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## Sectoral aid priorities: Are donors really doing their best to achieve the millennium development goals?

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**Sectoral Aid Priorities:  
Are Donors Really Doing their Best to  
Achieve the Millennium Development Goals?**

by

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# **Sectoral Aid Priorities: Are Donors Really Doing their Best to Achieve the Millennium Development Goals?**

## **Abstract**

We analyze the aid portfolio of various bilateral and multilateral donors, testing whether they have prioritised aid in line with the Millennium Development Goals (MDGs). In doing so, we combine sectorally disaggregated aid data with indicators reflecting the situation of recipient countries regarding the MDGs. Our results show that donors differ not only in terms of their overall generosity and the general poverty orientation of aid, but also in the extent to which their sectoral aid allocation is conducive to achieving more specific MDGs such as all children completing a full course of primary schooling, reducing child and maternal mortality as well as reversing the spread of HIV/AIDS. Overall, while some MDGs, e.g., the fight against HIV/AIDS, have shaped the allocation of aid, the sector-specific results reveal that with respect to other MDGs, most notably primary education, there is a considerable gap between donor rhetoric and actual aid allocation. These results invite the conclusion that the current focus on substantially increasing aid in order to turn the tide in trying to achieve the MDGs misses one important point: Unless the targeting of aid is improved, higher aid will not have the desired effects. Our results suggest that at least part of the blame for missing the MDGs falls on insufficient targeting of aid.

Keywords: Aid Allocation, MDGs, Development Aid

JEL-Codes: F35 ; O11 ; O19

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## I. Introduction

Various developing countries, notably in Sub-Saharan Africa, are highly likely to miss the Millennium Development Goals (MDGs) (UNDP 2005a: 9). This does not only apply to the first and most prominent target, which requires halving the incidence of absolute poverty (the proportion of people living on less than one dollar a day) by the year 2015. Even though more specific MDGs have received less attention in public debate, the prospects for achieving education and health-related targets are still worse (Berg and Qureshi 2005: 21). Easterly (2005) lists “a litany of failure” by referring to the report on the MDGs presented by the Secretary General of the United Nations to the UN World Summit in September 2005 (UN 2005).

To turn the tide, recent reports published by the UN Millennium Project, directed by Jeffrey Sachs (UNDP 2005a), and the Commission for Africa, set up by Prime Minister Tony Blair (CFA 2005), have issued urgent calls to increase official development aid substantially and, thereby, close the gap between donor rhetoric and reality. Accordingly, donors are mainly compared with regard to their “generosity” in granting aid. Japan and the United States are widely blamed for falling grossly short of the UN target of 0.7 percent of gross national income to be devoted to aid, whereas the Netherlands and Scandinavian countries exceeded this target in 2004 (OECD 2005).

In addition to the quantity of aid, qualitative aspects of aid are increasingly recognized to be important for effectively meeting recipient needs. Donors are, for instance, requested to improve the effectiveness of aid by no longer tying aid, i.e., requiring the recipient to spend aid on goods and services supplied by the respective donor.<sup>1</sup> The effectiveness of aid may also be affected by the conditions that some donors and multilateral lenders attach to their grants and subsidized loans.<sup>2</sup> Critics of traditional aid practices argue that donors should provide aid in the form of grants rather than (subsidized) loans to prevent recipients ending up in a debt trap (Lerrick and Meltzer 2002; Radelet 2005, Meltzer 2006).<sup>3</sup> Finally, the point has been made in several studies that aid effectiveness could be improved if aid was better targeted to poor recipient countries with reasonably good local conditions, e.g., in terms of basic

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<sup>1</sup> Roodman (2004: 9) discounts tied aid by 20 percent to account for its lower effectiveness. While many donors have untied aid, Roodman shows that aid by some donors, including the United States, continued to be tied to a considerable extent.

<sup>2</sup> For example, results in Dreher (2006) show that the overall impact of IMF programs on economic growth is negative, while compliance with the Fund’s conditions mitigates this negative impact. There is, however, no consensus view on the IMF’s impact on economic growth in borrower countries (see Conway 1994; Przeworski and Vreeland 2000; Atoyán and Conway 2006).

<sup>3</sup> For a critical evaluation of the proposed shift towards grants, see Nunnenkamp, Thiele and Wilfer (2005) as well as Cohen et al. (2005).

institutions and economic policies, that allow aid to be absorbed productively (Burnside and Dollar 2000; Collier and Dollar 2002).<sup>4</sup>

Most studies that compare the allocation of aid across donors come to the conclusion that donor performance varies widely. According to Dollar and Levin (2004), some donors (International Development Association (IDA), Denmark, the United Kingdom, Norway and the Netherlands) take both the prevalence of poverty and the quality of institutions and economic policy into account, whereas France and the United States do not.<sup>5</sup> Dreher and Sturm (2005) as well as Canavire et al. (2005) show that donors vary in the extent to which they grant aid for political reasons and for reasons of economic self-interest. Regarding the United States, geopolitical and commercial interests seem to be the most important determinants of aid (Alesina and Dollar 2000).<sup>6</sup> Berthélemy (2004) finds that “all donors are not the same” with respect to various indicators of recipient need as well as donor interest. A drawback of all these studies is, however, that they are based on aggregate aid figures. None goes beyond excluding emergency support from “regular” aid in accounting for the heterogeneity of aid, even though Harms and Lutz (2005: 35) concluded from a survey on the economic growth effects of aid that “it is not surprising that a variable as aggregate as official development assistance does not have a robust effect on growth.”

Only few of the studies addressing the actual behaviour of donors take up the issue of aid heterogeneity. A notable example is Roodman (2004), who provides a detailed account of donor performance by combining quantitative and qualitative measures of aid, including “penalties” for tying aid and so-called project proliferation as well as a discounting system favouring aid to poorer and better-governed countries. Yet, his ranking of donors is dominated by differences in the overall quantity of aid. More specifically, Neumayer (2005) assesses the allocation of food aid. His findings underscore the need for a disaggregated analysis of aid. The allocation of food aid differs strikingly from previous results on the allocation of overall aid; food aid

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<sup>4</sup> However, Dalgaard and Hansen (2001), Hansen and Tarp (2000, 2001) and Hudson and Mosley (2001) test the robustness of the interaction term between the Burnside-Dollar policy index and aid, reporting the interaction to be statistically insignificant in many cases.

<sup>5</sup> Amprou et al. (2005) show that the pattern of donor selectivity changes considerably once the vulnerability of recipient countries to exogenous shocks and their level of human capital are considered as additional selectivity criteria.

<sup>6</sup> Regarding the determinants of Japanese aid, commercial interests seem to be most important (Alesina and Dollar 2000; Schraeder et al. 1998). Alesina and Dollar (2000) and Stokke (1989) confirm that Canada, the Netherlands, Denmark, Norway, and Sweden allocate aid mainly in line with humanitarian concerns. Multilateral institutions seem to generally pay greater attention to recipient needs than bilateral donors do (Burnside and Dollar 2000; Alesina and Dollar 2000). Canavire et al. (2005) find no indication that donor countries were able to push through their individual trade and political interests at the multilateral level. However, various other studies suggest that multilateral institutions are not invulnerable to donor pressure (Weck-Hannemann and Schneider 1981; Frey and Schneider 1986; Dreher 2004; Fleck and Kilby 2005; Kilby 2006). Dreher and Jensen (2006) show that political proximity to major donor countries even influences the number of conditions under IMF programs.

appears to be better targeted at countries in need than other forms of aid. However, food aid accounted for just about 3 percent of total aid in the late 1990s.

Some other studies compare the effects of different forms of aid. Gupta et al. (2003) distinguish between grants and loans and show that loans are generally associated with higher domestic resource mobilization, whereas grants have the opposite effect.<sup>7</sup> However, the findings of Cordella and Ulku (2004) suggest that the disincentive effects of grants with regard to domestic resource mobilization are dominated by debt management problems when poor and badly governed countries receive aid predominantly in the form of grants. Mavrotas (2003) and Cordella and Dell'Araccia (2003) distinguish program aid (or general budget support) from project aid. According to Mavrotas, project aid reduces public investment in the recipient country, while program aid complements public investment. Cordella and Dell'Araccia find budget support to be less (more) effective than project aid in a local environment of poor (good) macroeconomic policies.

The sectoral composition of aid, on which we focus in this paper, has received only minor attention in previous efforts to account for aid heterogeneity. This is surprising once it is taken into consideration that the sectoral composition of aid should have an important say on whether or not donors help in achieving MDGs other than the general target of halving absolute poverty. To the best of our knowledge, Clemens et al. (2004) were the first in drawing on the sectorally disaggregated data on aid commitments provided by the OECD Development Assistance Committee's (DAC) Creditor Reporting System to reconsider the economic growth effects of aid. Based on the detailed purpose codes of aid commitments, these authors isolate the portion of aid which they consider likely to affect growth within the relatively short period of up to five years typically examined in cross-country studies on the aid-growth nexus. They exclude not only aid items such as emergency relief, on the grounds that emergency relief does not adhere to selectivity concerns underlying regular aid and that emergencies are likely to result in lower incomes even if aid provides a cushion, but also items such as aid to support democratic institutions, the environment or education, whose (possibly strong) impact on long-term growth cannot be captured in the short run. Clemens et al. find the remaining so-called short-impact aid to exert a strong and robust effect on economic growth in the recipient countries. They conclude that the heterogeneity in aid flows, rather than the heterogeneity of recipients, is the key reason why growth effects have been difficult to detect.

