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The Millennium Challenge Account: How much is too much, how long is long enough?

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Abstract

The US government's proposed $5 billion Millennium Challenge Account (MCA) could provide upwards of $250-$300m or more per year per country in new development assistance to a small number of poor countries judged to have relatively "good" policies and institutions. Could this assistance be too much of a good thing and strain the absorptive capacity of recipient countries to use the funds effectively? Empirical evidence from the past 40 years of development assistance suggests that in most potential MCA countries, the sheer quantity of MCA money is unlikely to overwhelm the ability of recipients to use it well, if the funds are delivered effectively. There may be a small number of potential recipients—mostly very small economies already receiving substantial amounts of aid—in which MCA money might be so bountiful as to surpass recipient governments' absorptive capacity. Strong monitoring and evaluation is the key to detecting and correcting possible absorptive capacity problems, rather than ad-hoc rules limiting the amount of assistance. Where problems do arise, funds should be re-allocated to other activities within the country or to other MCA countries, or the list of countries qualifying for the MCA could be expanded slightly to include a small number of additional countries that may be able to use the funds effectively. We also explore the length of time that the USG should be prepared to continue to fund MCA countries, and how recipients might exit from MCA funding over time. We look back at two dozen 'good policy' countries that previously were very poor but have grown and developed after receiving large amounts of aid—one might call them the ideal MCA candidates of the 1970s. Their experience suggests that (1) unlike some other countries, they used aid well, and (2) these "best case scenarios" required stable and moderately sizeable aid commitments lasting decades. This experience suggests that even the best performing of the MCA countries are likely to require significant assistance for many years. The idea of a brief, big-bang "Marshall Plan" for developing countries in which the MCA provides a large amount of funding for a short period of time in hopes of igniting rapid development is probably wishful thinking.

The Millennium Challenge Account:

How much is too much, how long is long enough?*

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What are the sufferings? What is needed? What can best be done? What must be done?
—George C. Marshall; Cambridge, MA, June 5, 1947

Introduction

President Bush's proposed new Millennium Challenge Account is designed to provide $5 billion per year (ramped up over the next three years) in additional US bilateral development assistance for low-income countries that are ruling justly, investing in their people, and establishing economic freedom. The administration has proposed spending $1.3 billion in the FY '04 budget as the first step in the MCA. The size of the MCA has raised a question: can the recipient countries use funds of this magnitude effectively?[1] The answer depends on several factors, including the number of countries chosen, the amount of aid currently received by each country, how the new aid is delivered, and other characteristics specific to each recipient.

Although the MCA will be significant in size, it will not be particularly large relative to current global aid flows (about 9% of today's world total of $58 billion), so at a global level absorption might not be a problem. However, the administration plans to concentrate the program on a relatively small number of countries, and in some recipient countries the magnitude of new funding could be very large. In November 2002, the administration announced the eligibility criteria that will be used to choose countries, but did not announce the countries that will qualify in the first year. An initial analysis suggests that at least 13 countries could qualify in the first year (and probably a few more), with the number increasing to between 20-25 by the third year.[2] To get a feel for the order of magnitudes involved, assume that 20 countries ultimately qualify from the pool of 87 countries with per capita incomes less than $1,435 (calculated at official exchange rates). These countries received capital flows (aid plus other capital flows) averaging $384 million in 2000, equivalent to about 12% of their GNP, or $44 per capita. As a broad starting point, allocating $5 billion per year in additional funds to 20 of these countries implies an average increment of $250 million per year per recipient, equivalent to about a two-thirds increase in capital flows over the $384 million average.

Broad averages, however, can be deceiving, since there is enormous variety in these 87 countries. Aid flows in these countries in 2000 ranged from $18 million (Comoros) to $1.7 billion (Vietnam and Indonesia); from less than 1% of GNP (India and Nigeria) to 75% of GNP (Sao Tome and Principe); and from less than $2 per capita (India and Nigeria) to $236 per capita (Sao Tome and Principe). In some countries this aid was used

[1] Other recent papers that touch on this topic in the context of the MCA include Smith (2000) and Birdsall and Lucas (2002).
[2] The administration's fact sheet detailing the eligibility criteria and other issues can be found at http://www.cgdev.org/nv/MCA_FactSheetNov.doc. For an analysis of the administration's announcement and a illustrative list of qualifying countries based on this analysis, see Radelet (2002a).

effectively, in other countries much was wasted. Larger numbers, however, do not necessarily imply wasted aid. Mozambique received aid equivalent to 23% of GNP in 2000 (or about $50 per capita). Between 1990-94 (during rebuilding in the immediate aftermath of the civil war) it received aid flows approaching 60% of GDP. Whether or not Mozambique can effectively absorb more assistance is an open question, but its recent strong economic performance suggests that it was able to put a large amount of aid to good use during the last decade.

These numbers suggest that the potential for absorptive capacity issues to arise within the MCA depends to an enormous extent on how the funds are allocated. Current global aid flows are strongly biased towards small countries, irrespective of their policy performance and their ability to use aid effectively. Donors prefer to spread their money around to as many countries as possible, even though a reallocation of aid based on need and results would lead to a much greater reduction in global poverty from current aid flows than is currently the case (Collier and Dollar, 2002). To the extent that the MCA follows this pattern, absorptive capacity problems are more likely in some countries, especially the smaller ones. If instead the USG allocates funds towards their best use among the qualifying countries based on results, it is more likely that a large share of the funds would go to larger countries such as Bangladesh and India (if they ultimately qualify). We strongly advocate moving towards a results-based approach with more funds going towards larger countries where appropriate, but we recognize the political realities that may impede the extent to which this is possible.

A different way to look at the potential size of the MCA flows is to examine more closely a group of countries that might be selected by the administration for the program. Table 1 lists 20 low-income countries that are among the most likely to qualify for the MCA.[3] This group of countries received aid flows averaging 12.6% of GDP during 1996-2000, or $56 per capita, as shown in columns 2 and 3. Columns 4 and 5 show the size of their aid flows under the assumption that each country receives a portion of the $5 billion annual allotment of MCA funds equal to their share of current ODA funding provided to these countries. For example, since Bangladesh received 12% of the $10.3 billion in ODA provided to these 20 countries in the late 1990s, it would receive 12% of the $5 billion in annual MCA funds. This is obviously a very crude estimate, since MCA allocations (presumably) will not be determined in this way, but it shows some rough orders of magnitude. It mirrors the current allocation of aid flows, so continues the bias towards small countries noted earlier. In this case, aid receipts will vary from 0.6% of GDP in India to 52% of GDP in Nicaragua. In five of the 20 countries, total aid flows including MCA receipts would be greater than 30% of GDP. At the same time, ten of the countries would be receiving aid flows of less than 15% of GDP. Bear in mind that these would be the amounts received in three years after the MCA budget ramps up to the full $5 billion. Smaller amounts would be provided in the first two years, giving some preliminary opportunity to evaluate potential absorption problems.

[3] The list is drawn from Radelet, op. cit., and includes the 13 likely to be eligible in the first year, plus seven other countries that miss qualifying by one indicator.

In at least some of the MCA countries, then, aid flows will be quite large relative to GDP after the addition of full MCA funding. In some countries that already receive huge amounts of aid the administration could decide to provide very little or even no additional assistance, even though the country qualifies for the MCA. Thus certain candidates will require careful attention, including Malawi, Mongolia, Mozambique, and Nicaragua. Can these countries effectively absorb flows of this magnitude? Is there a danger that this much aid might be too much for some countries? We turn to these questions below.

From one important perspective, this argument seems hard to believe, since there are huge unmet needs in all of the countries potentially qualifying for the MCA. In the 87 countries with per capita incomes less than $1,435, annual incomes average $460 per person (or $1.26 per person per day), life expectancy is a mere 56 years, one of fifteen infants die before their first birthday, and many people do not have access to clean water. In several of these countries, the HIV/AIDS pandemic is spreading rapidly, threatening to wipe out large segments of the population. Not only are the needs enormous, the MCA countries are the best performing of the low-income countries, since they have demonstrated a commitment to ruling justly, investing in their people, and establishing economic freedom to qualify. The MCA is based on the view that the countries chosen will be the most capable of all the low-income countries to use aid flows effectively to meet urgent social needs and establish the foundation for long term growth.

The Absorptive Capacity Question

Why might it be the case that some potential recipients could have difficulty effectively absorbing significant new aid flows? First, large amounts of aid can make macroeconomic management more difficult. The government of Uganda recently has expressed concerns about the impact of large aid flows on its macroeconomy. Large aid flows will cause exchange rates to appreciate in real terms (either through a nominal appreciation of the exchange rate or through inflation in the prices of domestic goods), which in turn will encourage imports and undermine the incentives for exports.[4] This effect depends critically on the extent to which aid is spent on imports versus domestic non-traded goods. The more that aid finances imports (e.g., purchasing essential drugs or foreign technical assistance), the less the macroeconomic impact; the more it is spent on locally produced goods (e.g., bricks, road construction workers) the greater the inflationary and other macroeconomic impacts. In addition, large aid flows can act as a substitute for government revenues and undermine the government's incentives to build a strong, sustainable tax base. Similarly, at a broader level, aid can reduce the incentives for higher saving. Analyses of the impact of aid on taxes and saving are mixed, with some studies suggesting a notable negative impact and most suggesting a small or

[4] The effect is known in the economics literature as the Dutch Disease. This outcome is much more than a theoretical possibility: large oil inflows (which in many ways are similar to large aid flows) had exactly this effect in Nigeria between 1973 and 1986, and ultimately nearly destroyed the agricultural sector. Some analysts suggest that large aid flows to Ghana had this effect it the 1980s (Younger, 1991). For a discussion, see Heller and Gupta (2002). For a discussion specific to Ghana, see Younger (1992).

negligible effect.[5] These problems cannot be completely avoided with aid flows the size of the MCA, but they can be minimized through concerted and disciplined management of the exchange rate, foreign exchange reserves, and the monetary base, coupled with microeconomic changes that remove obstacles that impair export competitiveness (e.g., streamlining the customs clearance process). In addition, specific budgetary targets—both in terms of revenue collection and in terms of strengthening budget processes (e.g., by improving accounting and auditing)—can help avoid a weakening of tax revenues. Given the huge needs in these countries, the potential macroeconomic impacts of large aid inflows call for strong monitoring and wise management, not a curtailing of flows, as long as aid-financed activities are meeting their specified goals.

