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Challenges for the Optimal Allocation of Educational Aid: Should MDG Priorities be More Prominent?

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Challenges for the Optimal Allocation of Educational Aid: Should MDG Priorities be More Prominent?

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Summary: This paper examines the criteria for aid allocation that are revealed by present practice in the education sector. Using a set of priorities suggested by the MDGs, and recent data on aid flows to different countries, it compares actual with 'optimal' allocations according to different interpretations of educational 'need'. Focussing on British aid, it finds that there are sharp deviations between the volume of aid to education received by different countries and their requirements as suggested by 'needs-based' criteria. Significant contrasts between relative resource requirements and aid provision to education are also present when looking at aid flows from all sources.

Key words: International aid; education; Africa; South Asia.

Introduction

There has been useful debate in the literature about what might best characterise a criterion for the optimal allocation of aid. This question was given new prominence by the international adoption, in 2000, of a set of Millennium Development Goals (MDGs), the achievement of which, it was widely believed, would result in a halving of global poverty by 2015. The goals are ambitious, and require considerable increases in the quantity and more effective targeting of international aid. As regards improving its allocation, Collier and Dollar (2001, 2002) argue that poverty reduction would be maximised by giving aid priority to countries where poverty is presently greatest, and where economic growth has the highest impact on poverty reduction either because better policies are pursued, or because growth reduces poverty more. Wood (2008) shows how concern with achieving the MDGs is better translated into an objective of minimising *future* world poverty. By specifying a preference for the speed with which poverty is reduced in the world, an additional variable – time – is included in the criteria for its

allocation. Wood argues that this better captures actual aid allocation intentions, because donors care about future poverty as well as its present extent. Indeed, the international community has never before been so strongly agreed upon the pre-eminence of one objective – the halving of world poverty – being achieved by a particular target date and upon its providing the dominant focus for aid allocation over the intervening years.

Although all attempts to model aid behaviour are likely to show deviations between principles and revealed practice, it might be expected that this widespread agreement about the most appropriate broad targets for development policy would have become clearly reflected in the pattern of recent aid allocations. However, Wood finds that calculated 'optimal' allocations of aid, using his allocation criteria, differ greatly from its actual allocation in 2004 (Wood, 2008:1142-3). Other work also indicates that, in addition to needs-based factors, and factors related to the policy environment in recipient countries, the political and economic interests and colonial history of donor countries are important determinants of aid allocation (Alesina & Dollar, 2000; Berthélemy, 2006). Nonetheless, the discrepancy between actual and 'optimal' allocations may also indicate the relative intangibility of such 'optimal' allocation criteria (and perhaps that people disagree about their specification). In that connection, it is noteworthy that for each of the eight MDGs, there are associated targets which provide concrete indications as to the ways they may be achieved. For example Goal 5, which is concerned to improve maternal health, has two specific targets: reducing by three-quarters the maternal mortality ratio and achieving universal access to reproductive health. These targets provide a shorthand, practical agenda, to help achieve the goals. The question arises therefore as to whether the actual allocation behaviour of agencies has been more influenced by the sectoral targets promulgated in the Millennium Declaration than by broader allocation criteria such as those advocated by Collier and Dollar (2001, 2002) and by Wood (2008).

.This paper addresses that question. It analyses the determinants of aid flows to education – a central component of MDG strategy – from both the UK and from all aid sources over a ten year period starting in 1998/9, just before the promulgation of the

MDGs. .. The paper compares actual with 'optimal' aid allocations calculated according to different interpretations of educational 'need'. Composite indicators are derived in the form of indices which rank countries according to progress made towards achieving the target for MDG Goal 2 – 'ensure that by 2015 children everywhere, boys and girls alike, will be able to complete a full course of primary schooling' – and that for Goal 3 – 'eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015' (United Nations, 2001). The paper finds little evidence of concordance between the targets and revealed aid behaviour.[1] On the contrary, it shows that, in the case of the UK Department for International Development's (DFID) education aid programme, there are sharp deviations between the volume of aid received by different countries and their likely requirements as suggested by such 'needs-based' criteria. It also shows that significant contrasts exist between needs and aid receipts for education across all donor sources.