This conclusion has been contested by Rajan and Subramanian (2005). When using the measure of short-impact aid suggested by Clemens et al. (2004), Rajan and Subramanian do not find any significant impact on growth once the endogeneity of aid is dealt with by constructing "instruments for aid that are more likely to be exogenous and satisfy the exclusion restrictions" (p. 8). Both studies have several limitations in

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<sup>7</sup> Odedokun (2003; 2004) corroborates the revenue-reducing effect of grants for lower-income countries but not for higher-income countries.

common, however: First, the effectiveness of aid is not compared across (bilateral and multilateral) donors. Second, the heterogeneity of aid is assessed only with regard to economic growth effects materializing in the short or longer run.<sup>8</sup> Third, the definition of short-impact aid misses more specific dimensions of aid heterogeneity. Clemens et al. subsume various aid categories under short-impact aid, including aid for directly productive purposes (in sectors such as agriculture and industry), investments in economic infrastructure, as well as budget and balance of payments support. The heterogeneity within this broad category, accounting for almost half of total aid, is ignored.

In this paper, we follow Clemens et al. (2004) in making use of the sectorally disaggregated DAC data. In contrast to their analysis of growth effects, however, we take a broader view and differentiate aid by the various specific purposes it is meant to serve according to announcements made by donors. Donors stress the multi-dimensional objective function underlying their aid allocation (Isenman and Ehrenpreis 2003).<sup>9</sup> In a similar vein, McGillivray (2003) as well as Amprou et al. (2005) call for a broader concept of aid selectivity and make a case for extending the selectivity model based on the income and policy situation of recipient countries proposed by Collier and Dollar (2002). While it is widely acknowledged that aid may reduce poverty through its impact on economic growth, “it must also be recognized that aid can reduce poverty through other channels” (McGillivray 2003: 29). Pro-poor public expenditures, e.g., in the fields of basic education and basic health, are often noted in this context.<sup>10</sup> The MDGs provide an obvious point of departure for taking account of a broader range of poverty-relevant objectives of aid.<sup>11</sup>

Specifically, we compare the aid portfolio of various bilateral and multilateral donors and investigate whether they have prioritised aid in line with the MDGs. For example, the MDGs suggest that aid should be targeted at improving basic education and health conditions in recipient countries. Hence a necessary – though not sufficient – condition for achieving education and health-related targets would be that the share of aid in these sectors is high and increasing. In section II, we examine to what extent donors have met this condition. Section III evaluates whether donors have allocated sector-specific aid according to specific needs of recipient countries. We combine

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<sup>8</sup> As noted by Clemens et al. (2004), extending the period of observation gives rise to more noise and, thus, renders it increasingly difficult to establish a causal relationship between aid and growth. Yet, Rajan and Subramanian (2005) insist that the appropriate horizon is longer than the typically considered period of up to five years.

<sup>9</sup> For instance, Svensson (2005) notes that the Swedish aid agency SIDA lists five objectives in addition to promoting economic growth in the recipient country: economic and social equality; economic and political independence; democratic development; environmental care; and gender equality.

<sup>10</sup> As another example, Abu-Ghadia and Klasen (2004) calculate substantial costs in terms of mortality and prevalence of underweight children under five for 45 countries likely to miss the target on gender equality.

<sup>11</sup> In the words of Isenman and Ehrenpreis (2003: 10), the MDGs “identify multidimensional poverty reduction as the ultimate objective of development efforts.”

disaggregated aid data with indicators reflecting the situation of recipient countries with regard to the MDGs. It turns out that donors differ not only in terms of their overall generosity and the general poverty orientation of aid, but also in the extent to which their sectoral aid allocation is conducive to achieving more specific MDGs such as all children completing a full course of primary schooling, eliminating gender disparity in education, reducing child and maternal mortality, reversing the spread of HIV/AIDS and other diseases, as well as ensuring access to safe water and sanitation. Section IV summarizes the main conclusions of the paper.

## **II. The Sectoral Distribution of Aid: Some Stylized Facts**

In examining the sectoral composition of aid, we first consider all donors taken together and then look at selected donors individually. These include the two main multilateral donors (EU and IDA), the five biggest bilateral donors (France, Germany, Japan, United States, and United Kingdom), and a group of countries (Denmark, Netherlands, Norway, and Sweden), which are not only generous donors but are also supposed to target aid carefully according to recipient needs.<sup>12</sup> For all aid categories we apply the grant equivalent, i.e., the product of the nominal amount of aid and the grant element; this variable best reflects the effective financial support of donors.<sup>13</sup> In addition, we rely on commitments, which in contrast to disbursements are available in the sectorally disaggregated form needed for the analysis in section III. While it is true that disbursements most accurately capture the resource transfers actually taking place, our results are unlikely to be biased by the choice of commitments as the two are highly correlated (Neumeyer 2003).

As shown in Table 1, the sectoral composition of aid for all donors taken together has changed quite dramatically over the last two decades. As concerns the MDGs, the most notable result is that the share of aid devoted to the social sector rose from about 20 percent in the period 1990-1992 to about 35 percent in the period 2002-2004, with higher spending on education, health and population programs, though not on water and sanitation.<sup>14</sup> The expansion of social sector aid has come at the expense of aid towards more traditional targets such as infrastructure and agriculture, but it also reflects a move from program assistance to project financing. The latter is somewhat at odds with donors' claims to promote ownership of development strategies on the part of recipients, which would require general budget support rather than a proliferation of projects. Emergency relief and reconstruction is an aid category that has recently

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<sup>12</sup> Neumeyer (2003) calls these countries like-minded donors; Kilby (2006) employs these countries' aid allocation as a humanitarian benchmark.

<sup>13</sup> The calculations were also run on the basis of nominal aid. The results for nominal aid hardly differed from those for grant equivalents, which is not surprising given the extremely high grant element of aid (Nunnenkamp, Thiele, and Wilfer 2005). Consequently, we do not report the results for nominal aid below.

<sup>14</sup> In order to capture recent donor behaviour, we include 2004 data even though they are provisional and regularly updated in OECD (2005). Our calculations are based on data available from this source in November 2005.



gained importance. The empirical finding that aid can be highly effective in post-conflict situations (Collier and Hoeffler 2004) lends support to this new priority of donors.

Table 1 — Distribution of Aid (grant equivalent) by All Donors Across Sectors, 1990–1992 and 2002–2004 (percent of total aid)<sup>a</sup>

Sectors	1990–1992	2002–2004
Social infrastructure and services	20.7	34.5
Education, total	5.9	8.2
Basic education	0.8	2.8
Health, total	3.1	4.8
Basic health	1.3	3.0
Population programs and reproductive health	1.7	3.8
Water supply and sanitation	4.9	3.9
Basic water and sanitation	1.1	0.8
Economic infrastructure	21.0	13.4
Production sectors	17.7	7.3
Agriculture	12.1	4.4
Multisector/cross-cutting	10.1	8.5
Gen. environmental protection	1.6	1.9
Women in development	0.1	0.1
Commodity aid/general program assistance	20.0	9.6
Gen. budget support	12.5	7.0
Action relating to debt	6.8	10.2
Emergency assistance and reconstruction	2.7	10.4
Support to NGOs	0.1	1.9
Other	0.9	4.2

<sup>a</sup>Period average of aid commitments.

Source: OECD (2005).

The overall pattern of aid masks substantial variations across donors (see Table 2). The share of aid going to the social sector ranges from 22 percent in Japan to 50 percent in Norway. Within this aid category, it is striking that France and Germany – and to a lesser extent Japan – put a strong focus on education but spend very little on primary education, even though the MDGs require donors to concentrate on basic education. Likewise, the composition of educational aid by Denmark, Japan and the EC does not suggest a strong orientation towards the respective MDG. Only in the Netherlands, Norway, and particularly in the United Kingdom, primary education carries a markedly

Table 2 — Distribution of Aid (grant equivalent) Across Sectors, Major Donors 2002–2004 (percent of total aid)