Second, some critics of aid suggest that large aid flows undermine government institutions in recipient countries, thereby stunting growth and development.[6] Aid can weaken institutions by drawing away talented staff to work on aid projects. It can undercut government budgeting and accounting practices by keeping large amounts of public sector funds off the budget. It can undermine political accountability and legitimacy by giving the donors (rather than the government) the largest say in how aid funds (and complementary public funds) are used, and making the government more responsive to donors than to the general population. Large aid flows, if not used carefully, can exacerbate corruption by tempting government officials to skim funds for themselves.[7] Aid also can keep corrupt leaders in power and allow them to maintain deleterious development policies, as US assistance did for many years with Mobutu Sese Seko in Zaire and other leaders. Other analysts argue that aid can help strengthen institutions through technical assistance, transfer of ideas and technology, and supporting reforms that strengthen public sector capacity.[8] (However, the record on technical assistance is far from encouraging).[9] It is likely that the outcome depends on the circumstances in the particular country: in highly corrupt governments with weak institutions, large aid flows can make the situation worse, while in countries where governments are more committed to fighting corruption and pursuing a sound development strategy, aid flows potentially could help strengthen institutions. Strong oversight of aid flows by government entities, donors, and civil society groups can help mitigate problems with institutional weaknesses, poor governance and corruption associated with aid flows.

Third, large amounts of aid can overwhelm even a well-intentioned government's capacity to use funds effectively. This problem is what most aid practitioners have in mind when they discuss absorptive capacity. In essence, aid flows can create high

[5] See, for example, White (1994); Devarajan, Rajkumar, and Swaroop (1999); Reichel (1995); and McGillivray Ahmed (1994).
[6] Seminally Bauer (1971); more recently Azam, Devarajan and O'Connell (1999).
[7] Stephen Knack finds a negative relationship between the size of aid flows and the quality of governance in "Aid Dependence and the Quality of Governance: A Cross-Country Empirical Analysis," World Bnak Policy paper No. 2396 (2000). Also see Alberto Alesina and Beatrice Weder, "Do Corrupt Governments Receive Less Foreign Aid?" American Economic Review, 92-4 (September, 2000), pp. 1126-1137.
[8] For a discussion, see Carol Lancaster and Samuel Wangwe, Managing a Smooth Transition from Aid Dependence in Africa, Overseas Development Council (2000).
[9] See Elliot Berg (2002)

demand for a resource that is both (1) in short supply and (2) necessary for the effective delivery of services. The scarce resource could be senior decision-maker's time, talented administrative staff, buildings (e.g., schools), trucks, physicians, warehouses, or port capacity. For example, a program aimed at delivering essential medicines could run into problems if there are not enough warehouses to store the medicines properly, there are too few roads to deliver the products, or there are insufficient medical personnel to make sure the right people receive the medicine. These "bottleneck" problems can be most acute in countries with fragile institutions, poor infrastructure, and weak human capital. Large amounts of aid can help create these bottlenecks by placing demands on scarce resources. At the same time, well-targeted aid can help relieve these bottlenecks. If there are too few refrigerated warehouses for essential drugs, aid flows can help build new ones, at least to some extent. If there are too few public health specialists to oversee drug therapy, aid can finance programs to train new specialists. Some constraints can be relieved quickly, while others will take more time, and of course aid cannot relieve all bottlenecks. Strong monitoring and evaluation of aid flows, with specified benchmarks taken seriously by both donors and recipients, can help identify when resource constraints are making additional flows less effective, and how aid might help relieve some of those constraints.[10]

Fourth, donor practices lie at the root of and exacerbate many absorptive capacity problems. Many developing countries work with dozens of donor countries, each with their own preferences, procedures, monitoring requirements, and other demands. Aid missions make huge demands on the time and resources of policymakers—especially the most talented ones. It is not unusual for recipient countries to host hundreds, and sometimes over a thousand, aid missions during the course of a year, thus creating the kinds of bottlenecks that reduce aid effectiveness. Donor priorities can change, sometimes quickly, and they impatiently expect host government priorities to change in step. Donor earmarking of funds forces money into certain activities, even if alternatives have higher rates of return. Moreover, slow start-up and disbursement problems often can be traced to cumbersome donor rules and procedures. What is perceived as an absorptive capacity problem—the inability of aid flows to make a measurable impact on development projects—can in fact be the direct result of the huge, conflicting demands put on recipients by donors themselves.[11] Changes on the part of donors aimed at simplifying procedures and harmonizing basic practices would help relieve absorption problems and make aid flows more effective in enhancing growth and fighting poverty. This, of course, is much easier to say than it is to put into practice.

Whatever the potential impacts of large new aid flows from the MCA, they could be offset or exacerbated by the reactions by other donors. Will other donors follow the US and provide even more assistance to MCA countries, judging them to be the most worthy recipients of new aid (or in a bid to retain influence in those countries)? This response would make absorptive capacity problems more likely. Or will they decrease their assistance to MCA countries and shift it to other countries, believing that MCA countries

[10] For more on evaluation and monitoring in the context of the MCA, see Radelet (2002b).
[11] Thanks to Ruth Levine for emphasizing this point.

will have sufficient foreign assistance? For example, if a $300 million increase in US aid to a particular country led other donors to decrease their collective aid commitments to that country by $100 million, the net increase in usable aid for the recipient would be only $200 million. As a result, large inflows of US aid would have a less-than-anticipated impact, either in terms of absorptive capacity or in terms of stimulating growth and development.

It is not possible to predict the reaction of other bilateral donors *ex ante*. Experience provides little guidance, since there are few (if any) examples of large *unilateral* increases in development aid to the poorest countries. In most historical cases of a large increase in US aid to a particular country, there is a corresponding large increase in other donors' aid, as in post-conflict reconstruction cases or after a natural disaster. In such cases, donors are simultaneously responding to an event in the recipient country rather than reacting to a unilateral action by another donor. In Figure 1 we show all the cases of a 5-year increase in US aid exceeding 10% of the recipient's GNI since 1960. The top half of the figure shows cases associated with a recent conflict (or countries formerly part of the Soviet Union). This figure generally shows a positive relationship between the corresponding 5-year changes in other OECD donors' aid, implying that a sharp increase in US bilateral assistance was accompanied by increases in aid from other donors in these countries. The bottom half shows those cases not associated with recent conflict. In these countries, there is a very slight negative association, implying some weak tendency for massive increases in US aid to "crowd out" other donors, but the tendency is not strong and is not statistically significant.

We believe it is unlikely that other donors will increase further their own commitments to MCA countries in response to new US funding. We find it much more plausible that over time other donors will reduce their assistance to MCA countries in response to huge new US commitments and funnel some of their aid to other countries, in effect spreading the funding from MCA recipients to other countries. In some MCA countries this reaction might ameliorate potential absorptive capacity problems, while in others it will reduce the possible economic and social benefits from MCA funding (while providing new opportunities in the non-MCA countries that receive the re-allocated funding). We turn now to taking a closer look at the levels of aid flows at which absorptive capacity problems might begin to appear.

Estimating "Saturation Points"

Measuring the overall impact of aid is difficult. If we were to choose low infant mortality as the key measure of "development impact," then comparing the impact of a vaccination campaign with that of a technical assistance program for the Ministry of Finance would be comparing apples and oranges. At some level, however, most observers agree that aid has been unsuccessful if—after receiving years of large aid flows—a country's residents have the same or a lower standard of living. Researchers studying "aid effectiveness" have therefore focused on searching for a positive relationship between aid flows and real increases in GDP per capita.

Table 2 shows the results from several studies on the relationship between aid receipts and economic growth. These studies are not meant to be representative of the entire literature on aid and growth, in which some studies find no relationship at all between aid and growth. Rather, these are the studies that find a positive relationship and test whether or not the relationship is non-linear—that is, that the effect of aid on growth could be different at different levels of aid. These cross-country studies all find diminishing returns to aid: for each incremental dollar of aid provided, the positive relationship between aid and growth becomes smaller. Implicit in these relationships is the idea that returns diminish until at some point the impact of an additional dollar of aid is zero. However, most of these studies do not systematically examine this "saturation point" at which the incremental impact of aid falls to zero.[12]

For most of these studies, the implied saturation point of aid ranges between 15% and 45% of GDP. This is a wide range within which to work. The specific results in each study differ depending on the countries in the sample and the precise specification of the regression (especially the choice of other independent variables). Moreover, estimating a saturation point was not the objective of any of these studies. As a result, these estimates should be seen as broadly indicative at best. They should not be interpreted as being especially precise and cannot guide policy for any specific country. But they provide some idea of the order of magnitude of the maximum level of aid flows that most recipient countries could absorb.

If there is such a saturation point, it should vary by country, depending on the quality of the country's institutions and development policies, the way in which aid is delivered (e.g., program aid versus project aid), the degree of harmonization across aid donors, the requirements imposed by donors, the precise activities that aid is financing, and the strength and depth of the non-government agencies that may receive some aid. At best, these studies control for the quality of some policies and institutions and not the other factors, leading to the wide variety in results. Two of the studies in the table examined the interaction between policies and aid, and by extension policies and the saturation point. In the Collier-Dollar paper, the policy index is based on the World Bank's Country Policy and Institutional Assessment (CPIA) rating, which ranks a country's policies and institutions on a scale of 1-6. To illustrate, in a country with a low score of 2, the Collier-Dollar analysis suggests an aid saturation point of about 19% of GDP. For a country with a high score of 4.5, the saturation point would be 43% of GDP. For the 20 possible MCA candidate countries listed in Table 1, the implied saturation point would be 34% of GDP (PPP terms).[13,14]

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[12] Two studies mention the issue briefly: Collier and Hoeffler (2002), and Lensink and White (1999a, 1999b).

[13] The original study measures GDP in purchasing power parity (PPP) terms rather than at official exchange rates. In PPP terms, the original turning points for CPIA scores of 2 and 4.5 for the 20 countries in Table 1 were 5%, 11.25%, and 8.79% of GDP, respectively. Since the average ratio of GDP in PPP terms to nominal GDP for the 20 countries in Table 1 in the late 1990s was 3.76, the implied saturation points at official exchange rates for these three groups of countries would be 19%, 42%, and 34% of GDP, respectively.

[14] The other major study that allows aid effectiveness to vary with policy is a paper by Hansen and Tarp (2000). Their work uses the Burnside-Dollar index of fiscal, monetary, and trade policy, and their estimate

Of course, evidence on saturation points only provides the broadest guidance for upper bounds of allocations from MCA funds. It would make no sense for donors to provide so much aid that a country reaches its saturation point, where the rate of return on additional aid is zero. But how much is too much? Here we need a more precise definition for absorptive capacity. A country reaches its absorptive capacity for foreign assistance when the marginal rate of return on additional aid falls to a minimum acceptable level. The marginal rate of return can be measured against any specified foreign aid objective, such as economic growth, poverty reduction, literacy rates, or infant mortality rates. For simplicity, we focus on the rate of return with respect to economic growth.