Indices of needs: Assessing priorities for the allocation of aid to education

In order to decide priorities for the allocation of aid to education amongst potential recipients, a range of criteria are relevant. These include judgements about the development and policy context of recipient states, about the strength of their governments' commitments to achieving education for all (EFA), about the transparency and accountability of their budgetary processes, and a range of other matters. However, underlying all of these is some notion of 'need'.

As for a number of other aid agencies, central objectives for DFID's work in education have been to secure the MDG targets of enrolling all eligible children in primary schools by 2015, and of removing gender disparities in education. Indeed, these two MDG targets were intended to provide the main criteria for assessing the effectiveness of DFID aid allocation for education over the years to 2015.[2] The question therefore arises as to how to adjudicate priorities amongst those countries in need of aid-support in order to reach these goals. Table A1 in the Appendix to this paper provides a set of economic and

educational data for 93 countries which can help to identify priority states from this perspective.[3] A number of criteria are relevant which are discussed below.

Children out of school

Firstly, a focus on the numerical problem of global under-enrolment leads to the obvious question: which are the countries with the greatest number of out-of-school children, and how does educational aid to those countries compare with levels of support elsewhere? The 93 countries shown in Appendix Table A1 contain approximately 95% of the children who remain out of primary schools in developing countries and about 90% of the global total. Drawn from those data, Table 1, below, shows the 20 countries having most reported children out of school for the years 1999 and 2004, together with educational aid to those same countries in 1998/9 and ten years later. The table shows that there was quite strong stability in the out-of-school data over the five years separating the two sets of estimates: sixteen of the top twenty countries in 1999 remained on the list for 2004. Although the total number of children reported to be out of school fell by about one-third over the five years, more than half of that reduction was accounted for by India, where enrolment increases were rapid at that time. In 2004, more than half of all out-of-school children were to be found in seven countries: Nigeria, DRC, Pakistan, China, India, Ethiopia and Sudan. Targeting the estimated 37 million non-enrolled children in those countries would do much to address the global shift to UPE. As shown in Table 1, below, there were nine other countries having between one and two million children out of school at mid-decade. Seven of these were in Sub-Saharan Africa (SSA), and fully three-quarters of the developing world's out-of-school children were in the countries of SSA and South Asia. Thus, the priority countries for policy change, and for external support, were (and continue to be) mainly within those regions of the world.

The seven large countries mentioned above, with around 57% of the world's out of school children, received 59% per cent of UK bilateral aid to education in 2008/9 – up from 47% for the same countries ten years earlier. This, at first sight, seems an appropriate allocation on this criterion. However, inspection of the table shows that

those transfers were overwhelmingly dominated by the aid programme to India. That country alone (with less than 7% of out-of-school children) was allocated fully 29% of UK bilateral aid to education in 2008/9, and although Nigeria – with almost twice as many children out of school – was also substantially supported, its aid receipts for education were less than one-seventh of those going to India.

As regards the other countries in this group, less than 1% (some £3.1 million) of UK bilateral aid to education in 2008/9 was allocated to DRC and Sudan, even though they accounted for around 14% of the out-of-school children in the developing world. Equally, negligible amounts of UK aid were allocated to a number of Francophone countries – Niger, Burkina Faso, Cote d'Ivoire, Mali – where around one-tenth of the world's out-of-school population were to be found. These, then, amounted to very small aid transfers, compared with the size of their enrolment gaps.

Examination of the allocation of aid to education from all sources reduces the impact of these apparent anomalies. For example, total educational aid to India from all sources was lower, in the late 2000s, than that for Nigeria (Table 1), thereby compensating somewhat the DFID allocations. Furthermore, aid to DRC and to the Francophone African countries was somewhat more reflective of their needs than would be indicated by the DFID programme alone. Nevertheless, it remained the case that the proportion of global aid to education received by these low-income countries was much less than their out-of-school populations suggest was required: the seven countries accounting for 57% of the world's out-of-school children received only 26% of global aid for education in 2007 (albeit up from only 14% in 1999), whilst the top twenty countries, with around four-fifths of the global out-of-school population received only 45% of total educational aid (a proportion which had been roughly unchanged since 1999).