Sectors	Denmark	France	Germany	Japan	Nether-lands	Norway	Sweden	United Kingdom	United States	EC	IDA
Social infrastructure & services	38.5	32.3	38.2	22.5	26.8	50.0	33.2	45.3	33.3	34.7	30.9
Education, total	6.8	19.2	15.7	8.6	6.6	13.6	5.8	10.0	1.7	5.2	7.3
Basic education	2.8	1.2	1.8	1.5	4.0	7.1	2.6	8.2	1.4	1.6	3.6
Health, total	8.1	3.7	3.0	3.9	3.2	7.0	3.9	9.1	4.2	3.3	5.2
Basic health	6.3	0.5	1.7	1.2	1.6	3.5	1.8	5.5	4.1	2.6	2.3
Population programs	1.1	0.3	1.9	0.1	2.1	3.0	3.3	7.6	8.5	1.5	3.6
Water supply & sanitation	10.5	2.6	7.0	7.9	3.5	1.7	2.4	1.5	0.6	3.5	5.6
Basic water and sanitation	4.6	0.4	3.3	0.9	1.4	0.6	0.6	0.2	0.0	0.6	0.0
Economic infrastructure	16.9	3.7	12.4	39.0	5.9	8.3	6.4	9.5	3.3	13.3	23.8
Production sectors	10.0	4.0	4.5	8.6	4.8	6.3	3.5	5.2	6.4	8.7	8.9
Agriculture	6.3	3.2	3.2	7.2	3.9	5.1	3.0	3.2	1.9	3.1	7.0
Multisector	7.2	6.3	11.3	3.9	6.1	9.2	11.9	5.3	12.8	9.5	3.7
General environment protection	5.0	2.7	2.4	2.8	2.9	2.5	2.5	1.1	1.5	1.7	1.0
Women in development	0.8	0.0	0.2	0.0	0.4	1.2	0.0	0.0	0.1	0.1	0.0
Commodity aid/general program assistance	5.0	4.4	1.3	4.0	4.2	3.3	4.4	16.1	13.7	14.5	23.3
General budget support	5.0	3.3	0.5	3.3	4.1	3.2	4.4	14.7	7.2	9.9	22.8
Action relating to debt	2.2	39.7	22.3	15.6	5.8	1.4	3.8	6.2	8.7	0.7	2.6
Emergency assistance and reconstruction	4.8	8.6	3.8	3.4	9.1	20.3	19.2	11.7	17.1	14.3	7.1
Support to NGOs	6.1	0.4	0.3	1.4	27.1	0.0	9.2	0.0	0.0	0.1	0.0

Source: OECD (2005).

higher weight. The leading position of the UK carries over to the concentration of aid on basic health services and population programs (mainly spending on HIV/AIDS), where it is followed by the United States, Denmark and Norway. As in education, the health-related aid committed by France and Japan does not appear to finance basic services from which poor population segments might benefit most. Denmark and Germany are the only donors that provide a non-negligible share of total aid for basic water and sanitation.

Among the other aid categories that are mainly related to social rather than economic objectives, environmental protection and the promotion of gender equality, which both explicitly correspond to MDGs (see Annex), have received little attention by most donors. The new emphasis laid on emergency relief and reconstruction is not equally shared among donors, with Norway, Sweden and the United States being disproportionately engaged.<sup>15</sup> The smaller donors except Norway channel a considerable part of their aid budget through NGOs. Similar to social sector aid, these funds are unlikely to spur economic growth in the short to medium term as various NGOs focus on providing social services rather than financing projects in economic infrastructure or production sectors.

As concerns the aid categories with a stronger growth orientation, some donors remain engaged to a considerable extent in areas that overall have lost in importance. Most notably, Japan uses almost 50 percent of its aid budget to finance economic infrastructure and to support production sectors, but the shares also still exceed 20 percent in Denmark, the EU and IDA. Program assistance plays a significant role for the two multilaterals, the United Kingdom and the United States. Finally, the considerable weight of debt-related action in the period 2002-2004 is largely confined to France, Germany, and Japan.

To derive an overall picture from these wide variations, Table 3 provides a rough indication of how large a part of each donor's commitments can be classified as short-impact aid along the lines of Clemens et al. (2004). For most donors, the share of short-impact aid is markedly below 50 percent, with the Netherlands, Norway, and Sweden being most strongly focused on aid that cannot reasonably be expected to spur growth in the short run. Japan and IDA stand out as donors where the bulk of aid might have a short to medium run impact on recipient countries' growth. In the case of IDA, this is partly due to its core business of extending adjustment loans, but it also reflects its second major focus on financing economic infrastructure.

In summary, most donors' sectoral aid composition appears to be in line with a multi-dimensional objective function rather than one that narrowly focuses on economic growth. In the subsequent section, we will examine in more detail whether donors

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<sup>15</sup> For Sweden and the United States, the multivariate regression analysis conducted by Canavire et al. (2005) shows that post-conflict resolution has recently become a significant determinant of aid allocation across recipient countries.

have succeeded in reaching their multiple objectives by carefully targeting aid to those recipients most in need. In doing so, we will put a particular emphasis on the MDGs.

Table 3 — Short-impact Aid by Major Donors, 2002–2004  
(percent of total aid)

Country	Short-impact aid <sup>a</sup>
All donors	40.5
Netherlands	20.7
Norway	19.3
Sweden	18.1
Denmark	34.1
France	51.0
Germany	40.5
United Kingdom	37.0
United States	32.1
EC	37.2
Japan	67.2
IDA	58.6

<sup>a</sup>Short-impact aid is assumed to comprise aid for economic infrastructure and for production sectors as well as commodity aid and action relating to debt. Given this rather crude classification, our figures are not directly comparable with those calculated by Clemens et al. (2004), who also differentiate within aid categories using the five-digit purpose codes of the DAC Creditor Reporting System.

Source: Calculations based on Tables 1 and 2.

### III. Relating Aid Distributions to Aid Objectives

#### 1. Approach and data

In order to assess whether aid committed in 2002-2004 was conducive to achieving the MDGs, we proceed as follows. First, we select various indicators reflecting the situation of recipient countries in the year 2000 (or the closest year if no data are available for 2000) with regard to the MDGs (“indicators of need”).<sup>16</sup> All indicators used are defined in a way that higher values reflect greater need for aid. The choice of indicators is very much in line with the list of indicators suggested by the World Bank to evaluate progress made towards the MDGs.<sup>17</sup> In addition, we consider some more

<sup>16</sup> For the complete list of indicators, definitions and data sources, see the Annex.

<sup>17</sup> See, for example, <http://ddp-ext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&menuId=LNAV01HOME1>; or: <http://siteresources.worldbank.org/DEVCOMMINT/Resources/Document/DC2003-0003-Add.1all.pdf>.

traditional aid targets such as the development of infrastructure facilities and agricultural development as well as indicators reflecting the need of recipients for aid in these respects. As shown in Table 2 above, aid in infrastructure and production sectors such as agriculture continued to be important for some donors. Moreover, recent research has indicated that aid granted for improved infrastructure, notably with regard to transportation systems and energy supply, as well as for overcoming agricultural supply bottlenecks may help alleviate poverty and, thus, contribute to achieving the MDGs (Agence Française de Développement et al. 2005).

Second, we select various aid categories from the sectorally disaggregated DAC database on aid commitments (Creditor Reporting System) that are supposed to be most relevant for aid to be effective in contributing to the MDGs. The selection of aid categories ranges from very specific categories such as infectious disease control (so-called 5-digit CRS purpose codes) to more broadly defined categories such as basic health and health (so-called DAC sector codes). In addition, we consider total aid commitments to assess whether the pursuit of specific targets is strong enough to show up in overall aid allocations. The matching of aid targets, indicators of need and aid categories is specified in the Annex.

We apply correlation analysis to assess whether donors have allocated total as well as sector-specific aid in accordance to indicators of need for an overall sample of 140 recipient countries.<sup>18</sup> This approach has obvious limitations. Correlations may tell little on causation. More precisely, the correlation between, say, the primary school enrolment ratio in recipient countries and aid for basic education may understate the extent to which donors took low enrolment ratios into account when deciding on the allocation of educational aid as educational aid may help raise primary enrolment. However, reverse causation of this sort should not pose a major problem for our analysis due to the considerable time lags involved. As shown by Clemens et al. (2004), less than half of total aid can reasonably be expected to have short-term effects on the economic performance of recipient countries (see also section II above). The aid categories that are of primary interest with respect to the MDGs, notably aid subsumed under social infrastructure (education, health, population programs, water and sanitation, etc.), do not belong to short-impact aid. Furthermore, at least some of the indicators used here are clearly exogenous.<sup>19</sup> For other indicators, the risk of reverse causation is minimized by using data for 2000, whereas aid data refer to 2002-2004.

Another limitation is that we do not control for aid determinants other than indicators of need. It is well established in the literature (i) that donors also pursue their own economic and political interests when deciding on aid allocation, and (ii) that recipient countries receive less aid than indicators of need would suggest because they are badly

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<sup>18</sup> As detailed when presenting results, the number of observations is sometimes considerably smaller due to lack of data for specific indicators of need.

<sup>19</sup> For example, “malaria ecology” represents an ecologically based indicator that is predictive of the extent of malaria transmission and combines information on temperature, mosquito abundance and mosquito vector type.

governed (Alesina and Dollar 2000; Berthélemy and Tichit 2004; Canavire et al. 2005; Dollar and Levin 2004). The self-interest of donors may well have the effect that many of the correlations reported below remain insignificant. But this would not invalidate the conclusion to be drawn from insignificant correlations, namely that donors contributed less to achieving the MDGs than public statements seem to suggest. As concerns the governance of recipient countries, we decided against applying controls such as the World Bank's Country Policy and Institutional Assessment (CPIA) or institutional indices provided by Kaufmann et al. (2003). Publicly available information on the CPIA is rudimentary and the use of it would reduce the number of observations considerably. The Kaufmann data, applied in Canavire et al. (2005), do not appear to have shaped the allocation of aid so far. Moreover, the use of these data would raise problems of endogeneity and reverse causation in itself (Gundlach and Hartmann 2005).