What should be the minimum acceptable level of the rate of return? This, of course, is a matter of judgment. One possibility, as suggested by Collier and Dollar, is to allocate aid across countries until the marginal rate of return is equal across countries. In the context of the MCA, this allocation rule would suggest that the rate of return would be equal across MCA countries and between MCA countries and non-MCA countries. In other words, aid should be allocated to a particular MCA country up until the point at which the aid would achieve equal or greater results in another country. In addition, aid should be allocated to countries within the MCA up to the point that the aid would achieve equal or greater results from countries not included in the MCA. To the extent that at least one major objective of the USG's foreign assistance program is to maximize economic growth and poverty reduction, it would not make sense to continue to allocate aid to MCA countries to the point that rates of return are very low and that aid could achieve stronger results in another country.

In practice, of course, it is very difficult to measure rates of return on foreign assistance programs across countries with the precision suggested by this allocation rule. But if the administration is serious about making US foreign assistance more effective, it must make strong efforts to measure results in a way that at least approximates rate of return analysis in the sense of understanding which programs are working and where, both in MCA and other countries. Absorptive capacity problems manifest themselves through higher costs and weaker results for new projects and programs relative to stated goals and objectives. This, in turn, points to the importance of monitoring and evaluation programs in ensuring that aid funds are used as productively as possible. When results are persistently weak, the USG should redirect MCA funds to other activities within the recipient country, or to other countries.

How Many Countries?

There are clear tradeoffs between the number of countries that qualify for the MCA and aid effectiveness. On one hand, splitting the MCA's $5 billion among fewer countries could diminish its impact, since this would tend to increase the amount received by each

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of the coefficient on the interaction term between aid and policy is not statistically significant from zero. Their results are not strictly comparable with those of Collier and Dollar, however, since they employ a different sample and include a term representing the square of the policy measure. Thus in Table 2 we also report their results from a specification without policy, which nevertheless gives a very similar result.

country and there are diminishing returns to aid received by a given country. In the extreme, providing all MCA funds to one or two countries obviously would be less than optimal, as those countries would be drowning in aid while other worthy recipients would do without. Diminishing the number of recipient countries also means that fewer people around the world reap the benefits of the MCA. On the other hand, splitting the MCA among too many countries could also decrease its impact, since looser criteria for inclusion in the MCA would mean that countries with progressively poorer policy environments would be included, in effect taking money away from better-policy countries.

Since Collier and Dollar (2002) quantified each of these tendencies as shown in Table 2, we can begin—very tentatively—to quantify this tradeoff. Note, however, that the exercise that follows should not be interpreted as an estimate of the optimal number of MCA countries *per se*, since it uses a model that was not designed specifically for the task and estimates the quality of policies with CPIA scores rather than the MCA selection criteria. Nevertheless, it provides a useful ballpark estimate of the optimal number of countries for a hypothetical increase of $5 billion in aid flows.

Figures 2 and 3 show just such a hypothetical experiment. In Figure 2 (a), we start by taking the two countries with Gross National Income (GNI) per capita below $1,435 in 2001 that had the highest average policy and institution ratings (CPIA) in the late 1990s.[15] We use the Collier-Dollar estimates to predict the population-weighted average impact on growth of giving *all* $5 billion to those two countries. In this experiment, each country receives the same relative fraction of the new $5 billion as it now currently receives of all aid flows. (Again, for analytic purposes, this allocation rule simply mirrors current practices, even if these are sub-optimal.) We then progressively add the country from the below-$1,435 group (black dots) with the next-highest CPIA score, dividing the aid flows in the same proportional way. As we add new countries, we move to the right on the graph. The horizontal axis thus represents the number of countries included as recipients of the additional aid. The dark dot above each point on the horizontal axis shows the population-weighted average growth effects for the whole group of recipients from the new aid, over and above the growth effect of the level of aid they were receiving in the year 2000. The light-gray dots represent the same exercise for a group consisting of all countries with a 2001 GNI per capita below $2,975.[16] Both China and India are omitted from this exercise, since their size dramatically impacts the population-weighted average growth effect of new aid on the whole group. Since both countries are very large and have relatively high CPIA scores, however, neither presents any absorptive capacity problem by the Collier-Dollar measure. Removing them from the analysis therefore only

[15] The identities of the countries are masked since the CPIA index is proprietary.

[16] We must keep in mind that the general trends represented by these curves are much more important than the dots representing individual countries. The coefficients that Collier and Dollar used in the simulation were calculated across many different countries and are only intended to capture broad trends rather than predict the precise growth response of any given country.

renders more conservative our conclusions on absorptive capacity in the *rest* of the countries.[17]

For example, the dark dot above "20" on the horizontal axis shows the population-weighted effect on growth—over and above the growth effect of existing aid—from dividing $5 billion among the top-20 countries, by CPIA score, that had GNI per capita less than $1,435 in 2001. The Collier-Dollar model suggests that this population-weighted average effect among those 20 countries would be 0.14% real per capita per year additional growth. The light-gray dot above the number "20" on the horizontal axis shows that, for the pool of countries considered were to be all countries with 2001 GNI per capita below $2,975, the growth effect would be 0.10%.

Figure 2(b) shows the same estimates as Figure 2(a), but the horizontal axis now shows the cumulative population of the group of countries receiving the new aid. Each dot still represents the addition of one more country to the candidate group, and the countries are still laid out from left to right in order of decreasing CPIA score. This curve makes very explicit the fundamental tradeoff of choosing the number of recipients of new aid. By moving to the left on the horizontal axis, 1) countries with better institutions and policies receive the aid money, and 2) each country gets a larger slice of the pie. By moving to the right on the horizontal axis, more people around the world benefit from the aid, even though each experiences less income growth.

There are many criteria one could use to choose the optimal point on Figure 2(b)—that is, to choose the optimal number of countries that should be qualify for new aid funds. But perhaps the most straightforward is to find the point at which the most people experience the most additional growth. We would not simply choose the point with the highest growth rate. Given a choice between 0.5% growth for 1 million people and 0.3% growth for 10 million, we would clearly prefer the latter. Similarly, suppose that current aid efforts help a group of countries comprising 500 million people to experience 0.2% more real per capita growth per year than they would without aid. By this straightforward criterion, if we were to double aid, we would be indifferent between doubling the number of people (so 1 billion people experience 0.2% growth) and doubling the aid-generated growth for the original population (so 500 million people experience 0.4% growth).

If this were the goal, where is the optimal point on the curve in Figure 2(b)? We would want to find the point where the population size times the growth rate reaches its maximum. That is, we would want to maximize the number of "person-percents" of growth associated with the new aid funds. In geometric terms, we want to find the point where we can fit the largest rectangle possible underneath the curve against the two axes.

Figure 3 shows precisely this number. The vertical axis shows the area of the largest rectangle that fits under the curve in Figure 2(b) (i.e., the product of the population times

[17] Also omitted are countries for which the Penn World Tables, the authoritative source for internationally comparable GDP/capita measures used by Collier and Dollar, do not report any recent figures. These countries are Maldives, Samoa, Bosnia & Herzegovina, Kiribati, Vanuatu, Tonga, the Federated States of Micronesia, the Marshall Islands, the Solomon Islands, and Suriname.

the growth rate). The horizontal axis shows the number of countries that receive the new aid. If the goal is for the most people to experience the most growth, then at least 20 and as many as 40 countries below $1,435 could be included as new aid recipients. If countries below $2,975 are eligible, at least 30 and as many as 50 countries should be included as aid recipients. If the goal is to ensure that aid goes only to countries that can use it well, two messages from this exercise are clear. First, it is not necessary to restrict the new aid to a very small number of countries: as many as 30 countries or more from the low-income group could receive aid without undermining aid effectiveness. Second, it is not necessary to expand eligibility to the lower-middle income countries (between $1,435 and $2,975 GNI per capita) to find sufficient countries that can use aid well.

Of course the results of this simulation are merely suggestive, since the data used by Collier and Dollar are inherently imprecise and their coefficients subject to an interval of confidence (like all statistical results). They also use World Bank CPIA scores to rank countries rather than the MCA criteria. Moreover, the data look at past experience of all aid recipients, not the actual future MCA recipients. The allocation rule used here—that each country receives new money in proportion to its current relative share of all aid—is subject to question as well. All of this is to emphasize that this exercise is merely suggestive of broad trends and is intended to illustrate a way to think about the tradeoffs involved rather than to suggest a precise rule for the MCA.

Nevertheless, the story of the exercise in broad strokes is that 30 or even 40 of the poorest countries could receive new aid money without important drops in the average impact of aid on their growth. It appears true that expanding the number of MCA recipients into the 20s or 30s would probably result in lower impacts on each country's growth, as aid is extended into slightly less favorable policy environments and each country received a smaller share of the MCA. Conversely, however, limiting the program to just a few countries (e.g. under 10) would mean a lower aggregate population-weighted growth increment, which is maximized when the number of countries reaches about 20 to 30. Essentially, until this number of countries is reached, the effect of increasing the total population of the pool of countries covered swamps the reduction in the per-country increment for covered countries—if the goal is the most growth for the most people. Even such a broad range of membership in the MCA club could allow positive net growth impacts for each participant and would allow those benefits to be much more widely shared than they would be in a more restricted set of recipients. One implication is that in aggregate, absorptive capacity should not be an overwhelming issue if the MCA includes 20 or so of the poorest countries (although some problems could materialize in a few individual countries).

Exit from the MCA: How long should the commitment last?

The countries that qualify for the MCA in the first year, of course, will not all qualify in subsequent years. MCA countries will continue to receive funding based on meeting the broad qualification criteria, using new money effectively, and need—that is, degree of poverty, as approximated by income level. Correspondingly, there are three different

scenarios in which qualifying countries could exit from the MCA: a decline in rating on broad qualification requirements, showing poor results on funded activities, and graduating as incomes rise above the threshold level. Depending on the circumstances, each of these has different implications for MCA funding. We consider each in turn.

