the exception of those involving the Pacific region, these differences in mean were statistically significant at the 5% level or better.

²⁰ Net ODA to Mauritius was 3.6, 3.5, and 1.5 percent of GNP in the 70s, 80s and 90s, respectively. Botswana therefore remains unique in the initial size of aid and the rapidity of its graduation.

²¹ Marshall Plan aid from the United States totaled roughly \$13 billion between 1948 and 1952; aggregate GNP in Western Europe was on the order of \$120 billion at the outset of the plan, and rose rapidly (United States Information Agency, "The Marshall Plan – Partners in Peace," **Error! Bookmark not defined.** By these measures Western Europe received roughly 10 percent of GDP over four years. In the DAC data, net ODA to Korea averages 8.5% of GNP in the 1960-63 period, after which aid falls rapidly.

3.3 Adjusting for income and population

Rich and populous developing countries tend systematically receive less aid relative to GNP than poorer, less populous countries. To what degree can Africa's high aid intensity be "attributed" to relatively small populations and low real incomes? Table 6 uses panel regressions to describe the distribution of the aid-to-GNP ratio conditional on lagged population and real income per capita, using panel regressions. Observations are 5-year ("halfdecade") averages for 87 individual countries, with real income per capita measured in 1985 PPP-adjusted dollars.²² We allow for fixed time effects in order to control for a range of time-specific factors that may have influenced aid ratios. For the full sample (column 2), the elasticities of the aid-to-GNP ratio with respect to population and real GNP per capita (calculated at the sample means) are substantial at -0.35 and -0.88 .

Columns 2 - 5 of Table 7 summarize the difference between actual aid-to-GNP ratios and the values predicted on the basis of the right-hand-side variables. Aid to Africa tends, not surprisingly, to be underpredicted by these regressions. More strikingly, aid-to-GNP ratios have tended to *grow more rapidly over time* than predicted among African countries, while the reverse is true for other developing countries. Africa's increase is (not surprisingly) larger in comparison to a norm based only on the non-African sample: in column 3, Africa's aid ratio is predicted to increase by only 2.5 percentage points between the 1970s and 1990s, compared to an actual increase (column 1) of 12.5 percentage points. Similar results (not shown) hold when we use real aid per capita rather than the aid-to-GNP ratio as the dependent variable.

These results suggest that a substantial portion of regional differences, particularly with respect to changes in aid intensity, are not readily attributable to underlying structural changes as reflected in population growth and real income. At the individual country level, the results conveyed by this exercise can be revealing. The three CFA countries in Table 7 receive more aid than expected, whether in the full sample or when SSA is excluded; this is consistent with the "friends of France" effect emphasized by Boone (1994), who found similar a similar effect for friends of the U.S.A. and friends of OPEC. Botswana's graduation is undoubtedly driven in part by rapid real income growth, which helps to move it from the 90th to the 67th percentile of predicted aid levels; but its actual movement is much further than expected, from the 96th to the 45th percentile. The rapid increase in aid received by Mozambique is roughly split between increases "explainable" by the right-hand-side variables and increases apparently associated with other factors. Structural features have very little apparent association, in contrast, with Uganda's rapid increase in aid. A full accounting of these findings would require a structural model of aid determination, embodying both political factors and persistent economic shocks. Even in the absence of such a model, however, large country-specific divergences in Table 9 suggest the importance of case-specific factors, including the resolution of war or

²² The sample is restricted to "large" countries (those with population of at least 800,000 in 1990). We include all halfdecade observations for which a country has at least 3 annual observations on all variables. The last halfdecade, 1990-95, includes 6 rather than 5 years.

civil strife, major terms of trade losses or persistent droughts, or changing relations with key donors.²³

4. Debt restructuring and the transactions intensity of aid

The measures we have considered so far focus on net resource transfers from donors. A given net transfer, however, is consistent with a wide variety of underlying transactions. In this section we make a distinction between the *resource* intensity of aid flows and their *transactions* intensity. Debt restructurings provide an important example. Consider a country with debt difficulties that nonetheless receives \$100 million a year in net transfers from creditors over the period of a decade. One way in which this could be accomplished is through debt stock cancellation at the outset of the decade, followed by \$100 million a year in grants. The same *ex post* grant equivalent could be delivered, however, through a sequence of reschedulings, outright grants, partial cancellations of new debt service due, and arrears accumulation, culminating in a large writeoff of remaining debt at the end of the decade. A central argument of the debt overhang literature is that the latter arrangement is more costly to the borrower, even though the *ex post* discounted net transfer is identical.

Tables 8 and 9 suggest that the transactions intensity of Africa's external debt problem is high in cross-regional perspective. Africa's experience with debt restructuring appears in the first column of Table 8. In contrast with Latin America, Africa's debt restructurings have been mainly official (though involving both official and private debt). These have buttressed net resource transfers upwards relative to a counterfactual of repayment. But the stock of debt, particularly to official creditors, has tended to grow rapidly. Africa's debt in the 1990s is therefore very large relative to exports (column 2). Column 3 shows the "grant element" of the external debt, calculated as the difference between its face value and the discounted value of repayment obligations; Africa's debt is large even after accounting for its contractual concessionality.²⁴ Debt service due is correspondingly high by cross-regional standards (column 4), and even more so if we include the stock of arrears (column 5).

The result is that many African countries continue to pay only a fraction of debt service newly due each period. Of the remainder (Table 9), part is officially rescheduled or cancelled and the rest is added to arrears. None of the latter transactions affects net flows—and in an extreme interpretation, the intermittent Paris Club reschedulings, annual consultative group meetings, and constant dealings with bilateral and multilateral donors that underlie these flows simply represent a formalization of concessions already received. Non-repayment is fully anticipated, all bargaining with donors is window-dressing, and net flows—revealed *ex post* but known in advance to participants—capture all that matters. The debt overhang

²³ The degree to which exogenous external shocks play a role is a topic for future research. Rodrik (1997) finds that lagged terms of trade changes are statistically insignificant in similar panel regressions; but there is no reason this variable cannot be entered contemporaneously. Note also that persistent real exchange rate movements can exert a strong effect on aid-to-GNP ratios.