Rather than controlling for governance, we ran additional calculations in which the sector-specific aid variables were defined as a share in total aid (instead of aid in per-capita terms). The aid-share variables were supposed to prevent a downward bias in the correlations with indicators of need if donors granted a smaller amount of aid to badly governed recipients; such donor behaviour should leave the share of sector-specific aid unaffected. However, it turned out that the definition of the aid variable had little effect on most of the correlations, and, in the remaining cases, very few correlations based on aid shares were stronger than the corresponding correlations based on per-capita aid.<sup>20</sup>

Finally, even if the allocation of sector-specific aid were in line with the MDGs, this would not necessarily imply higher resources devoted to specific targets. The fungibility of aid may undermine donor attempts to channel more funds to the targets. However, aid for, say, basic education is unlikely to be fully fungible (Feyzioglu et al. 1998).<sup>21</sup> This is particularly true in countries heavily dependent on aid, where the large contribution of aid to public budgets limits the discretion of local governments to shift resources. In any case, donors are hardly to blame if the correlation with indicators of need turns out to be weaker for total (foreign and local) financing than for aid financing alone.

We calculate (non-parametric) Spearman rank correlations, rather than (parametric) Pearson correlations. This is for two reasons. First, various indicators are defined such that their variance is restricted, whereas the variance of the aid variables is principally unrestricted. Second, non-parametric correlations minimize the impact of outliers. Elsewhere it has been shown that some small and relatively advanced developing countries received outstandingly high per-capita aid (Nunnenkamp et al. 2004: 21). Such outliers tend to have a critical impact on whether or not aid turns out to be well

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<sup>20</sup> These results are not reported here but are available on request.

<sup>21</sup> Clemens et al. (2004) note that their results on the aid-growth nexus support the view that aid is not fully fungible.

targeted.<sup>22</sup> In order not to bias results against donors and their claim that aid is well targeted we present only Spearman rank correlations in the remainder of this section.

## *2. Results for aid by all donors*

Given that all indicators of need take higher values for recipients with greater need for aid, the correlations with aid should be positive if donors contributed effectively to achieving the MDGs by allocating aid according to the relevant indicators. Considering all donors together, this is indeed the case for various sector-specific aid categories (Table 4). Typically, the correlations between indicators of need and per-capita aid become stronger with increasing specificity of the aid variable. Apart from environmental sustainability (see below on this target of aid), the few exceptions to this pattern concern more traditional targets of aid not directly related to MDGs.

The typical pattern of specific aid categories being more strongly correlated with indicators of need is further supported by additional calculations run for five-digit CRS purpose codes of aid that are not listed in the table. For example, the correlation with the prevalence of HIV further increases (to 0.63) if aid specifically devoted to the control of sexually transmitted diseases is considered instead of aid related to health or population programs. The same applies if the correlations with the incidence of tuberculosis and malaria ecology are run on the basis of aid specifically devoted to infectious disease control, rather than basic health. This pattern is hardly surprising. Aid in more broadly defined categories and sectors, and even more so total aid, may be influenced by multiple objectives. Actually, donors have repeatedly criticized previous analyses of the allocation of total aid, in which the poverty orientation of aid was simply measured by the per-capita income of recipients as an all-embracing indicator of need. The sector-specific perspective taken in this paper is exactly meant to address this issue.

However, the weak correlation of more broadly defined aid categories with indicators of need may also be due to some quantitatively important donors having contributed little to achieving the MDGs by appropriately targeting aid. This question will be taken up further below. At the same time, aid devoted to specific purposes may have failed to make much of a difference with regard to some MDG-related targets of aid. The aforementioned similarities across MDG-related targets notwithstanding, targets of aid differ considerably in the extent to which they have influenced the aid allocation of all donors taken together. The evidence for particular targets differs in several respects: (i) whether indicators of need are strongly correlated with specific aid categories such as basic health and basic education; (ii) whether or not the positive correlation persists at

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<sup>22</sup> For example, the correlations of health-related aid with the incidence of tuberculosis as well as malaria ecology turn completely insignificant when Pearson instead of Spearman rank correlations are run.

Table 4 — Correlation Results for Total Aid by All Donors<sup>a</sup>

Targets / indicators of need <sup>b</sup>	Aid categories <sup>c</sup>		
Target 2: Hunger	Total aid	Developmental food aid	Emergency food aid
• undernourishment (105)	0.32**	0.52**	0.61**
• malnutrition of children (93)	0.05	0.23*	0.28**
Target 3: Primary schooling	Total aid	Education	Basic education
• net prim. enrolment (93)	0.16	0.10	0.36**
• primary completion rate (98)	0.13	0.13	0.38**
• av. years of schooling (76)	0.39**	0.37**	0.62**
Target 4: Gender disparity in education	Total aid	Education	Basic education
• ratio boys / girls in education (121)	0.00	0.01	0.28**
• literacy ratio, males / females (94)	0.12	0.25*	0.34**
Target 5: Under-5 mortality	Total aid	Health	Basic health
• under-5 mort. rate (137)	0.09	0.28**	0.48**
• immunization, measles (137)	0.05	0.23**	0.38**
Target 6: Maternal mortality	Total aid	Health	Basic health
• maternal mort. ratio (120)	0.24**	0.39**	0.48**
• births attended (114)	-0.09	0.14	0.32**
Target 7: HIV/AIDS	Total aid	Health	Population programs
• prevalence of HIV (98)	0.26*	0.29**	0.58**
Target 8: Malaria, other diseases	Total aid	Health	Basic health
• incidence tuberculosis (138)	0.00	0.23**	0.41**
• malaria ecology (120)	0.23*	0.30**	0.31**
Target 9: Environmental sustainability	Total aid	Environmental protection	Agricultural land resources
• CO2 emissions (128)	-0.31**	-0.11	-0.37**
• forest area (133)	-0.16	-0.27**	0.05
• nat. protected areas (130)	-0.01	-0.28**	0.01
• GDP per unit of energy use (79)	-0.00	-0.24*	-0.14
Targets 10/11: Water & sanitation/slum dwellers	Total aid	Water supply & sanitation	Basic drinking water
• access to improved water (129)	0.08	0.06	0.40**
• access to improved sanitation (127)	0.06	-0.06	0.26**
Target : Transportation systems	Total aid	Economic infrastructure	Transport and storage
• rail lines (92)	0.12	-0.06	0.16
• roads, paved (122)	0.19*	0.17	0.24**
• motor vehicles (119)	0.21*	0.25**	0.47**
Target : Energy sector	Total aid	Economic infrastructure	Energy generation and supply
• electric power consumption (79)	0.39**	0.29**	0.26*
• energy use p.c. (84)	0.44**	0.33**	0.30**
Target : Agriculture	Total aid	Production sectors	Agriculture
• fertilizer consumption (119)	0.29**	0.22*	0.42**
• irrigated land (118)	0.31**	0.12	0.16

<sup>a</sup> Spearman rank correlation; \*\*, \* significant at 1 and 5 percent level, respectively. — <sup>b</sup> Number of observations in parentheses. For definition and sources, see Annex. — <sup>c</sup> Period average of grant equivalent of aid in 2002–2004, per capita of the recipient countries' population.

Source: Own calculations based on sources given in the Annex.



the next level of aid aggregation such as health and education; and (iii) whether the indicator was considered important enough by donors to have shaped the allocation of total aid.

By these criteria, the fight against hunger and HIV/AIDS appears to have received relatively high attention by donors. The prevalence of undernourishment and HIV are not only strongly correlated with specific aid categories, but have also influenced the allocation of total aid.<sup>23</sup> The finding of food aid being well targeted to needy recipients is in line with Neumayer (2005), according to whom self-interest on the part of donors has not played a role in this aid category. The prevalence of HIV persists to have an effect at the level of total aid even though HIV is relatively weakly correlated with the per-capita income of recipients (0.40). More generally, health-related aid was fairly well targeted at needy recipients, e.g., compared to MDG-related targets in the field of education. Relatively strong correlations concerning health-related Targets 5, 6, 7 and 8 found at the level of aid in basic health remain significant at the level of aid in health, and for some indicators even at the level of total aid. Yet Table 4 points to notable differences between specific health-related targets and corresponding indicators of need. Compared to HIV/AIDS and malaria, donors appear to have paid less attention to the eradication of tuberculosis. The prevalence of tuberculosis did not affect the allocation of total aid, even though its correlation with per-capita income as an encompassing measure of need is stronger than that of HIV prevalence and malaria ecology. This is probably because tuberculosis figured less prominently in the public debate on reasonable targets of aid.

In contrast to health-related aid, most of the correlations concerning educational Targets 3 and 4 are relatively low when run for aid in basic education, and turn insignificant when run for aid in education.<sup>24</sup> The latter finding is consistent with Table 1 in section II, where it was shown that donors devoted only about one third of education-related aid to basic education. The persistent inclination of donors to finance higher levels of education is likely to have undermined efforts to ensure that all children complete a full course of primary education and that gender disparity in education is eradicated.