'Bad' exit 1: Losing qualification status

Occasionally, a country qualifying for the MCA in one year will fall short of meeting the requirements in subsequent years. How should the USG react in these circumstances? The answer should depend on the particular circumstances that led to the failure to maintain qualification. In extreme cases where the country has experienced a coup d'etat, become engaged in a major conflict, or taken a sudden clear turn away from sensible policy choices (e.g., Zimbabwe in recent years), it makes sense to immediately stop all MCA funding. Depending on the precise circumstances, the USG could shift to other (smaller and less flexible) mechanisms to fund some activities in the country or cease funding altogether. Although such a step would severely disrupt programs funded by the MCA, large amounts of aid money could be wasted if the environment in the country suddenly turned sour.

A different judgment will be required if a country gradually slips from qualification without a major discernable event. That is, how should the USG react if a country that qualifies for (say) three or four years in a row slips just below the hurdle requirements in a subsequent year? In this case, an immediate cessation of MCA funding would be unwise. If a country has slipped only marginally, MCA assistance is likely to still be effective in enhancing growth and reducing poverty. This might especially be true if monitoring and evaluation of MCA-funded activities in this country show good results, even if the country has slipped from the top qualification rankings. Abruptly eliminating existing funding for ongoing programs could unnecessarily disrupt these programs and lead to less effective results for monies already expended. For example, it would not make sense to abandon a school construction program in mid-course because a country slips marginally off the MCA list.

Moreover, it is possible that a country could slip simply because of data errors. That is, weaker performance in the indicators may not be reflective of a true weakening in policy and institutional performance (Kaufmann and Kraay, 2002b; Radelet, 2002a). Nearly all eligibility indicators—no matter how they are ultimately chosen—are simply estimates of the true situation, and as such, are estimated with margins of error (sometimes large margins of error).[18] This obviously is true of indicators based on opinion surveys

[18] For example, composite governance indicators compiled at the World Bank Institute embody margins of measurement error equal to about one third of the range of values, implying that such indicators can be trusted to indicate into whether a country has high, medium, or low institutional quality but not to indicate (for example) that governance in the country ranked 59th necessarily is better than in the country ranked 62nd. Nevertheless, the standards errors in their composite measures are smaller than the errors in most of the source governance surveys. See the set of three papers "Aggregating Governance Indicators," "Governance Matters," "Governance Matters II," written by Daniel Kauffman, Art Kraay, and Pablo Zoido-Lobatón, all available at http://www.worldbank.org/wbi/governance/wp-governance.htm.

(including most governance indicators and investor ratings), but also is true for estimates of school enrolment and completion rates, immunization rates, and even inflation rates (which are based on imperfect price surveys). For example, corruption ratings are based on surveys, which in turn are based on population samples. Since these samples are chosen imperfectly, different samples can give different results. Moreover, most questions ask for subjective opinions, which are open to differing interpretations. The implication is that for a given country, corruption surveys can give somewhat different results from year to year even if the actual level of corruption has not changed. Given the poor quality of data in many of the potential MCA countries, this outcome is much more than a theoretical possibility—it will almost certainly happen at some stage of the process—but it will be impossible to detect when.

However, even with these considerations in mind, simply continuing full funding to a country that has slipped below the broad qualification standards would be extremely unwise. To the extent that a weakening in the ratings indicates a true weakening of performance, it is crucially important to send clear signals to the recipient country that it is in danger of losing its MCA funding. The entire basis of the MCA is to allocate significant funds to countries with good performance, and the program would quickly lose its effectiveness if money continues to be allocated to countries where performance is slipping.

Thus, the administration will need to strike a balance between sending the right signals about supporting good performance and not unnecessarily disrupting worthwhile ongoing activities. These considerations suggest that when a recipient country slips marginally below the broad qualification requirements, the USG should, as a first step, partially reduce funding. MCA funding need not be all or nothing. The USG can take advantage of gradations of funding to try to strike the right balance, keeping in mind the potential waste from sudden, large changes in aid levels.[19] For example, in the first year that a country's performance weakens, funding for existing programs could continue, but there would be no funding for new activities. If performance continues to be weak in the second year, funding could be cut further, including cutting into existing funding. If a country misses qualification requirements three years in a row, MCA funding should cease (other types of smaller-scale funding could continue).

'Bad' exit 2: Poor Performance on Funded Activities

A different kind of situation will arise when a country continues to meet broad qualification requirements, but misses the performance benchmarks on particular projects or programs. This situation could arise if a country misses either substantive benchmarks (e.g., increasing the immunization rate) or institutional process benchmarks (e.g., reducing the time to make audited government accounts publicly available).

[19] Recent research by staff of the International Monetary Fund has shown that, in the past, aid flows worldwide have been so volatile and unpredictable that stated aid commitments are a statistically poor predictor of actual aid flows. They stress the deleterious impact of unpredictability on macroeconomic planning and management in poor countries seeking stability: Bulír and Hamann (2001); and Bulír and Lane (2002).

The reaction by the USG to missed benchmarks should depend on the precise events and the extent of the problem. If a country regularly misses benchmarks on its education program but continues to do well on its health program, full funding for the health activity clearly should continue. On the education program, a graduated approach could be taken, depending on the extent of the problem. Some missed benchmarks could lead to a partial reduction in funding, while more severe problems could lead to stopping the program altogether. If the MCA uses broad program funding rather than project funding, it would be possible to reduce funding partially (say, provide 90% of baseline funds) if some benchmarks are missed, and to further reduce funding if problems persist. As in many other aspects of the MCA, strong monitoring and evaluations mechanisms will be necessary for this process to work effectively.

One reason why judgments on reducing funding need to be taken with care is that some projects and programs funded by the MCA may fail, even with governments that are fully committed and making the best efforts towards success. The USG should use the MCA (to some extent) as an opportunity for well-intentioned governments to experiment with promising new ideas and approaches. Of course, if these new approaches fail, funds should be directed to other activities. But countries should not be deterred from trying promising new approaches by concern of overly harsh penalties from poor results.

'Good' exit: Graduation After Good Performance -- But How Long Will it Take?

Over time, the most successful countries within the MCA will maintain broad eligibility, use foreign assistance effectively, and achieve sustained economic growth and poverty reduction. Eventually these countries will achieve income levels such that they can graduate from the MCA, seek other sources of funding, and allow other countries to enter the program. When a country does graduate successfully, the administration should taper off funding over several years—perhaps three years—to finish ongoing activities and facilitate the adjustment to other sources of funding.

While a small number of MCA countries could graduate relatively quickly, for most MCA countries--even with continued good performance--graduation is many years off, implying a relatively long-term commitment of US funding. To illustrate, recall that in the administration's proposal, the initial income ceiling for MCA eligibility is per capita income of $1,435 (calculated at official exchange rates). Starting in the third year, countries with per capita incomes between $1,435 and $2,975 will also be eligible. Since only a small portion of MCA funds is likely to be allocated to this latter group of countries (if Congress agrees to their inclusion), we concentrate on $1,435 as an illustrative income for graduation from the MCA.

Consider an MCA country with per capita income of $450 dollars, about the average of the 87 countries in the world with incomes less than $1,435 that will be eligible for the MCA. If this country achieves an extraordinarily rapid 7% per capita growth rate (implying overall economic growth of around 9%), it will take it 17 years to reach per capita income of $1,435. With still strong annual per capita growth of 5% (implying

overall growth of 7%), it would take about 24 years to reach $1435. Several potential MCA recipients start at even lower income levels. For a country starting at $300 per capita with 7% per capita growth, it will take 23 years to reach $1,435. With 5% growth, it would take 32 years to reach $1,435.

In other words, even under the best of circumstances in which MCA countries work hard, make positive steps, and use aid effectively, it will be many years before they will graduate from the ranks of the low income countries. Make no mistake -- the outcomes described above would be extraordinary development successes. Nevertheless, these timetables remind us that countries cannot reduce poverty and develop overnight, even if they do everything right. Although some people might advocate a shorter term for MCA funding, it would be inconsistent with the fundamental concepts of the program to reduce funding to a low-income country for arbitrary timing reasons as long it continues to meet eligibility requirements, achieve specified benchmarks, and attain successful results.

Of course, there is no reason for the administration to commit *ex ante* to long-term funding in any country. Specific projects and programs should be on a shorter budget cycle—perhaps three-five years. The US needs to strike a balance between making long enough commitments to allow governments to plan and implement long-term programs, and ensuring that recipients recognize that continued funding depends on performance.

The MCA candidates of the past: Aid patterns in IDA graduates and the Marshall Plan

What can we learn from the experiences of other countries about the duration of aid funding? One way is to look at individual country stories. Botswana may be the most relevant case for the MCA countries. In the mid-1960s, Botswana had per capita income of about $400 (in today's dollars). The combination of the discovery of new diamond deposits, able economic management, and strong democratic political institutions led to average real per capita economic growth of 6.8% between 1965 and 2001, one of the highest growth rates achieved anywhere in the world. Botswana's per capita income is now well over US$4,000. In the 1960s, Botswana received significant amounts of foreign assistance, averaging around $70 per capita per year and over 19% of Gross National Income (GNI). Aid flows gradually declined to around 13% of GNI in the 1970s and 6.4% of GNI between 1986 and 1990. More recently, aid/GNI in Botswana declined to 1.6% between 1996 and 2000.

More can be learned from looking at groups of countries that once received large aid flows and no longer do. Two groups of countries, in particular, represent aid "success stories" to which we can look for guidance. The first is the recipients of aid under the United States' post-World War II European Recovery Program, known as the Marshall Plan. In the years immediately after the war, a massive and unprecedented burst of foreign aid to Europe and Japan was accompanied by excellent economic performance among its recipients. Of course, the Marshall Plan differed from current aid programs in many ways. Perhaps most importantly, the Marshall Plan was aimed at reconstruction of already developed economies, rather than at spurring development in very low-income

countries. Thus, both the magnitude of funds to be absorbed and the duration of the program differed significantly from current programs. Nevertheless, a review of the data is instructive.

The second group of countries is the graduates of the concessional arm of the Work Bank, the International Development Association. In the past four decades 32 countries that once were IDA-eligible have "graduated" from its ranks. Ten have since returned to IDA eligibility, leaving a group of 22 countries that have to some degree—after receiving large amounts of aid—significantly and lastingly raised their standard of living.[20]

Figure 4 shows how the 22 IDA graduates rate on several widely-used measures of policy and institutional quality. They have demonstrated systematically better indicators than their peers. Figure 5 shows that at the same time, the IDA graduates have raised incomes, lowered infant mortality, and improved educational coverage much faster than other developing countries. If the Nixon administration had picked a group of MCA recipient countries, it would not have done badly by picking these 22. These countries as a group represent the "best case" of our experience with aid effectiveness in low-income countries.