Accordingly the direction of aid flows to education, both from DFID and from all agencies taken together, appears to have been only partly influenced by the quantitative objective of achieving UPE, as articulated by the second MDG. Nevertheless, although we shall argue that there does seem to be a *prima facie* case for sharply increasing

educational support to the countries having most of the world's out-of-school children, it is not surprising to find that this single variable does not fully determine the direction of aid flows. As shown below, other factors are, *a priori*, important to the design of a 'needs-based' allocation criterion.

Table 1 about here

Enrolment rates and school quality

Focussing all available aid resources in education on a handful of large countries – where the majority of out-of-school children live – is unlikely to provide the most effective use of aid resources, because a more diversified portfolio is likely to reduce risk and broaden the impact of the positive externalities that may flow from aid. Accordingly, the *rate* of under-enrolment (1 - PNER[4]), as well as its absolute level, is relevant as a separate influence on educational aid allocations. Although there are very many causes of low enrolments, including resource misallocation or other public policy failings, Figure 1 shows that those countries with very low PNERs tend to be amongst the poorest countries, and are likely to be amongst the more deserving of aid support on a range of criteria.

Figure 1 about here

The objective of supporting increased primary enrolment also needs to be qualified by a concern for what children learn whilst they are at school. If they learn very little, the schooling experience is unlikely to be valuable to them. Thus, if countries with high enrolments have very low school quality, they are in default of the objectives (though not, strictly, of the letter) of the MDGs, and a case for increased educational aid can be made on those grounds. Learning outcome measures constitute the most appropriate proxy for the quality of education, but there is at present a lack of comparable data across countries, which severely restricts their use. Although finding proxies for school quality is not easy, one indicator which appears to be linked with it is the survival rate to grade

5: low-quality schooling and high rates of drop-outs are strongly correlated, so where large proportions of people stay on through the higher grades, the quality of educational provision is generally better than where this is not so.[5] Successful delivery of the education MDGs would therefore seem to require both the achievement of high PNERs and reasonable quality, as proxied by continuation rates to at least grade 5 of primary school.

Accordingly, one means of comparing the varying needs of different countries for aid to education may be given by some combination of these two indicators. Index 0, in Appendix Table A1, shows the simple average of the PNER and the rate of survival to Grade 5, for each country, to provide an average measure of both enrolment and quality. Ranking the results in ascending order gives an initial indication of the comparative educational-policy performance of nations in the light of the MDG objectives: states with the lowest values for this combined indicator have the highest putative need.

Gender

Quite separately, the MDGs include a commitment to achieve enrolment parity between boys and girls. This should, of course, be achieved *pari passu* with enrolment expansion as countries approach universal enrolment. However, the initial target of achieving gender parity at primary and secondary levels by 2005 was missed, including by more than 40 countries at primary level.[6] Thus, achieving gender parity whilst *en route* to universal primary enrolment, is given separate importance by the MDGs. To reflect this, Index 1 in the Appendix Table A1 adds to Index 0 an index which measures gender parity amongst primary and secondary students and amongst adult literates (where data are available). A value of unity for this index indicates gender parity and lesser values indicate inequality of enrolments. The inclusion of gender parity in Index 1 reflects its status as a separate objective, and gives it equal weight with the enrolment and quality objectives.