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<sup>23</sup> The evidence presented in Table 4 is weaker for malnutrition of children than for undernourishment. But malnutrition of children is strongly correlated with aid devoted to basic nutrition (not shown).

<sup>24</sup> The major exception is the strong correlation with average years of schooling at all levels of aid. However, this indicator is clearly inferior to the other two indicators supposed to reflect the situation of recipient countries with regard to primary schooling. Target 3 requires donors to focus on primary education, while average years of schooling (which we considered in accordance to World Bank suggestions mentioned above) include more advanced levels of education. Moreover, the number of observations is considerably lower for average years of schooling. As concerns Target 4, we ran additional calculations for the aid category “women in development”. The correlations for this category remained insignificant. Even though aid related to “women in development” appears principally well suited to address gender disparity in education, this aid category remained marginal for all donors (Tables 1 and 2).

The evidence for Targets 10 and 11 is similar to that for education-related targets. The access of poor people to safe water and sanitation received little attention, even though aid specifically devoted to the five-digit CRS code “basic drinking water and basic sanitation” is positively correlated with indicators of need. Given that this aid category accounted for only 20 percent of aid committed to overall water supply and sanitation in 2002-2004 (Table 1), it is hardly surprising that the positive correlation breaks down at the next level of aid aggregation. Moreover, additional correlations performed for another five-digit CRS code of relevance to slum dwellers, namely “low-cost housing” (not shown), turned out to be completely insignificant.

As in the case of other MDG-related targets, we followed World Bank suggestions in selecting indicators with regard to Target 9. However, the results for environmental sustainability reported in Table 4 are in serious conflict with the underlying assumption that donors may have considered these indicators to reflect the need for aid in this field.<sup>25</sup> If anything, the opposite was true. In the case of CO2 emissions, this is because per-capita emissions increase in line with rising per-capita income of recipient countries.<sup>26</sup> Whatever the environmental concerns donors might have wished to address by granting aid, they were dominated by the general poverty orientation of aid when it comes to the correlation between aid and CO2 emissions. In the case of indicators such as forest areas and nationally protected areas, the negative correlation with aid committed to environmental protection suggests that the focus of donors was on helping protect existing habitats, rather than financing the creation of new ones where forests and nationally protected areas accounted for a small percentage of total land area.

In addition to MDG-related targets, the allocation of aid is assessed with regard to more traditional targets related to the financing of infrastructure and agriculture.<sup>27</sup> The correlation results provide further indications that more traditional targets continued to be important. Almost all indicators reflecting the need to develop transportation systems and the energy sector as well as to overcome supply bottlenecks in agriculture have significantly shaped the allocation of total aid. This is in striking contrast to some MDG-related targets, which dominated the debate on aid allocation in recent years.

### *3. Donor-specific results*

Correlation results for aid granted by individual donors reveal that the targeting of aid differed considerably across the eleven (bilateral and multilateral) donors under

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<sup>25</sup> Additional calculations performed for aid in five-digit CRS codes “water resources protection” and “waste management/disposal” are not reported as they did not offer further insights.

<sup>26</sup> The correlation between these two variables is as high as 0.81.

<sup>27</sup> As concerns infrastructure, calculations with respect to communication systems and financial market development are not reported in Table 4. Both sectors accounted for a minor share in aid subsumed under “economic infrastructure” by all donors in 2002-2004 (4 and 9 percent, respectively). Most of the correlation results were relatively weak.

consideration. For a start, we correlated indicators of need with total aid per capita of the recipient countries' population received from individual donors. Correlations are run (i) for all available observations, including those with aid=0 and (ii) for observations with aid>0. We thereby account for the two-step procedure of aid giving by individual donors, following what has become common practice in recent aid allocation studies (e.g., Berthélemy and Tichit 2004; Canavire et al. 2005; Neumeyer 2003).<sup>28</sup> The two-step approach is only applied at the level of individual donors, as there are few zero observations once all donors are taken together. This results in two sets of 22 correlations for each donor based on indicators for eight MDG-related targets plus three more traditional targets (agriculture, energy development, and transport infrastructure).<sup>29</sup> Figure 1 compares the percentage of significantly positive correlations across donors.<sup>30</sup>

It is shown that the allocation of total aid by some major donors was hardly shaped by the pursuit of specific targets and related indicators of need. Japan represents an extreme case. For the second largest donor in terms of absolute aid disbursements in 2002–2003 there are just two significantly positive correlations with the indicators on energy development.<sup>31</sup> Moreover, it is only for Japan that two correlations turn out to be significantly negative (immunization against measles and births attended by skilled health staff). The United States and the European Commission (EC), i.e., the numbers one and three among donors with regard to aid disbursements, are just slightly ahead of Japan in terms of allocating their total aid according to specific targets. The meagre performance shown for Japan and the EC is very much in line with what previous studies found when looking at the general poverty orientation of aid (e.g. Dollar and Levin 2004), while the picture for the United States is still inconclusive.

Sweden, Denmark, Germany and France constitute the middle range in Figure 1, which is somewhat surprising in the case of France (see below for possible explanations), as this country has consistently been found to be one of the least poverty-oriented donors in previous studies (e.g., Canavire et al. 2005; Dollar and Levin 2004; Neumeyer 2003). Yet these donors differ in one important respect.

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<sup>28</sup>For our second-step estimate to be unbiased, the two steps of the procedure must be independent of each other. Neumeyer (2003) explicitly tests whether this assumption holds; he finds that in almost all cases the hypothesis of independence cannot be rejected. By contrast, Berthélemy and Tichit (2004) conclude that their estimates based on strictly positive observations suffer from a sample selection bias.

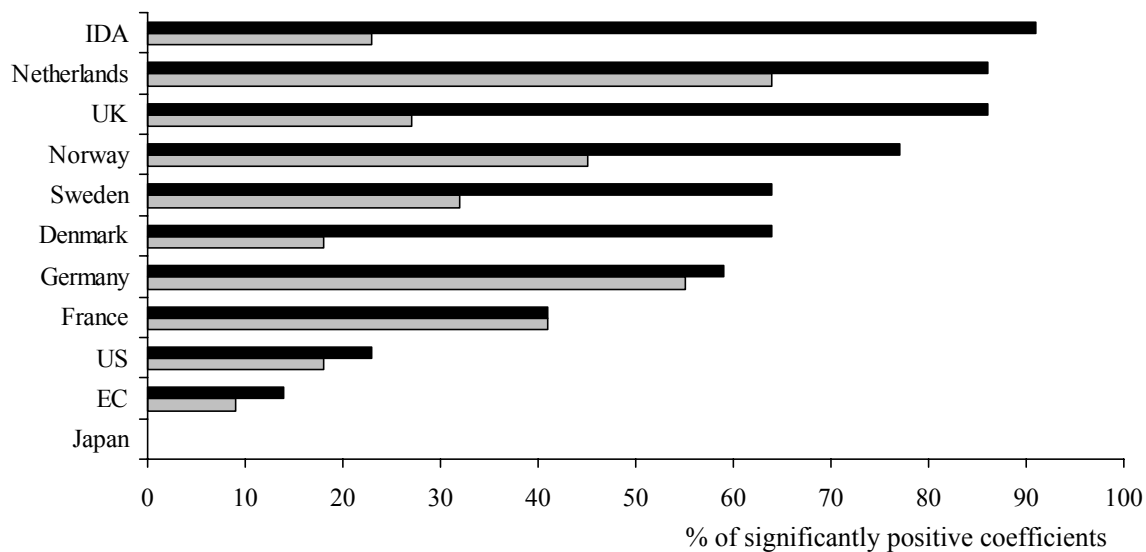
<sup>29</sup> Target 9 “Environmental sustainability” is no longer considered for the reasons given above. For HIV we have only one indicator (prevalence of HIV). Average years of schooling are no longer included as an indicator of Target 3 “Primary schooling” (see above for reasons). For transport infrastructure we consider three indicators of need. The complete list of indicators is given in the note in Figure 1.

<sup>30</sup> Note that significantly negative correlations of Japanese aid with “immunization against measles” and “births attended by skilled health staff” are subtracted from the number of significantly positive correlations with respect to child mortality and maternal mortality, respectively.

<sup>31</sup> The lack of targeting found for Japan at least partly reflects the country's strong focus on neighbouring Asian recipients with comparably favourable indicators of need.

Similar to the EC, Japan and the United States, France and Germany grant aid to essentially all 140 recipient countries in our sample. Hence, it does not make much of a difference whether the correlations for these donors are run with or without zero observations. By contrast, the smaller donors Denmark and Sweden are selective in deciding whether or not a recipient receives aid, but considerably less so in deciding on how much aid a recipient gets after having passed the first step.<sup>32</sup>

Figure 1 — Significance of Correlations<sup>a</sup> between Total Aid<sup>b</sup> and Indicators of Need<sup>c</sup>: Donors Compared



<sup>a</sup>Significant Spearman rank correlation coefficients at 5 percent or better (positive coefficients minus negative coefficients) in percent of all correlation coefficients for the specific donor.—  
<sup>b</sup>Aid per capita of the recipient country's population. Black/grey columns: aid  $\geq 0$  / aid  $> 0$ .—  
<sup>c</sup>Indicators used for hunger: prevalence of undernourishment, malnutrition of children; primary schooling: net primary school enrolment, primary completion rate; gender disparity in education: ratio of girls to boys in primary & secondary education, literacy ratio males to females; child mortality: under-5 mortality, immunization measles; maternal mortality: maternal mortality ratio, births attended by skilled health staff; HIV: prevalence of HIV; malaria and other diseases: incidence of tuberculosis; malaria ecology; access to safe water and sanitation: access to improved water, access to improved sanitation; transportation systems: rail lines, paved roads, motor vehicles; energy sector development: electrical power consumption, energy use; agricultural development: fertilizer consumption, irrigated land.