²⁴ The discount rates in the Bank's calculation are currency-specific interest rates on officially-supported OECD export credits. These represent, according to the Bank, "on average, the most favorable terms of fixed-rate, non-concessional debt developing countries are able to contract in the international loan market." (World Bank 1992, p.127)

literature suggests, however, that the transactions that underlie net flows create an economic impact that is separate from the net flow. The arguments are familiar (e.g., Agénor and Montiel 1996, chapter 14). The process of debt restructuring is bureaucratically costly. It creates uncertainty about the status of upcoming debt service claims and the timing and amount of concessions. It creates a presumption that rapid export growth will lead to reduced official flows, thereby placing a tax on the private investment and policy reform needed to achieve this success. It enhances the leverage perceived by donors—whether realistically or not—and therefore their willingness to interfere in the recipient’s policy formation. Finally, the existence of senior official claims may discourage private lending. For these reasons observers have increasingly called for a shift from reschedulings to outright cancellation of debt service (although neither of these alters the net transfer), and, most recently in the HIPC Initiative, for a shift from repeated flow restructurings to debt stock cancellation.

5. Conclusions

Aid to African countries is declining, but from historically unprecedented levels. Standard measures of the resource intensity of aid are highly correlated across countries in the 1990s and roughly half of African countries and five of the seven case study countries land in the “high intensity” upper quartile of the overall distribution of aid. We have reviewed the DAC data and the concept of foreign assistance, and argued that while more sophisticated measures of aid may have non-trivial impacts in individual cases, Africa’s overall position in world rankings is likely to be robust to adjustments.

Closely allied to resource intensity, but conceptually distinct, is the transactions intensity of aid or of relations with official donors more generally. Africa’s interface with world financial markets is overwhelmingly with official rather than private creditors. We decomposed debt service due and found that although Africa’s external debt has a median grant element nearly twice that of the typical developing country, African countries tend to pay by far the smallest share of what is due (including arrears). Reschedulings and flow cancellation accounted for nearly thirty percent of debt service newly due between 1990 and 1995; but even these arrangements did not prevent nearly 15 percent of new obligations being rolled into arrears each year. With net concessional transfers exceeding net official transfers and both measures remaining large and positive in most cases, the picture is one in which debts obligations are being converted to grants *ex post*. This process is one with high transactions intensity relative to outright cancellation of debt stock.

What is the relationship between aid intensity and the more policy-relevant notions of aid effectiveness and aid dependence? Defining aid effectiveness in terms of the contribution of a dollar of aid to domestic welfare in the recipient country, it is clear that higher aid levels to a given recipient will at some point encounter diminishing returns. It follows that if aid intensity were randomly assigned to countries (e.g., through a purely political process that had no relation to the welfare impact of aid), high aid intensity would generate a presumption of low marginal aid effectiveness. But if donors either implicitly or explicitly target aid effectiveness in allocating aid—as their increasing preoccupation with selectivity suggests in the 1990s—then high aid intensity can be associated as much with a presumption of high

marginal effectiveness as with low marginal effectiveness. The map between aid intensity and aid effectiveness therefore cannot be determined without a structural analysis that controls for country-specific factors as well as allocation behavior by donors (see, for example, Burnside and Dollar (1997)). Individual case analysis will also be required to document idiosyncratic determinants of aid effectiveness.

Mapping aid intensity to aid dependence is even more complex given the various and murky meanings of dependence. Azam, Devarajan and O'Connell (1998) focus on the interaction between aid and institutional learning-by-doing by the recipient. Aid fills resource gaps while partly displacing the domestic activity that would otherwise generate learning. In this analysis, *all* recipients enjoy short-run gains from aid and would be hurt by a reduction. This dimension of dependence is the straightforward counterpart to the "gains from aid" and is present whether aid intensity is high or low. More importantly dependence in this form is fully consistent with ultimate graduation by the recipient. But there are multiple dynamic equilibria. The aid relationship can get stuck at a high-aid, weak-institutions equilibrium in which institutions remain weak and graduation never occurs. In such cases the resource intensity of aid begins high and remains high, even though there is an alternative path in which aid is reduced and a cumulative process of institutional development takes place. The typical time pattern of aid to African countries over the last three decades is not inconsistent with the latter, more disturbing type of dependence. But intensive case analysis, complemented if possible with structural cross-country econometric analysis, will be required to document institutional learning processes and their interaction with aid. We remain some distance from being able to conclude that forces intrinsic to high aid flows—as distinct from country- and donor-specific influences, broader features of the international aid regime (van de Walle (1998)), and exogenous shocks—have produced the observed persistence of high aid to African countries.

Appendix 1: Data Sources and Definitions

DAC98: OECD Development Assistance Committee, *Geographical Distribution of Financial Flows to Aid Recipients*. Data are taken primarily from the OECD's Creditor Reporting System. The published version covers 1992-96. We use the 1998 CD-ROM version which gives data from 1960 to 1996. A drawback of this source is that it does not distinguish between missing values and true zeros; both are given a value of zero. We used various rules of thumb to convert zeros to missing where this seemed clearly appropriate.

GDF98: World Bank, *Global Development Finance 1998*. This is the continuation (since 1997) of the World Debt Tables. Debt data are taken primarily from the Bank's Debtor Reporting System; data on official grants are from the DAC. We use the 1998 CD-ROM version which gives data from 1970 to 1997.