Table 2, below, shows that each of the indices which utilise enrolment ratios produces a rather different priority list of countries for aid than that suggested by the simple listing of the countries where most out-of-school children live. The comparative ranking of the highest 20 countries is different under each of the criteria mentioned above. Whilst some of the high population countries, including DRC, Pakistan and Ethiopia, survive within the new groupings, the most urgent priority cases now become those where net enrolment ratios are exceedingly low (and where there are also usually severe gender imbalances in enrolments). Thus, instead of Nigeria, India, China, Sudan and Kenya appearing in the top 20 most 'needy' countries, these disappear and we now have Chad, Niger, Guinea and a number of other Francophone African states which appear to need most attention. Afghanistan and Mali both lose priority in the NER/survival index, but increase their importance with the addition of gender in Index 1, owing to their high levels of gender inequality in education. Also, Somalia becomes the first priority: although it has more than one million children out of school, which accounted for its high ranking on the absolute enrolment criterion, it also has very low net enrolments, low school quality and high gender inequality.

Table 2 about here

Mixing absolute and relative enrolment measures

It is clear from the above that whilst using PNERs and other proportionate measures can indicate the relative intensity of the under-enrolment and quality problems across countries, they do not satisfactorily distinguish between countries with vastly different out-of-school populations. Thus, for example, Nigeria and the Gambia both have PNER values of around 0.62. However, in the case of Nigeria this implies that about 8 million children are out of school, whereas in the Gambia, it translates into an out-of-school population of only around 52 000. If we are concerned to achieve the MDGs world-wide, it is obvious that the absolute scale of the problem in Nigeria dwarfs that of the

Gambia, even though their relative performance, in enrolment terms, is similar. Thus, whilst the absolute size of the out-of-school population should not be the *only* determinant of educational aid flows, it nevertheless ought to retain *some* significant influence on the direction and magnitude of funding provided.

Quite how much significance it should have for our purposes is a matter of judgement. However, in order to clarify some of the possibilities, a separate index has been developed to represent the absolute scale of under-enrolment in different countries[7] – where each percentile point represents 100 000 non-enrolled children, up to a maximum of 10 million such children. Where countries have fewer than 100 000 non-enrolled children, this measure is assigned a value of unity in all such cases. For other countries, as the numbers of children out of school increases, the value declines towards zero, which would be assigned in the case of countries with 10 million, or more, such children[8]. Thus, as with the other indices, low values imply low performance with respect to the education goals. Accordingly, this percentage scale can be combined with any of the other indices in order to give separate weight to the absolute size of the out-of-school population. This is done in Index 2, which provides an average of the values for PNER, survival rate to grade 5, gender and the out-of-school population.[9]

Each of these three indices can, in principle, take values between 0 and 1 (or, in percentage terms, 0 to 100), and in each of them a value of unity would approximate achievement of the MDGs for the particular criteria used. As more variables are added, however – as in indices 1 and 2 compared with Index 0 – so attaining a particular average score becomes more demanding. It is true that for countries that are approaching PNERs of 100, the other variables used in the indices will inevitably be moving in the same direction. This is because high PNERs can only be attained if gender parity is close to unity, if drop-out rates from school are low (and thus survival rates are high), and if the numbers out-of-school are falling towards zero. Thus there are strong correlations between each of these measures.

However, for lower PNER values each of these measures may be pulling in different directions. For example, where countries have PNERs of, say, 90 or less, there may often be large differences in the proportions of boys and girls enrolled; moreover, school quality may be very low, causing both high drop-outs and low learning success for those at school. Furthermore, in the larger nations, even quite high PNERs can be compatible with very many children remaining out of school.[10] In general, those countries farthest away from achieving the MDGs will tend to have low values for each of the criteria used in the indices: they will have low PNERs, low survival to grade 5, and low rates of gender parity. In global terms, such underperformance is obviously more serious the larger is the country, and thus, the greater the number of children who remain out of school.

Some of the implications of these different measures are indicated in Table 3, below. This table shows the impact of moving from a priority ranking for the top 50 countries based entirely on the number of non-enrolled children (col. 1) to ones using a mix of criteria which measure both absolute and relative under-performance. In general, the shift from the absolute measure (the 'out-of-school' ranking) to the purely relative measure (Index 0, col. 3) reduces the priority rating for most of those countries with very large non-enrolled populations. China, for example shifts from 4th to 89th in the list, whilst India moves from 5th to 56th. However, the further shift to Index 2 reduces the strength of some of these movements – with this more mixed set of absolute and relative criteria, China and India become 37th and 27th in the priority listing, respectively (see col. 4).