Figure 6 compares the aid receipts of the IDA graduates with those of the Marshall Plan recipients—both measured as fraction of National Income and measured in dollars. Unlike the Marshall countries, IDA graduates did not all begin receiving aid simultaneously. To make the two comparable, we track aid in each IDA graduate starting in the year that it received the most aid. Thus, the dark line above "5" in the figure represents the average aid level among IDA graduates five years after each individual country's all-time peak in aid. The grey line above "5" represents the average aid level among Marshall recipients in 1951 (five years after the peak in aid as a fraction of income) or 1952 (five years after the peak in dollars of aid).

Several stylized facts emerge immediately from these figures. Measured in dollars (after accounting for inflation), the IDA graduates received less aid than the Marshall Plan countries. Relative to their incomes, the IDA graduates received more—much more—than their European counterparts. However, almost none received aid in excess of 10% or 15% of national income over a sustained period. And the IDA graduates required moderate, sustained flows of aid for a much longer time than the Marshall recipients. Ignoring the negative values of net aid achieved as Europe began to pay the United States back, the half life[21] of aid as a fraction of national income was 10.0 years for the IDA graduates but only 3.7 years for the Marshall Plan countries. That is, in the IDA

[20] The 22 countries that have permanently graduated from IDA since 1960 are Botswana, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Jordan, Republic of Korea, Mauritius, FYR Macedonia, Morocco, Papua New Guinea, Paraguay, St. Kitts & Nevis, Swaziland, Syrian Arab Republic, Thailand, Tunisia, and Turkey.

[21] The half-life is the number of years it takes for the quantity to decline to half of its initial value while decreasing at an exponential rate. The half-lives measured here omit negative aid values and allow each country's exponential curve to intersect the y-axis at an idiosyncratic point (in other words they include "country fixed effects").

graduates it took 10 years for aid flows to diminish to 50% of their peak and 20 years to diminish to 25% of their peak (two half-lives), but only 3.7 years and 7.4 years, respectively, to do the same in the Marshall Plan countries. With aid measured in dollars rather than as a share of income, the half-life was 12.2 years for IDA graduates and 5.4 years for the Marshall Plan countries.

As in the prospectus of a mutual fund, we must recall that past performance is no guarantee of future performance. But the experiences of these two groups represent possibly the best information we have about what might become of the MCA recipients. One clear lesson is that the idea that it would be sufficient to give a sudden, massive, and short-lived burst of aid to the MCA countries is probably wishful thinking. The Marshall Plan countries—with their superior legal and institutional frameworks, levels of education, public health, and so on—were weaned from aid in just a few short years. Not so for the IDA graduates, which required decades of sustained aid flows that declined gradually over time. Eventually they too were weaned from aid. The MCA candidate countries are now, like the IDA graduates were then, IDA-eligible countries. Even in the best-case scenario, the MCA countries will require a long-term commitment.

It is in no one's interest -- neither donor nor recipients -- for the qualifying countries to become overly dependent on large aid flows from the MCA. In the IDA graduates, while aid was sustained over a long period of time, it declined slowly but surely from its peak over time. MCA flows should follow the same pattern. The amount of funding that recipients receive during the first grant cycle (say three years) should be larger than the amount received in the subsequent grant cycle, and so on. A reasonable goal would be to reduce the dollar amount provided to each recipient by half over 12 years (a similar order of magnitude to the IDA graduates). It is probably unwise to create hard systematic rules (such as reducing the amount of funding by a fixed percentage from one grant cycle to the next), since conditions on the ground change in each country. Some countries will require more funds and others will require less in response to shocks and other developments. But the administration should aim to reduce funding over time in qualifying countries, which, among other things, will free up funds for new countries qualifying for the MCA.

Conclusions: Avoiding Too Much of a Good Thing

Putting the pieces of this analysis together, how should one think about absorptive capacity and exit in the MCA? First, absorptive capacity could be a problem in some MCA countries, but probably will not be a major problem in many countries. Even after receiving substantial MCA assistance, many candidate countries will be receiving net aid flows of 15% of GDP or less. Although not automatic, it should not be difficult for these countries to absorb additional aid flows effectively (since they start with lower amounts of aid and relatively strong policy and institutional environments) so long as interventions are well-designed and carefully implemented. This will be especially true if the MCA moves away from the current small country bias in foreign aid programs and allocates funds strictly according to need and results in the qualifying countries.

Second, for the MCA countries that already receive large amounts of aid, it is possible that additional aid still can achieve strong results, but it is also possible that the effectiveness of additional aid will begin to taper off, and that those funds would be more effective if used elsewhere. The broad trends on aid effectiveness and saturation points examined here are not sufficient to judge whether a particular country is approaching unacceptably low rates of return from new aid. Strong monitoring and evaluation mechanisms and the flexibility and willingness to redirect aid flows are the most important tools in assessing absorptive capacity issues. The first two years of the MCA provide an excellent opportunity to put strong evaluation mechanisms in place before the MCA is fully funded. If absorptive capacity problems do emerge in some countries, the administration could choose to:

- reallocate some of the funding to other MCA countries;
- enlarge the number of MCA countries by adjusting eligibility requirements, so long as there is confidence that the additional countries could use the aid effectively;
- provide funds to the best of the non-MCA countries where aid might be effective, albeit using different delivery mechanisms than those used for the MCA; or
- reallocate funds to other important programs such as fighting HIV/AIDS.

Third, when evaluations identify specific bottlenecks, MCA funds can be used to relieve those constraints and thereby increase aid effectiveness. Improving results may be a matter of redirecting funds rather than abandoning the activity. For example, if there are not enough trucks to deliver fertilizers, MCA funds can help solve the problem by buying more trucks. Of course, solving capacity constraints is rarely this easy, as many constraints are harder and take longer to alleviate—such as training new doctors and nurses—but the same principle applies.

Fourth, how the USG delivers MCA assistance will make a big difference. Heavy bureaucracy and onerous reporting requirements will lead to slow implementation, high costs, and low rates of return. The MCA could avoid much of this bureaucracy by making recipient countries responsible both for writing proposals that reflect their priorities and for implementing funded activities. In addition, focusing MCA funds on broad budget or program support rather than on a large number of smaller projects will help. Program aid requires less bureaucratic effort on the part of both donors and recipients, and affords the recipients much more flexibility to re-direct funds if capacity constraints become a problem in one activity.[22]

Fifth, different strategies will be necessary for countries that exit the MCA for different reasons. Countries that lose broad eligibility because of a clear negative event (such as a coup d'etat) should lose MCA funding immediately, whereas those that marginally slip from the eligibility ranks could continue to receive partial funding during an interim period to try to improve performance. Countries that retain broad eligibility but show

[22] See Radelet (2002b) for a discussion on program versus project support, and on responsibility for proposal writing.

poor results on funded activities could redirect funds to more promising activities, or lose funding altogether if evaluation results are poor more generally. Countries that maintain broad eligibility and show strong results on funded activities should retain substantial MCA funding until they reach the MCA income ceiling. In most cases, income graduation will require a decade or more of sustained effort. MCA flows should decline gradually during this time period to minimize aid dependence. These approaches will strike the necessary balances between providing strong support to successful countries, ensuring that MCA funds are put to their best use, and sending a strong signal to recipients that funding will continue as long as, and only as long as, they meet the requirements of the program and use their aid effectively.

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Table 1: Assuming MCA aid is allocated in proportion to current aid from all donors, how much would each country receive? This example explores the hypothetical outcome in 20 low-income countries that are among the most likely to qualify for the MCA.

	Total aid from all donors before MCA*			Estimated MCA aid	Total aid from all donors including MCA		
	current US$	% GNI	per capita	current US$	current US$	% GNI	per capita
Albania	$267,994,158	9.0%	$79.76	$130,646,678	$398,640,836	13.4%	$118.64
Armenia	$231,888,649	11.7%	$61.16	$113,045,306	$344,933,956	17.4%	$90.97
Azerbaijan	$132,735,975	3.3%	$16.78	$64,708,553	$197,444,528	5.0%	$24.96
Bangladesh	$1,184,632,171	2.7%	$9.36	$577,506,086	$1,762,138,257	4.0%	$13.92
Bolivia	$638,915,161	8.2%	$80.32	$311,470,010	$950,385,171	12.3%	$119.48
Gambia, The	$40,260,417	9.7%	$32.86	$19,626,882	$59,887,299	14.4%	$48.88
Ghana	$646,572,370	9.3%	$35.01	$315,202,886	$961,775,255	13.9%	$52.08
Guyana	$136,153,810	20.8%	$180.82	$66,374,741	$202,528,551	31.0%	$268.98
Honduras	$419,919,196	9.1%	$68.85	$204,709,865	$624,629,061	13.6%	$102.41
India	$1,645,668,065	0.4%	$1.68	$802,260,268	$2,447,928,333	0.6%	$2.50
Kyrgyz Republic	$340,011,289	15.2%	$71.33	$165,754,901	$505,766,190	22.7%	$106.10
Madagascar	$476,995,786	13.0%	$32.66	$232,534,601	$709,530,387	19.4%	$48.58
Malawi	$435,336,256	22.4%	$44.06	$212,225,654	$647,561,910	33.3%	$65.55
Moldova	$93,834,964	5.1%	$21.81	$45,744,379	$139,579,343	7.6%	$32.45
Mongolia	$219,432,171	23.2%	$93.23	$106,972,795	$326,404,966	34.6%	$138.68
Mozambique	$904,025,476	27.4%	$53.29	$440,710,819	$1,344,736,296	40.8%	$79.27
Nicaragua	$644,558,121	35.1%	$133.98	$314,220,943	$958,779,064	52.2%	$199.29
Senegal	$509,322,937	11.0%	$56.40	$248,294,030	$757,616,967	16.3%	$83.89
Sri Lanka	$377,034,170	2.5%	$20.04	$183,803,490	$560,837,660	3.7%	$29.81
Tanzania	$911,156,358	12.3%	$28.38	$444,187,112	$1,355,343,470	18.3%	$42.21
Total	$10,256,447,499			$5,000,000,000	$15,256,447,499		
Average	$512,822,375	12.6%	$56.09	$250,000,000	$762,822,375	18.7%	$83.43

* Average 1996-2000. Source for current aid from all donors, GNI, and population: World Bank, *World Development Indicators 2002*.