WDI98: World Bank, *World Development Indicators 1997*. This is the continuation of the World Tables. We use the 1997 CD-ROM version which gives data from 1970 to 1996.

PWT5.6: Penn World Tables, Mark 5.6. Real national accounts data developed by the UN's International Comparison Project (also known as Heston-Summers data). These data for 1950-92 are available on the NBER's website at [www.nber.org/pwt56.html].

Aid and Debt Terminology

OECD (Geographical Distribution of Financial Flows to Aid Recipients)

Grants = Financial transfers for developmental purposes, including donor administrative costs, technical assistance, and the flow impact of current or past debt cancellation. Grants may be tied but do not carry any repayment obligation.

Grant Element = GE/L , where L is the face value of a loan and GE is its *Grant Equivalent*.

Grant Equivalent = $L - PV$, where L is the face value of a loan and PV is the present value of contractual repayments using a 10% discount rate.

Net ODA = *Grants* plus Disbursements minus Repayments of ODA Debt.

ODA Loans = Loans for developmental purposes whose contractual terms imply a *Grant Element* of at least 25 percent.

Technical cooperation grants = "free-standing" technical cooperation, i.e., excluding technical cooperation tied to the implementation of aid-financed investment projects.

World Bank (Global Development Finance, World Development Indicators)

Aggregate Net Transfers = *Net Flows on Debt*, excluding short-term and IMF + *Grants* excluding Technical Assistance + *Net transfers on Non-debt-creating Flows*.

Concessional debt = Debt with original grant element, calculated as by DAC, of 25% or greater.

Net Flows on Debt = Disbursements minus Repayments of Debt (includes short-term and IMF).

Net Present Value = Present value of contractual obligations on outstanding debt, using currency-specific interest rates on OECD export credits to discount future obligations.

Net Transfers on Debt = *Net Flows on Debt* minus Net Interest Payments on Debt.

Net Transfers on Non-debt-creating Flows = Foreign Direct Investment, Net + Portfolio Equity Flows + Profit Remittances on FDI.

Grants = DAC *Grants* excluding Technical Cooperation grants.

NB: For analysis of accounting conventions in the Debtor and Creditor Reporting systems, and the relationship of debt and balance of payments data, see BIS, IMF, OECD and World Bank (1994).

Appendix 2: Grant equivalents generalized

An economically appealing way of identifying the resource transfer implicit in any set of transactions with donors is to ask what pure grant would have produced the same effect on the recipient's intertemporal welfare. Such a measure can be approximated by decomposing the face value of each transaction into an exchange of (discounted) values at appropriately defined market prices—e.g., a loan with a market-based repayment schedule, or a cocoa export reimbursed at market prices—and a residual *ex ante grant equivalent*. The market-priced component (zero for a pure grant) would, by definition, not shift the recipient's intertemporal budget constraint. Only the grant element would do so, leading to a welfare increase approximated by the amount of the shift.

The appropriate market interest rate for this calculation is the recipient's marginal rate of substitution between present and future foreign exchange. For countries unable to borrow commercially at the margin, this is likely to be well above risk-free or even "average risk-adjusted" market rates. Thus even loans that carry no explicit concessionality—including reschedulings at market interest rates—would carry a grant element proportional to the difference between the MRS and the actual interest rate.

The logic of grant equivalents is already used by the DAC in classifying loans by concessionality, though not in calculating aid amounts. The face value of each development loan is decomposed into a market-priced component (the present value of future contractual obligations at the conventional "market" interest rate of 10%) and a residual grant element. Loans with grant elements exceeding 25 percent of the face value are classified as concessional. If recipient-specific interest rates were used in this exercise, the grant element would correspond exactly to our grant equivalent: only this portion of the transaction would produce a shift the recipient's intertemporal budget constraint and thereby qualify as aid. The remainder of the face value would be moved in equation (2) from net transfer on aid to "net transfer on nonconcessional debt to official creditors."

To illustrate the implications for aid measurement, consider a concessional one-period loan of \$100 that carries a repayment obligation of \$77 and no interest. Suppose that the reference interest rate of 10% is indeed equal to the borrower's MRS. The discounted value of repayments is then $\$77/(1 + .1) = \70 , implying an *ex ante* grant element of 30%. In the DAC data, therefore, we would observe Net ODA of \$100 in the period of the loan, followed by negative Net ODA of \$77. Using grant elements, in contrast, the initial transfer would be recorded as \$30 rather than \$100. The subsequent repayment would produce a recorded transfer of zero, *which is its own grant element, relative to the established counterfactual of full repayment.*

This approach makes a distinction between *ex ante* and *ex post* flows that is analytically useful in a world of debt restructurings. What is calculated each year is the *ex ante* grant element in all current transactions. In the process a revised set of anticipated future flows—in effect, a new intertemporal budget constraint for the subsequent year—is laid out, establishing the counterfactual against which future transactions will be assessed. Subsequent transactions may of course include ones that alter the repayment terms on existing loans. The *ex ante* grant equivalent of such transactions is the reduction in the present value of borrower obligations, viewed from the year in which the transaction takes place. To illustrate, suppose that the repayment of \$77 is cancelled by the donor in period 2. Net ODA would therefore be (\$100, 0):

the transaction would produce an imputed grant of \$77 and an imputed repayment of \$77 in the second period. Relative to the counterfactual of repayment, however, cancellation of principal in period 2 is the equivalent of a pure grant. The sequence of grant elements would therefore be (\$30, \$77).