Table 3 about here

Obviously, changing the weights attached to each of the criteria changes the priority ranking of countries. Index 2 gives equal weight to four criteria: absolute numbers out-of-school, PNERs, survival rates and gender parity. Whether or not equal weights for each of these three criteria are appropriate is a matter of judgement, but the objectives of the education MDGs do seem well represented by such an approach. Furthermore,

amongst the high priority countries on Index 2, low income countries predominate: all except four of the first 30 countries are low income. High priority cases also tend to be weaker on governance criteria: 20 of the top 30 countries are classed as 'fragile states', whereas that is true of only eight of the remaining 20 countries shown under Index 2 in Table 3. On *a priori* grounds, therefore, Index 2 suggests itself as a useful aid allocation criterion to support the achievement of the education targets associated with the MDGs.

Country selection and aid volumes

In order to investigate the extent to which aid flows to education have been influenced by the criteria set out above, a variety of models of the determinants of both country selection and of aid volumes are tested. First, a hypothesised model, informed by the preceding discussion of 'optimal' criteria for the allocation of educational aid, is investigated. The main results are summarised in Table 4.

Table 4 about here

The table shows the extent to which education aid volumes, in the late 1990s and again a decade later, were variously influenced by income per capita, the number of children out of school, the primary net enrolment ratio and the survival rate to grade 5. It thus tests the extent to which variables present in Index 2 were determinants of aid direction and volumes. An income variable is added to those of Index 2, because poverty alleviation is an explicit objective of the MDGs. Accordingly, it can be expected to have some influence upon both overall levels of aid and relative levels of sectoral support. GEI is not separately included as an independent variable in these models. The correlation matrix (Appendix Table A2) shows that it is strongly correlated with the other included variables (NER, survival rate and GNI per capita). Partly by consequence, it did not achieve significance when included in the regression models, nor did it add to their explanatory power.

In response to there being a non-normal distribution of the data, common logarithmic transformations were used for the dependent variable, and for the independent variables out-of-school children and GNI per capita. As a consequence, India and China – clear outliers in the untransformed data because of their large populations and, in the case of India, its receipt of an exceptionally large amount of DFID aid – could be included in the analyses.

DFID aid to education was allocated to 59 of the 93 countries included in the data-set in 1998/9 and to only 43 of them a decade later. Accordingly more than half of the countries received no aid for education from DFID through much of the period. There are, therefore, many cases included in our analysis where the dependent variable takes a zero value. In response to this, an apparently plausible approach would be to utilise a Tobit model – a strategy that has been employed by a number of other aid studies in such circumstances (see e.g. Berthélemy & Tichit, 2004; Dollar & Levin, 2006; Thiele, Nunnenkamp, & Dreher, 2007). However, the Tobit model is actually intended to be used in the presence of censored data, i.e. where lower or upper limits occur in the recorded values for a particular variable, true values of which, beyond such limits, not being known. Yet in our data the reported zero values for aid received or allocated are true values, and are not a result of reporting errors. The assumptions implied by the use of a Tobit model are thus inappropriate, and would bring upward bias to the coefficients. As is to be expected, therefore, we find that the coefficients obtained when including all 93 countries in both OLS and Tobit regressions of DFID aid, rather than only those receiving aid, are larger than those shown in Table 4, especially so in the Tobit cases.[11] These are upwardly biased, for the reasons indicated, and the results shown in Table 4 are to be preferred.

From the perspective of an individual aid agency such as DFID, there is a need to take account of at least two distinct decisions in aid allocation, each of which may be affected by different criteria. The first is whether or not to select a particular country to receive aid. The second is how much aid to allocate to the selected countries.