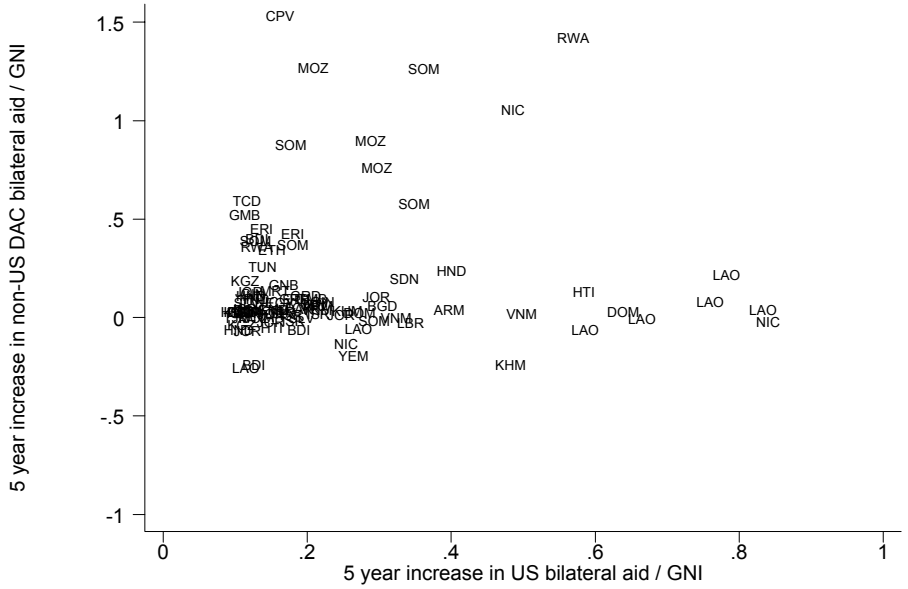
Table 2: Academic research on the non-linear relationship between aid and growth often finds diminishing returns to aid. The studies shown here use a variety of samples and control for a variety of variables besides aid. In these calculations, *aid no longer has a discernable positive relationship with growth when it hits the level of somewhere between 15% and 45% of the recipient's GDP.*

Reference	*Sample*	*Comments*	*Coefficient on Aid*	*Coefficient on Aid Squared*	***Aid/GDP for zero growth impact, %***
Collier, Paul and David Dollar, 2002, "Aid Allocation and Poverty Reduction," *European Economic Review*, 45 (1):1-26.	1974-1997, 100 countries, 4-year periods, GDP in PPP	G = XB + 0.185 (Aid x Policy) – 0.036 (Aid^2)	N/A	– 0.036	**33.7***
Dalgaard, Carl-Johan, Henrik Hansen and Finn Tarp, 2002, "On the Empirics of Foreign Aid and Growth," Working Paper 02/08, Centre for Research in Economic Development and International Trade, Univ. of Nottingham.	1974-1993, 54 countries, 4 year periods.	G = XB + 1.071 (Aid) – 0.099 (Aid^2)	1.818	– 0.063	**14.4**
Hadjimichael, Michael T., Dhaneshwar Ghura, Martin Muhleisen, Roger Nord, and E. Murat Ucer, 1995, "Sub-Saharan Africa: Growth, Savings, and Investment, 1986-93," IMF Occasional Paper 118.	1986-1992, 31 Sub-Saharan Africa countries, 1 year periods	G = XB + 0.098 (Aid) – 0.002 (Aid^2), Time-Series Cross Section	0.098	– 0.002	**24.5**
Hansen, Henrik, 2001, "The Impact of Aid and External Debt on Growth and Investment: Insights from Cross-Country Regression Analysis," paper presented at WIDER Conference on Debt Relief, Helsinki, 17-18 August.	1974-1993, 54 countries, 4 year periods.	G = XB + 0.314 (Aid) – 0.008 (Aid^2)	0.314	– 0.008	**19.6**
		G = XB + 0.280 (Aid) – 0.008 (Aid^2)	0.280	– 0.008	**17.5**
Lensink, Robert and Howard White, 1999, "Are there negative returns to aid?" Working Paper 99E60, Graduate School of Systems, Organization and Management, Rijksuniversiteit Groningen.	1975-1992, three 5-year periods and one 3-year period, 111 countries, use nominal GDP	G = XB + 0.1736 (Aid) – 0.00175 (Aid^2)	0.1736	– 0.00175	**49.6**
Lensink, Robert and Howard White, 1999, "Is there an aid laffer curve?" Working Paper 99/6, Centre for Research in Economic Development and International Trade, Univ. of Nottingham.	1975-1992, three 5-year periods and one 3-year period, 111 countries, use nominal GDP	Control for investment:	0.1639	– 0.002	**41.0**
Durbarry, Ramesh, Norman Gemmell and David Greenaway, 1998, "New Evidence on the Impact of Foreign Aid on Economic Growth," Working Paper 02/08, Centre for Research in Economic Development and International Trade, Univ. of Nottingham.	1970-1993, 58 countries, 4-year periods, Aid/GDP>40% omitted	OLS	0.176	– 0.00196	**44.8**
		OLS, regional dummies	0.105	– 0.00128	**41.0**
		GLS	0.0939	– 0.00116	**40.6**
		GLS, regional dummies	0.101	– 0.00123	**41.0**
Hansen, H. and F. Tarp, 2000, "Aid Effectiveness Disputed", *Journal of International Development*, 12 (3): 375-398.	1974-1993, 56 countries, 4-year periods, includes aid, aid x policy and $policy^2$	G = XB + 0.166 (Aid) – 0.004 (Aid x Policy) – 0.003 (Aid^2)	0.166	– 0.003	**26.8****
		G = XB + 0.165 (Aid) – 0.004 (Aid^2)	0.182	–0.004	**22.8**

* Assumes average CPIA score for the 20 countries shown in Table 1. Resulting zero-point multiplied by 3.76, the average ratio of PPP GDP to nominal GDP for the 20 countries shown in Table 1 during 1995-1999, since Collier-Dollar measure aid as a fraction of PPP GDP and others in the table do not. ** Assumes average policy score for the countries shown in Table 1 during the early 1990s given in the dataset used by Hansen and Tarp, omitting those countries for which there is no policy score reported in their data. Note that Lensink and White's interaction term between aid and policy, after inclusion of a term representing the square of their policy measure and using a different policy variable than Collier and Dollar, is not statistically significant from zero.

Figure 1: In cases where US bilateral aid increased by more than 10% of recipient GNI over 5 years or less, what happened to bilateral aid from other OECD countries?

Recipient states currently or recently involved in war or formerly part of the Soviet Union



States not recently involved in conflict

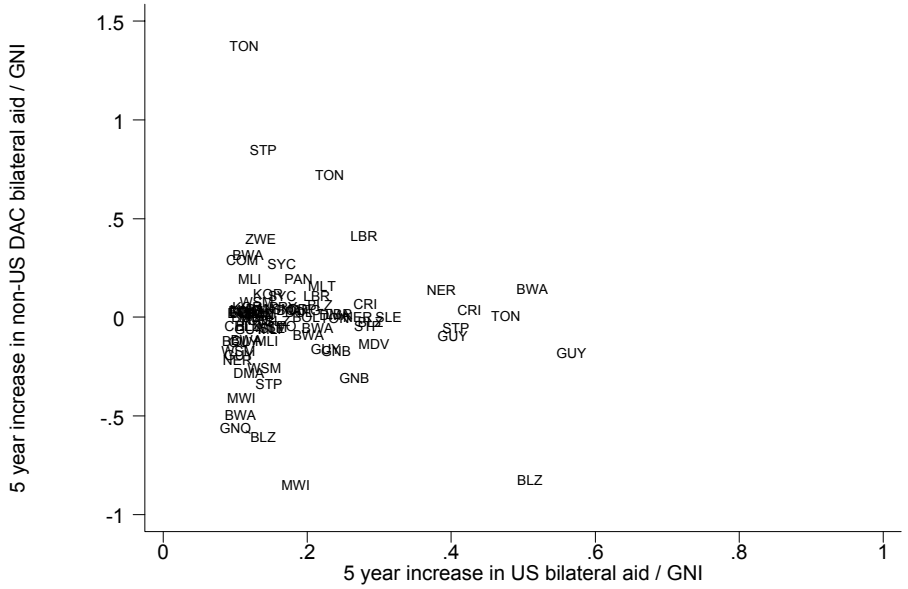
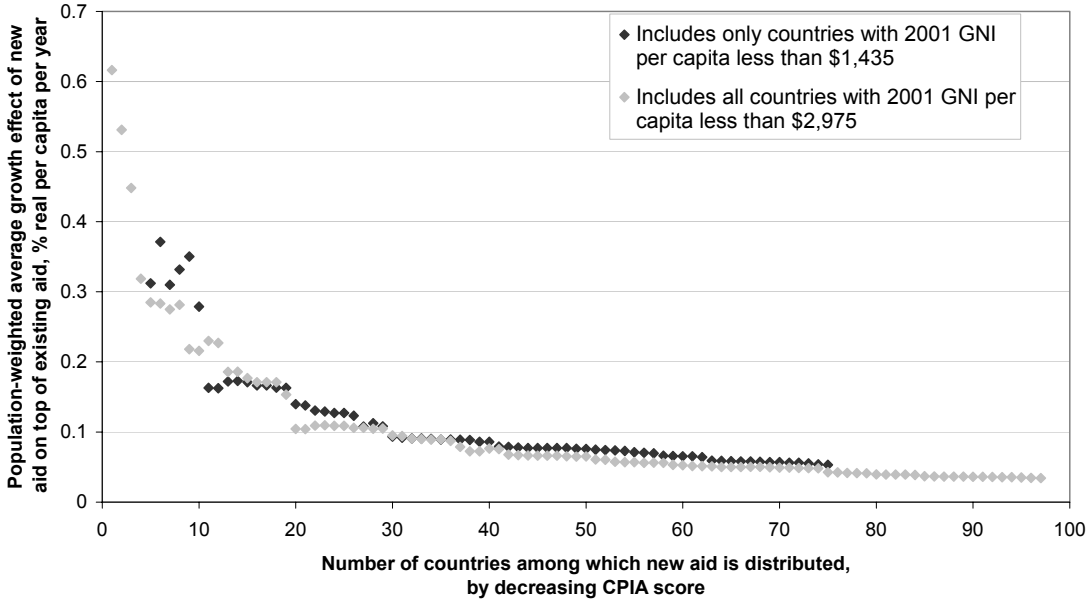


Figure 2: The tradeoff of including more countries. Increasing the number of aid recipients involves a tradeoff. The benefit is that each "good policy" recipient is less likely to receive an unmanageably large amount of aid, and that a greater number of people are reached by the new aid. The cost is that the included recipients will represent to a lesser and lesser degree the "best policy" countries. For method, see text.

a) Starting from the country with the highest CPIA score (policies and institutions) in each group, countries are added left-to-right. The y-axis shows population-weighted average growth effect for the whole recipient group, in real per capita % per year, of an additional $5 billion in aid.



b) Identical to Figure 2 (a) except that the x-axis now shows the cumulative population of the entire recipient group.