The *ex post grant equivalent* of any sequence of *completed* transactions with donors can be defined as the present value of all cash flows associated with these transactions. Under full repayment (including the possibility of reschedulings at market terms), the *ex ante* and *ex post* grant equivalents are identical. With restructuring on concessional terms, the *ex post* grant equivalent exceeds the *ex ante* grant equivalent (the present value of (\$30,\$77) is \$100, which exceeds \$30). Except for the fact that Net ODA excludes interest payments, the *ex post* grant element can be calculated using either Net ODA flows or the sequence of *ex ante* grant equivalents. Thus in our example (in which interest was excluded), \$30 is the present value at the reference interest rates of either (100,-77) or (30,0), and \$100 is the present value of either (\$100, 0) or (\$30, \$77).²⁵

What implications does this *ex ante/ex post* distinction have for interpreting changes in Net ODA over the sample period? If we use long time averages, Net ODA can at least approximate the *ex post* grant equivalent of any underlying set of debt and grant transactions (excluding interest). The time-phasing of *ex ante* transfers within any long period, however, depends on the measure used. By aggregating loans with grants, Net ODA “front-loads” the sequence of transfers. If the appropriate counterfactual is indeed that contractual loans were never going to be repaid, then Net ODA numbers correspond well to *ex ante* grant equivalents. In this case the subsequent restructurings were implicitly anticipated. The original loans were properly treated as grants; and the restructurings, when they occurred, had zero *ex ante* grant equivalents. If the appropriate counterfactual is the contractual obligations, however, then the DAC treatment tends to underestimate both the growth of *ex ante* grant equivalents over time and their level late in the sample.

We close this discussion by making a final observation regarding risk aversion. If recipients are risk-averse, then even arrangements with zero *ex ante* grant equivalents may carry a grant element in the form of insurance. In this paper we abstract from insurance issues by focusing on long time averages of the data. Such averages will underestimate or overestimate the true grant element of transactions with donors, however, according to whether these transactions are reducing or exacerbating volatility in the recipient's overall foreign exchange receipts.

²⁵ We are being somewhat cavalier here with respect to the reference interest rates. The *ex post* grant equivalents will match under the two approaches (except for interest) only if the same sequence of implied short-term interest rates is used to calculate *ex ante* grant equivalents over the full period of the calculation.

Table 1: Technical Cooperation in Net ODA

Median values of country averages, in real 1995 U.S. dollars per capita except where otherwise indicated.

Region and decade	Net ODA (1)	ODA Grants (2)	Technical Cooperation Grants (3)	Ratio of TC Grants to Grants (%) (4)	Ratio of TC Grants to Net ODA (%) (5)
38 Sub-Saharan African countries					
1960s	15.78	12.93	3.64	37.77	27.08
1970s	36.34	26.08	11.10	50.29	36.01
1980s	44.76	33.00	12.70	42.29	28.89
1990-96	49.90	38.42	11.82	32.24	24.52
58 Other developing countries					
1960s	15.84	12.21	2.26	29.15	17.75
1970s	20.03	8.58	4.58	60.57	29.78
1980s	16.49	10.91	5.50	52.25	32.44
1990-96	20.43	14.17	6.78	48.61	34.52

Source: OECD, DAC98 CD-ROM. The table includes all countries with populations exceeding 800,000 in 1990 and with a complete set of observations for more than half of the years in each decade.

Table 2: Net Disbursements, Net Interest, and Net Transfers

Median values of country averages, in real 1995 U.S. dollars per capita.

Region and decade	ODA Loans (DAC data)	Concessional Loans (World Bank data)		
	Net Disbursement (1)	Net Disbursement (2)	Net Interest (3)	Net Transfer (4)
36 Sub-Saharan African countries				
1970s	8.44	11.08	0.80	9.99
1980s	15.14	17.06	1.09	16.01
1990-96	12.87	13.08	1.73	10.40
44 Other developing countries				
1970s	9.41	8.90	1.30	7.30
1980s	8.07	8.96	1.98	7.39
1990-96	5.21	6.74	3.15	3.21

Sources: Column (1): OECD, DAC98. Columns (2)-(4): World Bank, GDF98. Population and U.S. GDP deflator are from DAC98. The table includes all countries with populations exceeding 800,000 in 1990 and with a complete set of observations for more than half of the years in each decade.

Table 3: Aid in Overall Net Transfers

Median values of country averages, in real 1995 U.S. dollars per capita.
Data exclude Technical Cooperation (TC) grants.

Region and decade	DAC data ----- (World Bank data) Net Transfer on: -----				
	Total Net ODA x TC (1)	Concessional Debt and Grants x TC (2)	Official Debt and Grants x TC (3)	Total Debt and Grants x TC (4)	All Flows x TC (5)
38 Sub-Saharan African countries					
1970s	23.29	27.00	31.65	36.76	36.98
1980s	34.41	34.93	33.42	32.90	32.73
1990s	38.28	37.08	33.90	32.27	31.75
44 Other developing countries					
1970s	16.13	16.91	18.73	46.08	34.73
1980s	16.32	15.38	20.42	15.60	20.05
1990s	13.36	11.67	4.11	1.33	16.16

Sources: Column (1): OECD, DAC98. Columns (2)-(5): World Bank, GDF98, with Grants excluding TC, population, and U.S. GDP deflator taken from DAC90. The table includes all countries with populations exceeding 800,000 in 1990 and with a complete set of observations for more than half of the years in each decade.

Definitions: "Net transfer" in columns (2)-(5) is net loan disbursements minus interest payments, for the indicated category. "Total debt" in column (4) includes not only public and publicly guaranteed debt held by official or private creditors, but also private nonguaranteed debt. Column (5) corresponds to what the World Bank calls "Aggregate net transfers": this is column (4) plus net portfolio investment and net equity inflows, minus net profit remittances.

Table 4: Aid Intensity Measures, 1990-95

Regional medians of country averages for 1990-95.