The treatment of zero observations is most important for aid extended by IDA. This is not surprising as IDA's mandate is restricted to 81 sample countries with low per-capita income.<sup>33</sup> Yet the low percentage of significantly positive correlations for IDA

<sup>32</sup> Aid allocation in Denmark, but not in Sweden, seems to have followed the same pattern during the 1990s (Neumeyer 2003).

<sup>33</sup> The income ceiling for IDA eligibility currently lies at US\$ 965 per year.

aid $>0$  qualifies the finding of Dollar and Levin (2004), who regard IDA aid to be particularly well targeted. Similar to IDA, the United Kingdom belongs to the top-3 performers in the first stage of the aid allocation process, whereas the percentage of significantly positive correlations for the United Kingdom aid $>0$  is fairly low. This compares unfavourably with the Netherlands. Even though the Netherlands and the United Kingdom grant aid to a similarly large number of recipients (113 and 107, respectively, out of our 140 sample countries), total aid by the former donor is clearly more directed at specific targets in the second stage of the allocation process.

Apart from the treatment of zero observations, it is for another reason that the correlations run on the basis of total aid of individual donors may provide a misleading impression on whether or not donors have allocated aid according to MDG-related and more traditional targets. Various indicators that we suppose to capture the need of recipients with regard to these targets are strongly correlated with each other, and with the average per-capita income of recipient countries.<sup>34</sup> Hence, the correlations reported for total aid may reflect the general poverty orientation of aid, rather than the pursuit of specific targets of aid.

Therefore, we evaluate the allocation of donor-specific aid at the sectoral level in the following. In particular, we assess whether individual donors targeted aid in the sense that:

- developmental food aid as well as emergency food aid were granted predominantly to recipient countries whose population suffered from malnutrition and hunger;
- the health situation of recipient countries has shaped the allocation of aid subsumed under “basic health” and “population programs”;
- aid in “basic education” has been channelled to where primary education deficits and gender disparities in education were most pronounced;
- aid for improved water supply and sanitation has favoured the most needy;
- deficiencies in transport and energy infrastructure had an important say on aid allocation in these sectors; and
- aid in agriculture addressed critical supply bottlenecks in recipient countries.

In all these respects, the following procedure is applied to account for the two stages of the aid allocation process of donors. In the first step, we assess whether indicators of need have shaped the decision of donors to provide or not to provide aid to a particular country. If so, indicator values for the sub-sample of recipients with aid $>0$  in the respective sector should reveal a greater need for aid than indicator values for the sub-

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<sup>34</sup> The correlation between per-capita income and specific indicators of need ranges from 0.4 or lower (irrigated land, rail lines, prevalence of HIV) to 0.75 or higher (under-5 mortality, births attended by skilled health staff, motor vehicles, electrical power consumption, energy use).

sample with aid=0. We compare the median of the relevant indicators of need between the two sub-samples, using the same indicators as before for total aid of individual donors. For each donor and indicator of need, the median for the sub-sample with aid>0 is divided by the median for the sub-sample with aid=0. Taking the average of the ratios of the target-related indicators for each donor, a ratio above one indicates that more needy recipients are concentrated in the sub-sample with aid>0. To avoid spurious results, we only include indicators with a minimum of 10 observations in both sub-samples. In particular, the comparison of the median is not meaningful when almost all recipients receive aid from a donor in the sector under consideration, i.e., for donors not being selective in deciding whether or not a recipient gets aid.

In the second step, we perform rank correlations for the sub-sample with aid>0, in order to evaluate whether donors granted more sector-specific aid to more needy recipients. Correlations are reported only for donors who granted sector-specific aid to at least 20 recipients. As a consequence, there are fewer correlations for donors who were highly selective in the first step of the sector-specific allocation process. This refers especially to Denmark, which committed aid to less than 20 recipients in various sectors, including food aid, basic health, energy and transport.

Table 5 reveals that both types of food aid were directed primarily to recipient countries in which undernourishment and malnutrition of children was more serious. Nevertheless, emergency food aid was better targeted than so-called developmental food aid. The ratio of the median of indicators of need turns out to be higher in the case of emergency food aid for four out of five donors for whom both ratios could be calculated (the United States representing the exception). Moreover, the amount of emergency aid given by three important donors (Germany, the United States and the European Commission) was strongly correlated with the prevalence of undernourishment, though not with malnutrition of children. The comparatively weak evidence for well-targeted developmental food aid is probably because some donors still used this type of “aid” as an outlet of agricultural surplus production at home. This would challenge Neumeyer’s (2005) finding that food aid in general appears to be free of donor interest. Not surprisingly, the United States and the European Commission clearly stand out among the donors under consideration with regard to the number of recipients to which developmental food aid had been committed in 2002–2004 (77 and 59 countries, respectively).

The results presented in Tables 6 to 8 underscore the previous finding that MDG-related targets have shaped the allocation of aid to a significantly different degree. The evidence for targeted aid is strongest with regard to the fight against HIV through committing resources to population programs. The median of HIV prevalence is at least four times higher for recipients having received aid in this sector from eight of the eleven donors. In addition, the correlations indicate that recipient countries where the HIV situation was more serious typically received significantly more financial support for population programs.

Table 5 — Donor-specific Results for Food Aid: Median and Rank Correlation

	Developmental food aid			Emergency food aid		
	Median <sup>a</sup> aid>0/aid =0	Correlation coefficients <sup>b</sup> :		Median <sup>a</sup> aid>0/aid =0	Correlation coefficients <sup>b</sup> :	
		undernourishment	malnutrition of children		undernourishment	malnutrition of children
Denmark	—	—	—	—	—	—
France	1.42	0.42*	-0.19	2.06	—	—
Germany	1.81	0.21	—	2.11	0.44**	0.27
Japan	2.22	—	-0.42	—	—	—
Netherlands	—	—	—	2.06	0.29	-0.29
Norway	—	—	—	2.39	—	—
Sweden	2.29	—	—	—	—	—
UK	1.92	—	—	2.43	—	—
US	2.83	0.03	-0.31*	2.34	0.47**	0.03
EC	1.63	0.35*	0.10	1.85	0.53**	0.08
IDA	—	—	—	—	—	—

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid = 0; average for all indicators of need ("—" if less than 10 observations).— <sup>b</sup>Spearman rank correlation for all countries with aid > 0 ("—" if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.

Source: Own calculations based on sources given in the Annex.

Table 6 — Donor-specific Results for Aid in Basic Health and Population Programs: Median and Rank Correlation

	Basic health							Population programs	
	Median <sup>a</sup> aid>0/aid =0	Correlation coefficients <sup>b</sup> :						Median <sup>a</sup> aid>0/aid =0	Correlation coefficients <sup>b</sup> : HIV pre- valence
		under-5 mortality	immuni- zation measles	maternal mortality	births attended	incidence tuber- culosis	malaria ecology		
Denmark	2.47	—	—	—	—	—	—	6.64	—
France	2.21	0.46*	0.64**	0.56**	0.39*	0.16	0.52**	8.50	—
Germany	2.75	0.16	0.08	-0.02	0.23	-0.01	-0.18	4.50	0.36*
Japan	1.24	0.07	-0.01	0.06	-0.07	-0.01	0.01	1.40	-0.08
Netherlands	3.58	0.15	-0.09	0.11	0.08	-0.02	0.22	4.67	0.63**
Norway	2.17	0.02	-0.11	-0.05	-0.24	-0.08	-0.10	1.93	0.47**
Sweden	1.17	—	—	—	—	—	—	8.50	—
UK	2.49	0.44*	0.32	0.44*	-0.09	0.46*	0.31	6.17	0.29
US	1.87	0.14	-0.03	0.07	-0.03	-0.04	-0.01	2.67	0.52**
EC	3.04	-0.02	-0.06	0.05	-0.03	-0.06	0.07	7.00	0.48*
IDA	—	—	—	—	—	—	—	4.23	—

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid = 0; average for all indicators of need ("—" if less than 10 observations).— <sup>b</sup>Spearman rank correlation for all countries with aid > 0 ("—" if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.

Source: Own calculations based on sources given in the Annex.