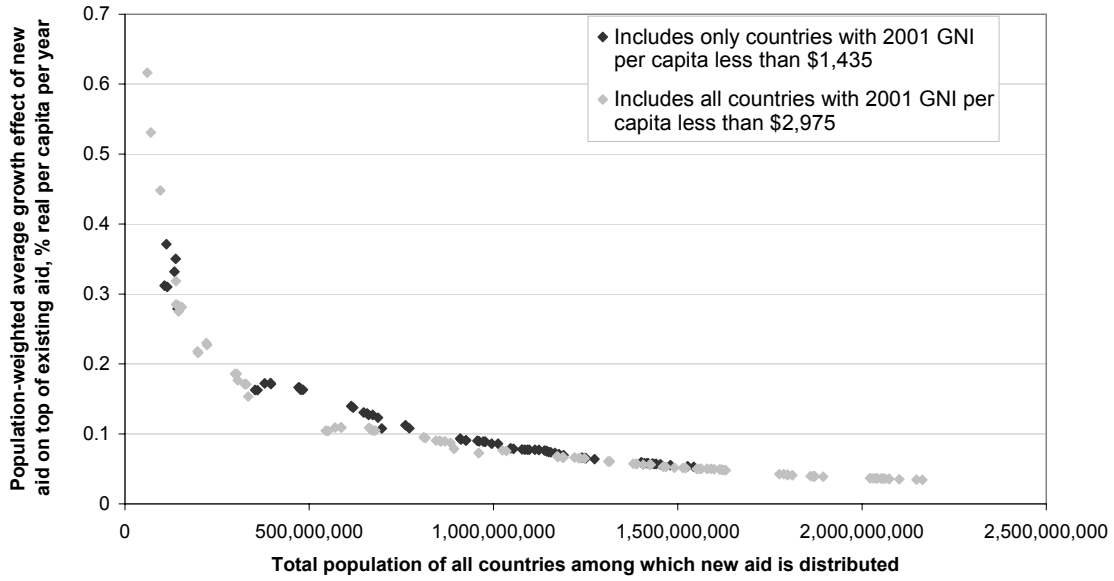
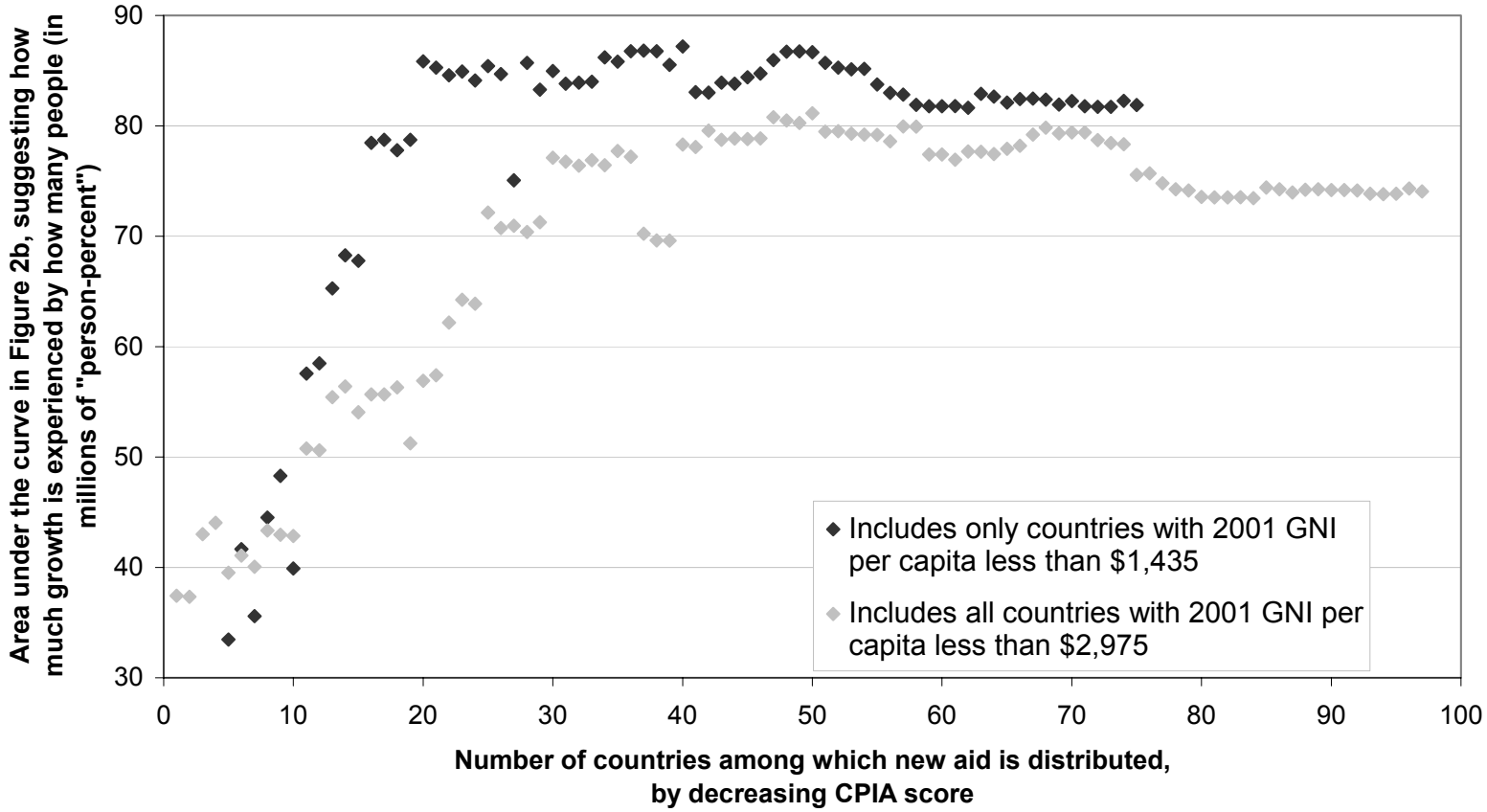
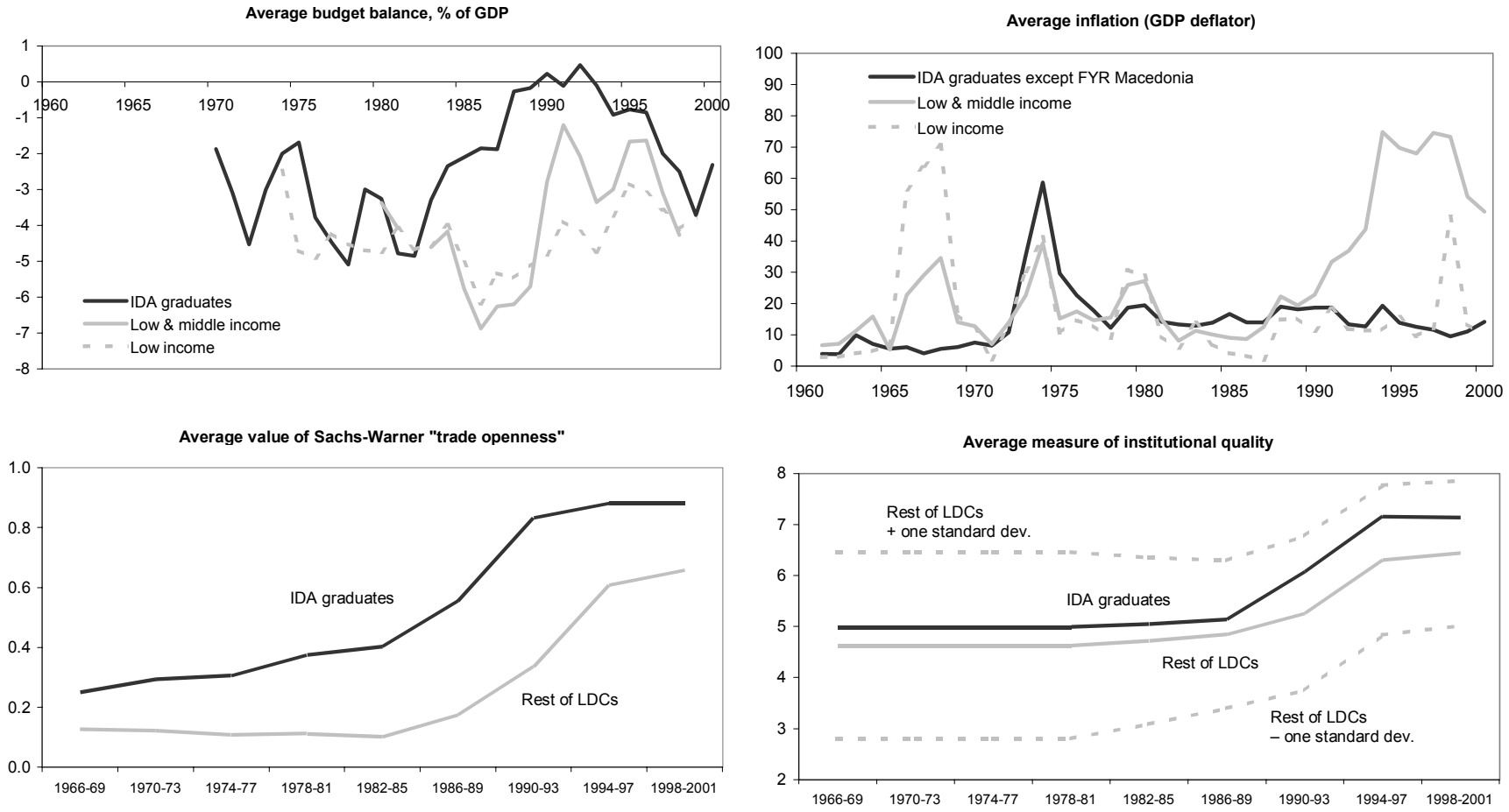


Figure 3: Estimating the optimal number of aid recipients. The figure is derived from Figure 2(b), and simply shows the largest rectangle that could fit under the curve in that figure. Measured in "person-percent", it provides a rough indication of how much growth is being experienced by how many people as a result of the $5 billion in new aid flows. If the goal is to create the most growth for the most people, 40 countries would be included from the group with GNI per capita below $1,435 in 2001. 50 countries would be selected from the below-$2,975 group.