Region or Country	Net ODA Real \$ per Capita (1)	Ratio to GNP (2)	Net ODA excluding Imports (3)	ODA excluding TC as ratio to: Gross Investment (4)	TC Gov't Spending (5)	TC as Ratio to Gov't W&S (6)
Latin America	24.30	1.66	1.70	4.16	3.19	12.62
HPAE	4.10	0.22	0.23	0.57	1.70	5.68
South Asia	15.89	6.96	21.24	31.12	20.49	28.09
Pacific	32.28	11.01	14.09	22.64	23.15	16.62
Other	26.13	1.97	2.64	4.23	5.40	3.80
Sub-Saharan Africa	51.59	13.41	28.38	71.37	49.70	37.25
Full sample:						
75-th percentile	64.56	15.50	29.15	67.61	30.79	35.07
median	37.77	6.34	8.49	19.42	7.17	17.92
25-th percentile	10.78	0.82	1.70	2.36	1.48	5.97
<i>Case study countries:</i>						
Botswana	94.59	3.40	2.64	5.02	5.07	17.95
Burkina Faso	47.07	17.65	46.24	53.94	.	.
Cameroon	48.11	6.21	18.20	29.09	19.73	21.49
Mali	53.21	19.30	37.75	58.61	.	.
Mozambique	80.33	97.53	75.61	135.03	.	.
Uganda	41.84	20.51	70.06	104.87	.	.
Zambia	120.46	32.89	48.80	218.43	123.54	135.21
<i>percentile ranks:</i>						
Botswana	88	43	30	35	40	53
Burkina Faso	62	80	89	68	.	.
Cameroon	65	50	62	55	64	57
Mali	70	81	83	72	.	.
Mozambique	85	100	97	87	.	.
Uganda	53	82	95	85	.	.
Zambia	93	93	91	96	100	88
<i>Sample size by variable:</i>						
Latin America	22	22	21	22	17	17
HPAE	8	8	7	7	6	3
South Asia	7	6	6	6	5	3
Pacific	7	6	7	4	3	3
Other	18	16	15	15	12	7
Sub-Saharan Africa	40	38	37	36	14	12
Full sample	102	96	93	90	57	45

Sources: Columns (1),(2): OECD, DAC98 CD-ROM. Columns (3)-(6): World Bank, WDI98 CD-ROM for imports, investment and government spending; Net ODA and TC from DAC98. Each column refers to all countries with populations exceeding 800,000 in 1990 and with observations available for the relevant variable in three or more years in 1990-95. The samples in columns (1) and (2) are larger than those in Tables 2-4, because the earlier tables required countries to have data available for all decades; the full sample for column 1 is given in Table 10.

Definitions: For country composition of full regions, see Table 10. Imports are imports of goods, services and income. Investment is gross domestic investment. Government spending is total government expenditure. Gov't W&S is government wages and salaries.

Table 5: Aid/GNP Across Regions and Over Time

Regional aggregates are median values of country averages, in percent.
All data except percentile ranks are in ratios to GNP.

Region and Decade	Net ODA (DAC) (1)	Net Official Transfer x TC (WB) (2)	Net ODA (DAC) (3)	pctile rank [n=95] (4)	Net Official Transfer x TC (WB) (5)	pctile rank [n=75] (6)
Lat. Am.	n= 22	22	Botswana			
1970s	1.31	0.18	18.17	93	18.09	96
1980s	1.38	0.34	11.43	78	7.64	69
1990s	1.58	0.51	3.17	46	0.56	37
HPAE	n= 7	3	Burkina Faso			
1970s	0.74	0.12	13.12	89	9.63	89
1980s	0.15	0.17	13.32	83	9.08	72
1990s	0.02	0.12	17.52	80	11.87	74
So. Asia	n= 6	5	Cameroon			
1970s	4.14	1.27	4.70	65	4.07	60
1980s	8.64	3.20	2.55	40	1.81	34
1990s	6.51	1.71	6.02	50	3.42	46
Pacific	n= 5	3	Mali			
1970s	19.49	10.65	12.88	88	11.61	90
1980s	9.04	3.27	21.88	95	16.51	90
1990s	11.06	6.28	19.32	83	12.10	76
Other	n= 15	10	Mozambique			
1970s	2.74	2.64	2.17	42	.	.
1980s	2.62	1.29	22.48	96	.	.
1990s	1.75	0.99	92.09	100	.	.
SSA	n= 34	32	Uganda			
1970s	7.53	3.00	1.31	31	1.02	21
1980s	11.24	4.43	5.98	53	5.27	54
1990s	15.30	8.21	18.94	82	13.47	84
All	n = 89	75	Zambia			
1970s	3.03	0.73	3.46	55	4.20	61
1980s	5.04	2.38	13.34	84	10.10	77
1990s	6.02	3.52	30.52	92	15.62	86

Sources: Columns (1),(3),(4): OECD, DAC98. Columns (2),(5),(6): World Bank, GDF98, with Grants excluding TC, population, and U.S. GDP deflator taken from DAC90. The table includes all countries with populations exceeding 800,000 in 1990 and with a complete set of observations for more than half of the years in each decade.

Definitions: For country composition of regions corresponding to columns 1 and 2, see the columns labeled "DAC" and "WB" in Table 10. "Net official transfer" is net loan disbursements, minus net interest payments, plus grants, minus technical cooperation grants, for all official creditors.

Table 6: Panel Regressions*Dependent Variable:* 100*(Net ODA)/GNP.

Columns 1 and 2 use the full sample; column 3 excludes observations from SSA.