Table 7 — Donor-specific Results for Aid in Water Supply and Sanitation: Median and Rank Correlation

	Median <sup>a</sup> aid>0/aid=0	Correlation coefficients <sup>b</sup> :	
		access to improved water	access to improved sanitation
Denmark	1.13	0.39	0.13
France	1.03	0.09	0.00
Germany	1.14	0.08	0.06
Japan	0.98	0.06	-0.01
Netherlands	1.10	-0.03	0.00
Norway	1.20	-0.20	-0.29
Sweden	1.06	-0.16	-0.03
UK	1.11	-	-
US	0.83	-0.23	-0.35
EC	1.16	-0.40**	-0.38**
IDA	1.05	-	-

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid =0; average for all indicators of need ("- " if less than 10 observations).— <sup>b</sup>Spearman rank correlation for all countries with aid>0 ("- " if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.

Source: Own calculations based on sources given in the Annex.

Table 8 — Donor-specific Results for Aid in Basic Education: Median and Rank Correlation

	Median <sup>a</sup> aid>0/aid=0	Correlation coefficients <sup>b</sup> :			
		primary school enrolment	primary completion rate	ratio girls/boys in pr.&sec. edu.	literacy, males/females
Denmark	1.26	-	-	0.23	-
France	1.16	-	0.77**	0.62**	-
Germany	1.09	0.15	0.05	0.08	0.12
Japan	1.09	0.22	0.25	0.08	0.16
Netherlands	1.23	-	-	-0.17	-0.15
Norway	1.15	0.17	0.23	0.17	0.32
Sweden	1.09	-	-	-	-
UK	1.18	-	-	-	-
US	1.19	-	-	-	-0.14
EC	1.01	0.15	0.15	-0.11	-0.05
IDA	-	-	-	-	-

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid =0; average for all indicators of need ("- " if less than 10 observations).— <sup>b</sup>Spearman rank correlation for all countries with aid>0 ("- " if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.

Source: Own calculations based on sources given in the Annex.



Basic health conditions other than HIV appear to have received less attention, although almost all donors took the health situation of recipients into account when deciding on whether or not to commit aid in the basic health sector. Health indicators such as mortality rates, the degree of immunization against measles, the incidence of tuberculosis and the risk of being infected by malaria are rarely correlated with the amount of aid decided upon in the second stage of the aid allocation process.<sup>35</sup> France and the United Kingdom are exceptions to this pattern. Measured by the share in total aid, the United Kingdom's aid was most strongly focussed on the health sector (Table 2 above). Moreover, the United Kingdom devoted 60 percent of its aid in this sector to basic health. By contrast, the positive correlations for France may be surprising considering that basic health accounted for a minor fraction of (relatively low) French aid in the health sector. Arguably, the strong concentration of French aid in Sub-Saharan Africa, rather than specific health-related targeting, is underlying the results for this donor.<sup>36</sup>

As concerns the remaining MDG-related targets, the focus of sector-specific aid on the most needy recipients turns out to be weaker still. Aid with respect to water supply and sanitation has not only declined in relative importance (Table 2). At the same time, none of the donors under consideration has clearly favoured recipient countries by granting more aid in this sector where the lack of access to safe water and sanitation was a more serious problem. The ratio of the median of indicators of need is even below one for Japan and the United States, and the highest ratio reported in Table 7 amounts to just 1.2 (for Norway). Furthermore, all correlations remain completely insignificant, except for two negative correlations for EC aid in water supply and sanitation.

Similar to water and sanitation, aid in basic education lacks a clear focus on needy recipients. Almost all correlations shown in Table 8 remain insignificant.<sup>37</sup> And for all donors the ratio of the median, based on indicators referring to primary schooling and gender disparity in education, is just slightly above one. Notably the European Commission did not discriminate between more and less needy recipients when deciding whether or not to commit aid resources to basic education. Moreover, additional findings (not shown) underscore that the allocation of EC aid is particularly badly suited to achieve the MDGs related to primary schooling and gender disparity in education. The correlation with the ratio of girls to boys in primary and secondary education turns significantly negative if the calculation is based on EC aid in education

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<sup>35</sup> For Japan and the European Commission, some of the coefficients even turned significantly negative when the correlations were run for aid in the health sector, rather than basic health (not shown).

<sup>36</sup> More than 60 percent of French aid commitments in 2002-2004 were made in favour of this region. This compares with a share of about one third of total aid by all bilateral and multilateral donors.

<sup>37</sup> As for aid in basic health, the exception of France may be attributed to the strong concentration of total French aid in Sub-Saharan Africa, rather than specific targeting. The particularly low priority of basic education in the sectoral composition of French aid (Table 2 above) also suggests that the correlations for France in Table 8 may be spurious.

(instead of basic education, which accounted for less than one third of EC aid in education). Furthermore, EC aid in education stands out in that it is negatively correlated with average years of schooling (though not significantly so). By contrast, some bilateral donors (e.g., Denmark, Norway and Sweden), while also lacking a clear focus on primary education, have at least directed more aid in education to recipient countries where average years of schooling were low.

Similar to the results for all donors reported above, the sector-specific aid allocation of individual donors reveals that more traditional targets continued to receive more attention by at least some donors than several MDG-related targets. As concerns aid in transport and storage as well as energy generation and supply, which together accounted for 75 percent of total aid commitments in infrastructure in 2002–2004, donor selectivity was limited to the first step of the aid allocation process (Table 9). However, especially when deciding on whether or not to grant aid in transport and storage, various donors favoured recipient countries where transport-related indicators pointed to greater need for aid. The United States represented a major exception. Measured by the ratio of the median of the relevant indicators, US aid was also biased against more needy recipients with respect to energy generation and supply. The latter finding applied to Japan, too. This suggests that selfish motivations such as promoting trade with, and foreign direct investment in relatively advanced developing countries were at least partly underlying the allocation of aid in infrastructure by these two major donors. As concerns aid in agriculture, all donors except the United States and Sweden favoured more needy recipients in the first stage of the allocation process (Table 10). In addition, some donors, in particular France and the Netherlands, committed more aid to countries where agricultural supply bottlenecks with regard to fertilizer use and irrigation were more serious.

In summary, the sector-specific aid patterns reveal that the allocation of aid leaves much to be desired. It is in three respects that sector-specific aid was less targeted than one might have expected: First, selectivity in terms of favouring more needy recipients was frequently restricted to the first stage of the aid allocation process, whereas the correlation between indicators of need and the amount of aid committed to countries having passed the first test mostly remained insignificant. Second, and most surprisingly, major MDG-related aid targets received little attention by donors. This applied especially to basic education as well as water supply and sanitation. Third, the targeting of aid differed remarkably between donors. The sector-specific evidence supports the view that the allocation of Japanese aid was particularly badly suited to help achieve MDG-related targets of aid. Other major donors such as the United States and the European Commission provided targeted aid in some respects, but appear to have neglected essential MDG-related targets. Aid allocation also differed between the supposedly like-minded smaller donors: Dutch and Norwegian aid was better directed at MDG-related targets than Swedish and Danish aid.<sup>38</sup>

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<sup>38</sup>Sweden's weaker performance may at least partly reflect the country's strong focus on emergency relief and the high share that is classified as multisector aid.

Table 9 — Donor-specific Results for Aid in Infrastructure:  
Median and Rank Correlation

	Transport and storage				Energy generation and supply		
	Median <sup>a</sup> aid>0/aid=0	Correlation coefficients <sup>b</sup> :			Median <sup>a</sup> aid>0/aid=0	Correlation coefficients <sup>b</sup> :	
		rail lines	paved roads	motor vehicles		electr. power consumption	energy use
Denmark	2.41	–	–	–	1.11	–	–
France	1.30	0.13	0.23	0.18	1.26	–	–
Germany	2.47	0.11	–0.25	–0.07	1.57	–0.20	–0.07
Japan	2.34	–0.19	–0.06	0.09	0.97	0.27	0.13
Netherlands	–	–	–	–	2.21	–	–
Norway	1.26	–	–	–	1.36	0.05	0.04
Sweden	1.20	–0.03	–	0.37	1.41	–	–
UK	2.19	–	–	–	1.37	–	–
US	0.80	0.06	0.03	–0.12	0.83	–0.28	–0.07
EC	2.31	0.35*	0.11	0.02	1.07 <sup>c</sup>	–	–
IDA	2.07	–	–	–	2.33	–	–

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid =0; average for all indicators of need ("-" if less than 10 observations). — <sup>b</sup>Spearman rank correlation for all countries with aid>0 ("-" if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.— <sup>c</sup>Only energy use as indicator of need (electr. power consumption less than 10 observations).

Source: Own calculations based on sources given in the Annex.

Table 10 — Donor-specific Results for Aid in Agriculture:  
Median and Rank Correlation

	Median <sup>a</sup> aid>0/aid=0	Correlation coefficients <sup>b</sup> :	
		fertilizer consumption	irrigated land
Denmark	1.37	–	–
France	3.08	0.28**	0.24*
Germany	1.91	0.13	0.21
Japan	1.70	–0.01	–0.09
Netherlands	2.54	0.38**	0.31*
Norway	2.67	0.21	0.26
Sweden	0.96	–	–
UK	2.45	0.12	0.40*
US	0.67	0.30*	–0.04
EC	1.87	–0.10	0.06
IDA	1.90	–	–

<sup>a</sup>Median for recipient countries with aid>0 divided by median for recipient countries with aid = 0; average for all indicators of need ("-" if less than 10 observations).— <sup>b</sup>Spearman rank correlation for all countries with aid > 0 ("-" if number of observations not exceeding 20); \*, \*\* significant at 5 and 1 percent, respectively.