As regards the amount of aid allocated, Table 4 shows that, for those countries selected by DFID to receive aid to education, per capita income, the number of out-of-school children and the primary net enrolment ratio were each significant predictors of the amounts allocated in 2008/9. Although the first two of these variables have the expected signs, the relationship between aid and NER is significant and positive – implying that amongst low-income countries with large numbers of children out of school, those with higher NERs are allocated more DFID aid than those with lower net enrolments. Perhaps on efficiency grounds, DFID aid allocation appears to be targeting those countries with a large absolute enrolment gap, but which are closer to achieving UPE than others. The survival rate to grade 5 was not, however, a significant predictor. Taken together, these variables accounted for about 40% of the variance of aid to education in 2008/9. Ten years earlier, on the other hand, none of these variables were significant determinants of the amount of educational aid provided, and the overall model is not significant for that year.

Thus it seems that, by the end of the decade, DFID aid to education was beginning to take account of the quantitative MDG enrolment objectives (although not the qualitative ones expressed by the EFA goals) more clearly than had earlier been the case. These results are consistent with the view that low income and large numbers of children out of school have become important determinants of DFID aid to education over the last decade. Using MDG criteria, one can say that DFID aid allocation to education seems to have somewhat improved.

As regards country selection, a separate logistic regression was conducted to investigate whether the decision to allocate some aid to a given country is influenced by the same factors as the decision as to how much to allocate. It was found that the same factors influence both decisions, with log GNI per capita ($p < .001$), log out-of-school children ($p < .05$) and NER ($p < .05$) being significant, and survival to grade 5 being insignificant, in the logistic regression.

A comparable analysis of the determinants of total (global) aid flows to education from all sources is presented in the final two columns of Table 4. Data on aid commitments are utilised, since they are arguably more strongly correlated with donors' allocation decisions than are disbursements – the latter also being influenced by implementation factors within recipient countries (McGillivray & White, 1993).

The analysis for 1999/2000 utilises data for the independent variables from 1998 (GNI per capita) or 1999 (all others). 15 countries are excluded because of missing values. In all but two of these cases, survival rates to grade 5 are missing, and for four countries - Afghanistan, East Timor, Sierra Leone and Somalia – data are not available for all three education variables. In the analysis for 2007, all the necessary data for the 93 countries are present. There are no zero values for the aid variable, and OLS estimations, in each case, are reported. As with the DFID models, logarithmic transformations of the dependent variable, GNI per capita and population variables are used in order to obtain normal distributions.

Table 4 shows that, for 1999/2000, the only significant predictor of total aid to education is the number of out-of-school children. This explains (together with the other non-significant variables) about 26% of the variance of education aid volumes. By comparison, the 2007 model for total aid explains about 40% of the variance, with both out-of-school children and NER (again with a positive sign) now reaching strong levels of significance. Here, too, survival to grade 5 has no effect on the size of aid allocations. As with the DFID analyses, this indicates that the allocation of aid has improved, using MDG criteria, and the analysis suggests that both DFID aid and total aid were, by the late 2000s, similarly influenced by these factors.[12]

The question arises, however, as to whether other factors, beyond those deriving from MDG criteria, are influential in aid allocations to education. In order to investigate this possibility, Table 5 presents a 'best-fit' model of the determinants of the allocation of DFID aid to education in 2008-09, using stepwise modelling.[13]

Table 5 about here

It can be seen that total population, GNI per capita and Commonwealth membership together explain about 50% of variance (in contrast to the 40% of variance explained by the earlier model). Each of the three variables contributes strongly to the additional amount of variance explained. Accordingly, these results suggest that DFID's aid allocation practice in education reflects general priorities – low income, large population, and the political and historical ties proxied by Commonwealth membership, which have previously been shown to be significant determinants of the UK's overall aid (McGillivray & Oczkowski, 1992) – more strongly than the MDG objectives for the education sector.