	(1)	(2)	(3)
Constant	10.72 (6.78)	119.73 (5.85)	74.38 (3.33)
Period effects:			
1970-74	-6.51 (-3.91)	-9.54 (-6.50)	-4.65 (3.85)
1975-79	-4.46 (-2.49)	-6.32 (-4.23)	-2.52 (1.95)
1980-84	-4.34 (-2.42)	-5.00 (-3.48)	-2.04 (1.92)
1985-89	-2.30 (-1.18)	-3.04 (-2.00)	-2.06 (2.06)
ln(pop ₋₁)	--	5.06 (-2.13)	-2.29 (1.37)
[ln(pop ₋₁)] ²	--	0.14 (1.22)	0.03 (0.36)
ln(rgdpcap ₋₁)	--	-13.96 (-3.26)	-8.11 (1.39)
[ln(rgdpcap ₋₁)] ²	--	0.50 (1.88)	0.23 (0.64)
Number of obs.	450	450	261
F for rhs vars	F(4,445)=6.33	F(8,441)=31.51	F(8,252)=15.88
Prob > F	0.00	0.00	0.00
R ²	0.06	0.40	0.36
Root MSE	9.98	7.97	4.78

Notes: Observations are half-decade averages, with the excluded period being 1990-95 (6 years; all others have 5). Columns 1 and 2 use the full sample; column 3 excludes observations from SSA. Lagged variables are end-or-period values from the previous halfdecade. Numbers in parentheses are t-statistics calculated using robust standard errors.

Table 7: Actual and Predicted ODA/GNP

Averages across available observations.

Region or Country		Actual Net ODA/ GNP (1)	---- Regression ---- including SSA		---- Regression ---- excluding SSA	
			Predicted (2)	Residual = 1 - 2 (3)	Predicted (4)	Residual = 1 - 4 (5)
<i>SSA</i>						
1970s	76	7.61	9.90	-2.30	9.49	-1.88
80s	77	13.06	12.71	0.34	10.24	2.81
90s	36	19.14	16.29	2.85	11.99	7.14
<i>Other</i>						
1970s	100	3.43	1.68	1.74	.	.
80s	109	3.43	3.68	-0.24	.	.
90s	52	4.89	6.86	-1.97	.	.
<i>Percentile ranks for case study countries:</i>						
<i>Botswana</i>						
1970s		96	92	+4	90	+6
80s		80	75	+5	72	+8
90s		45	69	-24	67	-22
<i>Burkina Faso</i>						
1970s		91	94	-3	94	-3
80s		86	94	-8	94	-8
90s		80	88	-8	88	-8
<i>Cameroon</i>						
1970s		66	69	-3	70	-4
80s		39	57	-18	58	-19
90s		51	54	-3	56	-5
<i>Mali</i>						
1970s	70	90	93	-3	93	-3
80s	80	94	90	+4	90	+4
90s	90	81	87	-6	87	-6
<i>Mozambique</i>						
1970s		28	39	-11	42	-14
80s		84	63	+21	63	+21
90s		100	72	+28	72	+28
<i>Uganda</i>						
1970s		32	75	-43	77	-45
80s		54	76	-22	77	-23
90s		82	84	-2	84	-2
<i>Zambia</i>						
1970s		52	62	-10	62	-10
80s		80	72	+8	72	+8
90s		93	79	+14	79	+14

Sources: See Table 6.

Definitions: Column 2 and 4, respectively, give the fitted values from the regressions in columns 2 and 3 of Table 6.

Table 8: External Debt, 1990-95

Regional medians of country averages for 1990-95 except as noted.

Region or Country	#obs	# of Debt Restructurings 1980-1997 (1)	Ratio of: Debt to Exports (2)	Ratio of: Arrears to Debt (3)	Ratio of: Concessional Debt to Total Debt (4)	Grant Element in Debt Stock (5)	Grant Element in New Commitments (1994-96) (6)
Latin America	22	6	178.2	7.5	20.7	10.2	20.7
HPAE	4	0	94.3	0.0	14.5	1.8	26.2
South Asia	6	0	263.8	0.3	79.7	40.1	59.4
Pacific	7	2	663.1	2.1	81.7	22.8	38.5
Other	12	2	213.5	4.3	18.8	9.4	22.2
SSA	36	5	414.7	9.8	58.2	32.8	59.0
Full sample	87	3	261.2	5.7	38.9	18.5	37.8
<i>Case study countries:</i>							
Botswana		0	25.5	1.8	39.5	22.7	32.4
Burkina Faso		3	247.5	5.0	77.5	47.1	74.1
Cameroon		5	356.0	11.3	34.2	14.2	40.6
Mali		4	490.0	8.0	91.3	58.2	69.2
Mozambique		7	1389.7	19.3	51.4	4.7	74.6
Uganda		7	1108.6	10.5	66.2	54.0	71.1
Zambia		8	562.0	27.5	40.8	28.6	63.4
<i>percentile ranks:</i>							
Botswana		.	1	32	51	57	43
Burkina Faso		.	47	47	81	85	94
Cameroon		.	63	68	43	43	55
Mali		.	78	60	95	98	86
Mozambique		.	95	79	59	13	96
Uganda		.	94	65	73	97	89
Zambia		.	80	89	52	67	78

Source: Column 1: The number of official and commercial debt restructurings is compiled from tables in GDF98 volume 1 and *World Debt Tables 1996*, volume 1. Columns 2-4 and 6: World Bank, GDF98 CD-ROM. Column 5: World Bank, GDF98, volume 1. The sample includes all countries with populations exceeding 800,000 in 1990 and with observations available for all variables in three or more years in 1990-95. Columns 1 and 6 have 37 rather than 36 African countries, and 88 countries overall.

Definitions: External debt includes both long-term and short-term debt owed by private or official borrowers, and includes the stock of arrears. Exports are exports of goods, services, and income. Arrears include arrears on both interest and principal. Concessional debt is debt with an original grant element of 25 percent or more. The grant element in the debt stock is calculated as $100 * (\text{Debt-PV}) / \text{Debt}$, where Debt is external debt and PV is the World Bank's calculation of the present value of future repayment obligations. The discount rates used in the Bank's calculation are currency-specific interest rates on officially supported OECD export credits, which represent "on average, the most favorable terms of fixed-rate, non-concessional debt developing countries are able to contract in the international loan market." (World Bank 1992, p. 127).