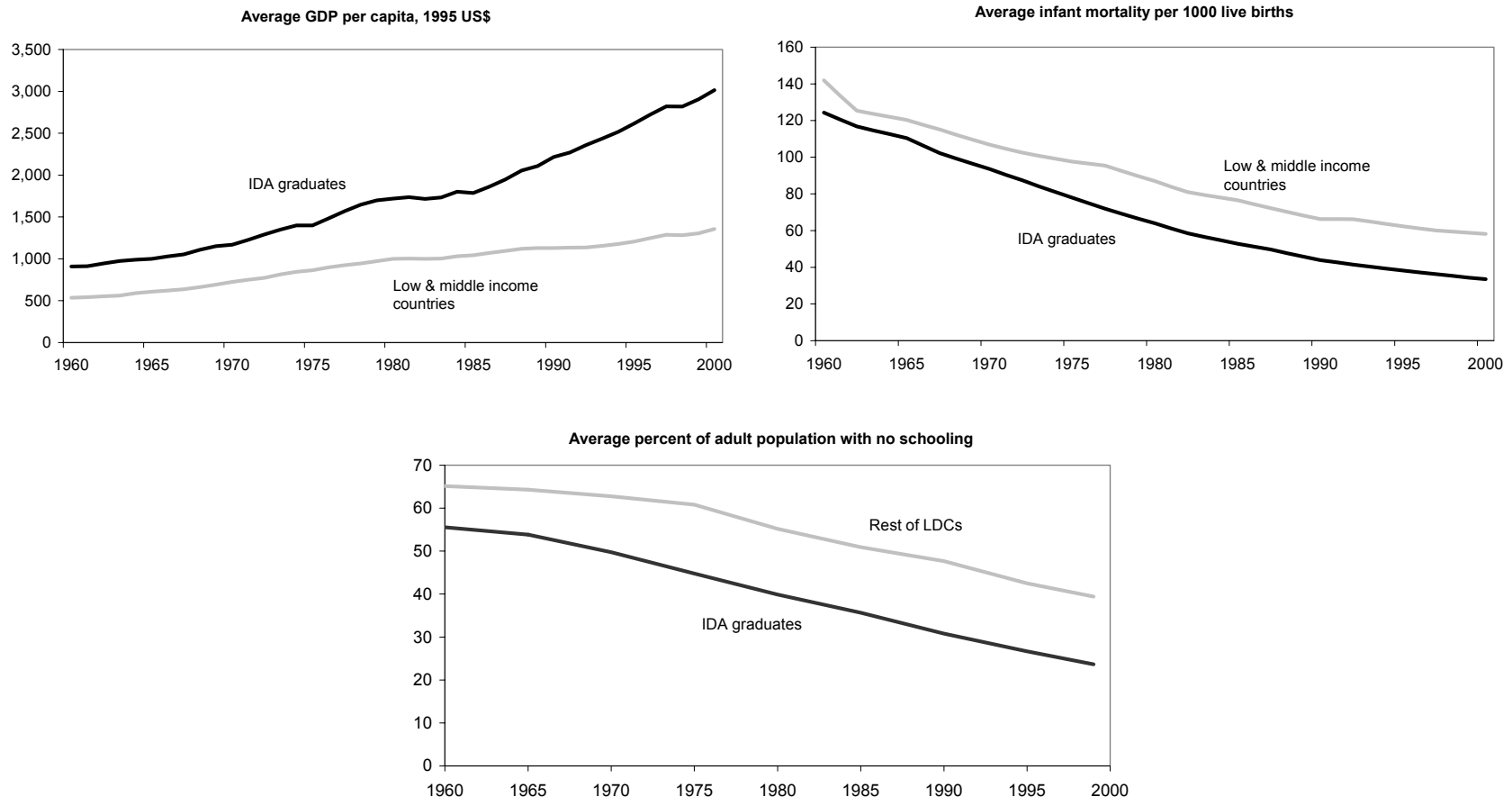
Source and method: See text. Country identities are masked to preserve the proprietary nature of the World Bank's CPIA index.

Figure 4: The IDA graduates ranked higher on measures of policy and institutions than other developing countries, just like MCA candidates



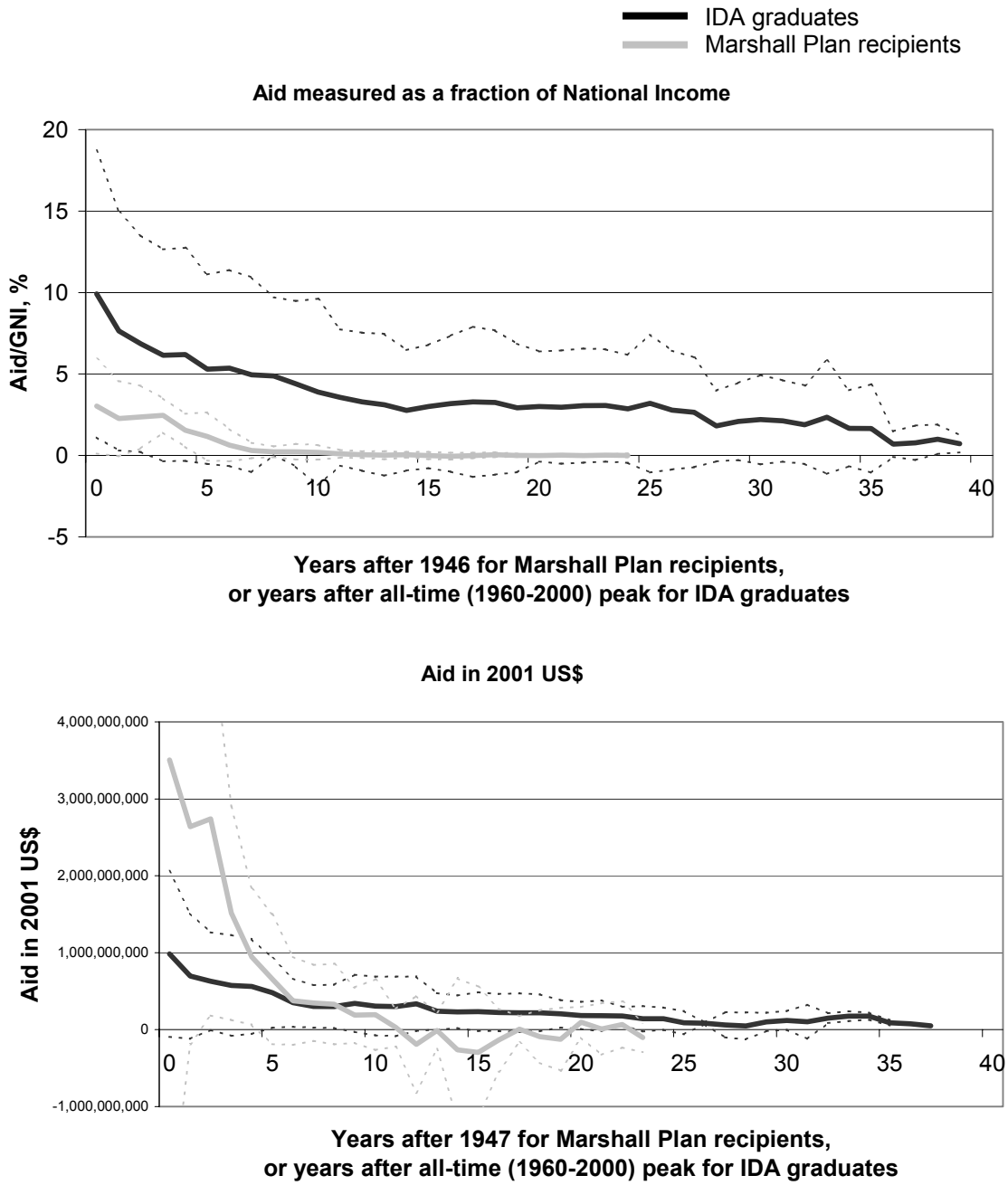
The 22 countries that have permanently graduated from IDA are Botswana, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Jordan, Republic of Korea, Mauritius, FYR Macedonia, Morocco, Papua New Guinea, Paraguay, St. Kitts and Nevis, Swaziland, Syrian Arab Republic, Thailand, Tunisia, and Turkey. Averages are unweighted. Source for budget balance and inflation: World Bank, *World Development Indicators 2002.* Source for Sachs and Warner measure of openness: Harvard University Center for International Development, updted with Center for Global Development calculations. The institutional quality measure is from Steven Knack and Philip Keefer and is drawn from World Bank data.

Figure 5: After receiving large amounts of aid, the IDA graduates outperformed other developing countries.



The 22 countries that have permanently graduated from IDA are Botswana, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Jordan, Republic of Korea, Mauritius, FYR Macedonia, Morocco, Papua New Guinea, Paraguay, St. Kitts and Nevis, Swaziland, Syrian Arab Republic, Thailand, Tunisia, and Turkey. Averages are unweighted. Source for real GDP per capita and infant mortality: World Bank, *World Development Indicators 2002*. Source for percent of adult population (age 25+) with no schooling: Barro-Lee International Data on Educational Attainment, provided by Harvard University Center for International Development.

Figure 6: Compared to Marshall Plan recipients, IDA graduates required 1) much more aid as a fraction of their National Incomes, 2) much less aid in absolute dollars, 3) a much longer period of sustained aid. Dashed lines show a one standard-deviation band.



The 22 countries that have permanently graduated from IDA are Botswana, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Jordan, Republic of Korea, Mauritius, FYR Macedonia, Morocco, Papua New Guinea, Paraguay, St. Kitts and Nevis, Swaziland, Syrian Arab Republic, Thailand, Tunisia, and Turkey. Since much of their aid dynamics were determined by transitory strategic events, outliers Equatorial Guinea and Jordan are omitted from the upper figure, outlier Syrian Arab Republic is omitted from the lower. The Marshall Plan recipient countries shown are Austria, Belgium & Luxembourg (treated as a single recipient), Germany, Denmark, Spain, France, Greece, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Sweden and the United Kingdom. Averages are unweighted. Source for Marshall Plan net financial flows: US Bureau of the Census (1975), *Historical Abstracts of the United States: Colonial times to 1970*, Bicentennial edition, Part 2 (Washington, DC: US Department of Commerce), pp. 873-875. Source for post-1960 net aid data: OECD Development Assistance Committee, *Creditor Reporting System*.

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