Again, a separate logistic regression was conducted to investigate whether the decision on country selection is based on the same exploratory factors as the decision about how much aid to allocate, as investigated in Table 5. Commonwealth membership ($p < .01$), GNI per capita ($p < .001$), and total population ($p < .01$) were also the first three variables selected in the stepwise logistic modelling.[14]

It should also be noted that it is possible to explain a similar, but slightly smaller, amount of variance by substituting the log of out-of-school children for that of the total population. These variables are highly correlated (Appendix Table A2). This raises the possibility that decisions regarding the allocation of aid actually reflect not so much a concern to reduce the numbers of children out-of-school, as a 'large population bias' in country selection (see Doucouliagos & Paldam, 2007).

Table 6 about here

Table 6 presents a similar analysis for total aid to education in 2007. This model explains almost half of the variance of aid allocation in that year – almost all of which is accounted for by the total population variable.[15] The fit is very similar to that for DFID aid in Table 5. Here, too, it seems that low income countries with large populations are

given preference in the allocation of global educational aid, and that these factors have a stronger influence than the purely MDG constituents of Index 2.[16]

Actual and optimal allocations compared: DFID and other donors

How, then, do the revealed priorities for allocations of aid to education by DFID, and by all agencies taken together, compare with outcomes which might otherwise result from the use of 'optimal' measures? A first issue in this context concerns whether the neglect of some of the higher priority countries by DFID is compensated by high levels of support from other sources. If so, this might provide a good rationale for DFID's selective approach, as documented in the previous section.

Data to judge this matter are not easily available. However, the last two columns of Table 3 show the total amount of education aid per child for each country from all sources in 2003/4, and compares this with DFID education aid per child for 2005/6 (expressed in 2003/4 dollars) for the 50 highest priority countries.

It can be seen from the table that allocations of aid from all sources differ widely and, as with DFID, seem only weakly related to criteria of 'objective' need. The correlation matrix in Appendix Table A2 indicates that DFID and total aid are strongly positively correlated, which indicates that at least a simple compensatory relationship is not present between them. However, it is useful to ask whether there are particular cases of high priority countries which are neglected by DFID, but which are well supported from other sources. Table 3 suggests that this is so in some, but by no means all, cases.

In 2003/4 aid from all sources for basic education in developing countries was just less than $5 per school-age child, and the average received by Sub-Saharan African and South Asian countries was about $6.5 per school-age child. Yet, in the four highest priority cases indicated by Index 2 in Table 3 – DRC, Somalia, Pakistan and Nigeria – not only was DFID aid very small (zero in Somalia and substantially less than one dollar

per school age child in the other three cases), but total aid to basic education in these countries was also very low – in all cases substantially less than mean education aid per child to SSA and S Asia at that time. This was also true of Ethiopia, ranked at 9th place in the Index 2 priority list. Clearly these five countries are likely to need much greater support, not just from UK but from all sources, if MDG targets are to be met.

In the cases of Chad, Afghanistan, Niger, Guinea Bissau and Burkina Faso, on the other hand, UK aid to basic education was zero in 2005/06 – yet aid from all other sources appears to have been running at relatively healthy levels of $16-$24 per child. In these cases the objective arguments for strong aid commitments in support of the MDGs remain compelling, but the case for beginning new programmes of UK support would seem less clear, in comparison with other priority cases. In these cases at least, a *de facto* compensatory relationship between DFID and total aid allocation to education – whether coincidental or not – was at that time in place.

Figure 2 about here

These points are sharpened by examining Figure 2, which shows the actual distribution of DFID education aid to the 44 countries receiving it in 2008/9. The concentration of aid flows to India and to a handful of African countries emerges clearly, at the left-hand side of the graph. More 'optimal' distributions following from the use of out-of-school children as a criterion for allocation, or of Index 2, are shown in the graph. Of the countries supported by DFID in that year, the use of either of those criteria would generally have involved significant reductions of aid to the presently most favoured countries, and substantial increases to many of those less favoured – particularly Nigeria, Somalia, Sudan, DRC, Sierra Leone, Yemen, Burundi and others.