Table 9: External Debt Service, 1990-95

Regional medians (columns 1-3) or means (columns 4-7) of country averages over the indicated periods.

Region or Country	#obs	--- Ratios to exports: ---			Actual disposition of debt service due excluding arrears: (percent)			
		Debt Service Paid (1)	Debt Service Due Excl. Arrears (2)	Total Debt Service Due (3)	Paid (4)	Rescheduled (5)	Cancelled (6)	Change in Arrears (7)
Latin America	22	23.2	27.9	46.7	108.1	54.2	9.7	-71.9
HPAE	4	12.2	12.2	12.2	100.0	0.0	0.0	-0.0
South Asia	6	14.7	15.8	16.5	97.9	0.0	1.5	0.6
Pacific	7	10.2	28.9	28.9	63.9	9.6	2.9	23.5
Other	12	14.2	25.7	38.5	74.6	9.6	4.1	11.7
SSA	36	19.9	38.0	70.2	57.4	17.0	11.4	14.2
Full sample	87	18.4	30.2	43.4	77.9	22.9	8.1	-8.8
<i>Case study countries:</i>								
Botswana		3.8	3.9	4.2	97.8	0.0	0.0	2.2
Burkina Faso		9.5	17.8	30.0	67.1	19.0	23.2	-9.3
Cameroon		20.0	49.6	84.1	43.7	31.5	6.9	17.9
Mali		12.7	40.3	70.3	127.4	41.5	20.0	-88.9
Mozambique		28.9	131.0	388.8	23.2	45.9	24.2	6.7
Uganda		53.1	78.9	194.1	76.4	17.2	9.0	-2.7
Zambia		57.2	77.6	248.9	67.5	28.2	20.2	-16.0
<i>percentile ranks:</i>								
Botswana		2	1	1	74	21	13	57
Burkina Faso		24	24	37	43	73	9	16
Cameroon		54	80	73	22	85	62	73
Mali		35	70	67	96	93	83	3
Mozambique		80	94	95	8	96	9	66
Uganda		96	89	85	51	71	70	20
Zambia		97	88	90	45	82	8	11

Sources: World Bank, GDF98 CD-ROM. The sample includes all countries with populations exceeding 800,000 in 1990 and with observations available for all variables in three or more years in 1990-95. Columns 4-7 are means and sum to 100 percent.

Definitions: Exports are exports of goods, services and income. Debt service due is not reported directly by the World Bank but can be calculated as the sum of end-of-period arrears on interest and principal, total debt service paid (including net interest on short-term debt), rescheduling of interest and principal, and forgiveness of interest and principal. Country-by-country, columns 4-7 sum to 100 percent of debt service due excluding arrears.

Table 10: Regions and countries

Net ODA from all donors, in real dollars per capita and relative to GNP.

Sample for Table 4, Column 1 (1)	Real \$	Ratio to GNP (%)				percentile	Sample	
	per Capita 1990-96 (2)	1970-79 (3)	1980-89 (4)	1990-96 (5)	rank, col.5 1990-96 (6)	for Table 5 (7)	(8)	
Latin America								
Argentina	7.6	0.1	0.1	0.2	12	x	x	
Bolivia	87.9	4.1	7.9	12.0	68	x	x	
Brazil	1.3	0.2	0.1	0.0	8	x	x	
Chile	11.1	0.4	0.1	0.3	19	x	x	
Colombia	4.8	1.0	0.2	0.3	18	x	x	
Costa Rica	35.1	1.4	5.0	1.7	34	x	x	
Dom. Republic	10.0	1.3	2.4	0.9	27	x	x	
Ecuador	20.7	1.3	1.1	1.7	35	x	x	
El Salvador	62.6	1.7	7.3	5.0	48	x	x	
Guatemala	20.9	1.2	1.6	1.9	37	x	x	
Guyana	141.9	4.6	8.9	33.0	94	x	x	
Haiti	46.6	5.2	8.2	16.2	77	x	x	
Honduras	65.3	3.3	6.7	10.6	60	x	x	
Jamaica	54.6	2.0	7.0	3.8	46	x	x	
Mexico	3.6	0.1	0.1	0.1	11	x	x	
Nicaragua	149.8	3.0	7.1	40.5	97	x	x	
Panama	35.2	1.8	1.1	1.5	32	x	x	
Paraguay	24.3	2.6	1.5	1.6	33	x	x	
Peru	20.4	0.8	1.3	1.2	30	x	x	
Trin. & Tobago	10.2	0.3	0.2	0.3	15	x	x	
Uruguay	23.6	0.4	0.2	0.6	23	x	x	
Venezuela	2.2	0.1	0.0	0.1	9	x	x	
HPAEs								
China	2.4	0.0	0.3	0.6	21			
Hong Kong	3.0	0.0	0.0	0.0	5	x		
Indonesia	9.1	3.0	1.2	1.2	29	x	x	
Korea	-0.4	1.7	0.1	0.0	2	x		
Malaysia	6.5	0.7	0.7	0.3	17	x	x	
Singapore	4.7	0.6	0.2	0.0	6	x		
Taiwan	0.3	0.0	0.0	0.0	3	x		
Thailand	12.9	0.9	1.1	0.6	24	x	x	
South Asia								
Afghanistan	10.2	3.7	0.4					
Bangladesh	14.2	7.2	8.8	6.5	53			
Bhutan	99.2	2.9	12.3	25.1	87	x	x	
India	2.2	1.3	0.9	0.7	25	x		
Nepal	20.8	3.8	9.9	10.9	62	x	x	
Pakistan	9.1	4.4	2.9	2.2	41	x	x	
Sri Lanka	37.0	5.0	8.5	6.5	54	x	x	
Pacific								
Cambodia	33.5	19.7	10.0	12.9	71	x		
Laos	46.6	24.6	8.1	25.6	89	x	x	
Mongolia	55.3		0.2	20.6	84			
Myanmar	3.0	2.8	4.7	0.3	16			
Papua N. Guinea	91.6	19.5	11.8	9.2	59	x	x	
Philippines	18.4	1.2	1.5	2.1	40	x	x	
Viet Nam	7.7	6.3	1.2	4.3	47	x		
Other								
Albania	68.1			18.2	81			
Algeria	12.8	1.3	0.3	0.7	26	x	x	
Egypt	60.9	10.0	5.4	8.6	56	x	x	
Iran	2.4	0.1	0.0	0.1	10	x		
Iraq	13.8	0.2	0.1	0.2	13			
Israel	283.9	3.3	4.5	2.1	39	x		
Jordan	156.2	26.4	19.5	11.8	67	x	x	
Kuwait	2.7	0.0	0.0	0.0	4	x		
Lebanon	47.3	1.8	3.2	2.0	38	x	x	
Libya	2.4	0.1	0.0					
Morocco	31.6	2.7	3.6	3.0	42	x	x	
Oman	27.8	5.9	1.4	0.6	22	x	x	
Saudi Arabia	2.1	0.0	0.0	0.0	7	x		
Syria	30.4	7.6	5.6	3.1	44	x	x	
Tunisia	28.3	5.4	2.6	1.8	36	x	x	
Turkey	10.4	0.7	0.7	0.5	20	x		
UAE	-2.3	0.1	0.1	0.0	1	x		
Yemen	20.4	19.2	9.9	6.1	52	x	x	