Source: Own calculations based on sources given in the Annex.

#### **IV. Concluding Remarks**

Our analysis in this paper departs from the observation that the Millennium Declaration and the list of MDGs consider growth promotion to be just one channel through which aid may help fighting poverty. In the same vein, economists such as McGillivray (2003) and Amprou et al. (2005) have called for a broader concept of aid selectivity not just including the income and policy situation of recipient countries as proposed by Collier and Dollar (2002). And indeed, donors typically claim that their aid allocation is based on a multi-dimensional objective function.

Yet, various developing countries, particularly in Sub-Saharan Africa, will in all likelihood miss not only the most prominent MDG of halving absolute poverty by the year 2015 but also the more specific targets, e.g., those related to health and education. In this paper, we explore one possible reason for this failure, namely that donors may have paid insufficient attention to the MDGs by not allocating aid according to the MDG-related needs of recipients. Our results do suggest that at least part of the blame falls on insufficient targeting of aid. While some MDGs such as the fight against HIV/AIDS have shaped the allocation of aid, the sector-specific results reveal that with respect to other MDGs, most notably primary education, there is a considerable gap between donor rhetoric and actual aid allocation. Among donors, Japan stands out as a weak performer almost across the board, but even the donors that can be regarded as superior have failed to adequately target aid in at least some respects.

These results invite the conclusion that the current focus on substantially increasing aid in order to turn the tide and try to achieve the MDGs misses one important point: Unless the targeting of aid is improved, higher aid will not have the desired effects. At the same time, it should be stressed that better targeting is just a necessary, but not a sufficient condition for more effective aid. Reinikka and Svensson (2004), for example, estimate that over the period 1991-1995, on average, only 13 percent of a grant the Ugandan government received to cover primary schools' non-wage expenditures actually reached the schools. Likewise, Easterly (2005) reports for four African countries that 30 to 70 percent of government drugs disappeared before reaching the patients. Given leakages of such a size, an obvious avenue for future research would be to directly estimate how effective the sectoral allocation of aid is in achieving the various MDGs. This would include a re-examination of the aid-growth relationship estimated by Clemens et al. (2004), employing sectoral aid data rather than the aggregate short-impact aid variable that is composed of various aid categories.

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## ANNEX

MDGs	Indicators of need (source) <sup>a</sup>	Relevant aid category <sup>b</sup> (CRS code)
<i>Goal 1: Eradicate extreme poverty and hunger</i>		
<ul style="list-style-type: none"> <li>Target 1: Halve the proportion of people with income of less than \$1 a day<sup>c</sup></li> </ul>	average per-capita income (World Bank) share of population below \$1 a day human development index (UNDP)	total aid
<ul style="list-style-type: none"> <li>Target 2: Halve the proportion of people who suffer from hunger</li> </ul>	prevalence of undernourishment (FAO) malnutrition of children, weight (World Bank)	developmental food aid/food security assistance (520) emergency food aid (710) <i>basic nutrition (12240)</i>
<i>Goal 2: Achieve universal primary education</i>		
<ul style="list-style-type: none"> <li>Target 3: Ensure that children complete a full course of primary schooling</li> </ul>	net primary school enrolment ratio (World Bank) primary completion rate, total (World Bank) <i>average years of schooling (Barro and Lee)</i>	education (110) basic education (112)
<i>Goal 3: Promote gender equality and empower women</i>		
<ul style="list-style-type: none"> <li>Target 4: Eliminate gender disparity in education</li> </ul>	ratio of girls to boys in prim. & sec. education (World Bank) literacy ratio, males to females (World Bank)	education (110) basic education (112) <i>women in development (420)</i>
<i>Goal 4: Reduce child mortality</i>		
<ul style="list-style-type: none"> <li>Target 5: Reduce under-five mortality rate</li> </ul>	under-five mortality rate (World Bank) immunization, measles (World Bank)	health (120) basic health (122)

<sup>a</sup>All indicators for 2000 or closest year around 2000. Italics if used only in the analysis of aid by all donors.—<sup>b</sup>In addition: total aid for all MDGs/indicators of need. Italics if used only in the analysis of aid by all donors combines.—<sup>c</sup>Target 1 not specifically considered in this paper; for an analysis of the poverty orientation of overall aid, see the literature given in section I.

*Goal 5: Improve maternal health*

- Target 6: Reduce the maternal mortality ratio

maternal mortality ratio (UNDP)  
births attended by skilled health staff (World Bank; WHO)

health (120)  
basic health (122)

*Goal 6: Combat HIV/AIDS, malaria, and other diseases*

- Target 7: Halt and reverse the spread of HIV/AIDS
- Target 8: Halt and reverse the incidence of malaria, and other major diseases

prevalence of HIV (World Bank; UNAIDS)

health (120)  
population programs and reproductive health (130)  
*control of sexually transmitted diseases (13040)*

incidence of tuberculosis (WHO)  
malaria ecology (Kiszewski et al.)

health (120)  
basic health (122)  
*infectious disease control (12250)*

*Goal 7: Ensure environmental sustainability*

- Target 9: Integrate principles of sustainable development into country policies and reverse the loss of environmental resources
- Target 10: Halve the proportion of people without sustainable access to safe water and basic sanitation
- Target 11: Achieve a significant improvement in the lives of slum dwellers

*CO2 emissions per capita (World Bank)*  
*forest area (World Bank; FAO)*  
*nationally protected areas (UNDP)*  
*GDP per unit of energy use (World Bank)*

*general environmental protection (410)*  
*water resources protection (14015)*  
*waste management/ disposal (14050)*  
*agricultural land resources (31130)*

access to improved water source (World Bank)  
access to improved sanitation (World Bank)

water supply & sanitation (140)  
*basic drinking water supply & basic sanitation (14030)*

same as under target 10

see target 10  
*low-cost housing (16040)*

<b>Non-MDG related targets</b>	<b>Indicators of need (source)</b>	<b>Aid category (CRS code)</b>
Development of transportation system	rail lines (World Bank) roads, paved (World Bank) motor vehicles (VDA)	economic infrastructure (200) transport and storage (210)
Development of communication systems	<i>fixed line and mobile phone subscribers (World Bank)</i> <i>internet users (World Bank)</i> <i>personal computers (World Bank)</i>	<i>economic infrastructure (200)</i> <i>communications (220)</i>
Financial sector development	<i>domestic credit to private sector (World Bank)</i> <i>interest rate spread (World Bank)</i> <i>money and quasi money (M2) (World Bank)</i>	<i>economic infrastructure (200)</i> <i>banking and financial services (240)</i>
Energy sector development	electric power consumption per capita (World Bank) energy use per capita (WDI)	economic infrastructure (200) energy generation and supply (230)
Agricultural development	fertilizer consumption (World Bank) land use, irrigated land (World Bank)	production sectors (300) agriculture (311)

## Definition of variables

### 1. Aid variables

- g-pop grant equivalent (nominal amount\*grant element/100) per population of recipient country
- g-total share of aid in specific sector in total grant equivalent

### 2. Indicators of need<sup>a</sup>

- access to improved water source percent of population (inverse)
- access to improved sanitation percent of population (inverse)
- average years of schooling relates to the total population aged 15 and over (inverse)
- births attended by skilled health staff percent of total (inverse)
- CO2 emissions per capita metric tons per capita
- domestic credit to private sector percent of GDP (inverse)
- electric power consumption per capita kwh per capita (inverse)
- energy use per capita kg of oil equivalent per capita (inverse)
- fertilizer consumption 100 gr per hectare of arable land (inverse)
- fixed line and mobile phone subscribers per 1000 people (inverse)
- forest area percent of total land area (inverse)
- GDP per unit of energy use 2000 PPP \$ per kg of oil equivalent (inverse)
- immunization, measles percent of children of the age of 12-23 months (inverse)
- incidence of tuberculosis estimated incidence rate of all forms of tuberculosis, per 100.000 people
- interest rate spread lending minus deposit rate
- internet users per 1000 people (inverse)
- land use, irrigated land percent of crop land (inverse)
- literacy ratio, males to females literacy rate of adult males divided by literacy rate of adult females
- malaria ecology predictive of the extent of malaria transmission
- malnutrition of children, weight percent of children under five
- maternal mortality ratio adjusted ratio per 100.000 live births
- money and quasi money (M2) percent of GDP (inverse)
- motor vehicles per 1000 people (inverse)
- nationally protected areas percent of total land area (inverse)
- net primary school enrolment ratio percent of the population of the corresponding official school age (inverse)
- personal computers per 1000 people (inverse)
- prevalence of HIV percent of population aged 15-49
- prevalence of undernourishment percent of population
- primary completion rate, total percent of the relevant age group (inverse)
- rail lines km per sq km of surface area (inverse)
- ratio of girls to boys in primary & secondary education percent (inverse)
- roads, paved percent of total roads (inverse)
- under-five mortality rate probability per 1000 newborn babies

<sup>a</sup>“Inverse” added to definition (in parentheses) if the inverse of the respective variable is used to ensure that higher indicator values reflect greater need.