Sub-Saharan Africa							
Angola	35.6	0.5	1.1	13.8	74	x	
Benin	53.4	8.3	9.3	14.6	75	x	x
Botswana	83.6	18.2	11.4	3.2	45	x	x
Burkina Faso	43.7	13.1	13.3	17.5	80	x	x
Burundi	44.8	10.7	14.2	25.7	90	x	x
Cameroon	43.2	4.7	2.6	6.0	51	x	x
CAR	57.8	10.9	15.9	16.2	78	x	x
Chad	42.4	11.5	17.8	24.0	86	x	x
Congo	85.4	7.4	5.0	11.3	64	x	x
Congo (f. Zaire)	8.9	3.1	4.9	6.7	55		
Cote d'Ivoire	70.5	2.8	2.5	11.4	66	x	x
Ethiopia	19.2	3.6	9.6	16.0	76	x	x
Gabon	116.4	1.7	2.2	3.0	43	x	x
Gambia	80.9	10.8	39.6	25.7	91	x	x
Ghana	40.0	2.8	6.1	10.8	61	x	x
Guinea	59.8	1.9	8.2	12.2	70	x	x
Guinea-Bissau	126.7	15.6	50.5	59.3	98	x	x
Kenya	33.3	4.3	7.5	11.2	63	x	x
Lesotho	67.5	10.8	15.1	11.3	65	x	x
Liberia	48.0	3.7	9.8				
Madagascar	28.6	4.6	8.6	12.2	69	x	x
Malawi	53.4	10.0	16.8	30.6	93	x	x
Mali	50.1	12.9	21.9	19.3	83	x	x
Mauritania	116.9	21.8	25.9	25.4	88	x	x
Mauritius	37.0	3.6	3.5	1.5	31	x	x
Mozambique	73.0	2.2	22.5	92.1	100	x	
Namibia	105.6	0.0	0.3	5.9	50		
Niger	40.9	9.4	13.7	16.7	79	x	x
Nigeria	2.2	0.5	0.2	0.9	28	x	x
Rwanda	73.4	14.1	11.0	40.1	96	x	x
Senegal	81.2	7.7	14.1	13.0	72	x	x
Sierra Leone	38.6	3.2	7.3	21.7	85	x	x
Somalia	52.7	27.7	48.9				
South Africa	8.0			0.3	14		
Sudan	19.8	3.9	9.9	9.0	58		
Tanzania	38.1	8.2	14.9	34.9	95	x	x
Togo	46.8	8.1	12.9	13.4	73	x	x
Uganda	38.7	1.3	6.0	18.9	82	x	x
Zambia	108.2	3.5	13.3	30.5	92	x	x
Zimbabwe	46.6	0.1	4.3	8.7	57	x	x

Memo: large countries excluded from the study:

Armenia	44.4			9.1			
Azerbaijan	10.4			2.0			
Croatia	15.6			0.4			
Georgia	29.9			4.2			
Kazakhstan	3.6			0.2			
Kyrgyz Republic	34.7			6.2			
Macedonia	34.4			5.1			
Slovenia	21.8			0.3			
Tajikistan	9.7			2.6			
Turkmenistan	4.7			0.5			
Uzbekistan	1.8			0.2			
Yugoslavia, FR	6.8						

Sources: See earlier tables.

Definitions: Data refer to “large” countries only (population of 800,000 or greater in 1990). The sample in column 1 (excluding those in the “memo” section) constitutes all large countries with at least 3 observations on real aid per capita (using DAC data) for 1990-96. This corresponds to column 1 in Table 4 (although data may differ because here we average over 1990-96 rather than 1990-95). The columns labeled “DAC” and “WB” give the samples used in columns 1 and 2 of Table 5. These samples are smaller than the full set because we are deflating by GNP and requiring observations to be available for earlier decades, and (in the WB sample) because we use World Bank debt data rather than DAC data.

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