Figure 3 about here

Figure 3 presents a similar analysis for total aid in 2007 to all 93 countries in the database. Some of the over-allocations present in the DFID case are removed – in

particular those of India, Kenya, Ghana, Tanzania, and others. But many of the cases of under-allocation remain – Nigeria, Pakistan, DRC, Ethiopia, Burkina Faso, Sudan, Niger and Somalia. For these cases – and many other less extreme examples indicated in the graph – there is a significant misallocation of aid to education, both from DFID and all agencies taken together, if the MDGs were systematically to be addressed[17].

It is possible to calculate a coefficient which summarises in a single statistic the extent to which aid is well or poorly allocated according to given criteria. This can be expressed, for any set of aid-supported countries, as the sum of the discrepancies between actual and 'optimal' aid for each of the countries, divided by total aid provided to all of the countries, *viz*:

Optimal allocation coefficient = sum(actual – optimal aid)/ sum (actual aid)

The possible values for this coefficient range between 0 (where all aid would be optimally allocated) and 2 (where none of the aid would be optimally allocated). Calculated values for this coefficient for DFID aid and for total aid to education over the past decade are shown in Table 7.

Table 7 about here

The coefficients confirm that there is significant misallocation of education aid, using MDG criteria. If all countries for which we have data are included, aid from DFID emerges as being very highly misallocated, particularly at the outset of the period, with coefficient values of 1.2 or more. If, however, only those countries which received DFID aid are included, the distribution is somewhat better – although the size of the coefficients indicate that for most of the period, less than 50% of UK aid was optimally allocated on MDG grounds. Nevertheless, as suggested by our earlier analyses, DFID aid allocation improved significantly over the past decade with the coefficients for Index 2 allocation falling from 1.19 in 1998/9 to 0.96 ten years later – representing a 20% shift towards greater optimality.

The distribution of total aid had a more mixed record – improving over the years to 2007 on the out-of-school criterion, whilst deteriorating slightly in terms of Index 2. Nevertheless, the table shows that total aid to all countries was more optimally allocated, throughout the period, than DFID aid (even excluding the countries not aided by UK). Indeed in 2008/9, DFID aid to education remained more misallocated than had been the case with total education aid ten years earlier.

Conclusion

The aid commitments made by the international community to support the achievement of the MDGs are large. In the case of DFID, following the Gleneagles provisions of 2005, UK official development assistance was set to rise from about £4 billion to around £6.5 billion per year by 2007/8, with further annual increases so as to meet the UN target of 0.7 per cent of UK national income being spent on overseas aid by 2013.[18] Many other aid agencies made similar – if less ambitious – commitments. Whilst aid transfers have increased, and are now, in real terms, significantly greater than they were at the turn of the century, substantial inefficiencies in aid targeting are apparent, at the macro level, when using present or future poverty alleviation as the determining criteria for aid allocation.

However, the agenda for tackling global poverty has been codified, in the Millennium Declaration, in a set of sectoral targets to be achieved by the year 2015, which have had considerable influence upon the aid dialogue. Since levels of variance between the distribution of global poverty and the under-achievement of particular sectoral targets are often considerable, it may be that aid funds have been more closely aligned with attempts to tackle the latter than the former. This paper has examined whether this is true in the case of aid to education.

On the basis of a set of criteria for aid allocation implied by the MDG targets for education, I have shown that there are sharp differences between actual and 'optimal' aid distributions for education. Accordingly, there is no evidence that the lack of concordance between aid allocation principles and revealed practice at the macro level, as reported in earlier studies, is any less apparent at the sectoral level, as judged by the influence of the particular education targets established by the Millennium Declaration. Whilst the evidence shows that DFID allocates educational resources in ways which are somewhat influenced by MDG targets, there is much variance in its allocation behaviour which remains unexplained, even after allowing for allocations made by other agencies.

In addition, the paper has shown that one of the most significant challenges facing the aid community is to increase significantly the levels of resource availability to some of the high population countries which are furthest from achieving the MDGs. These countries include DRC, Somalia, Pakistan, Nigeria, Ethiopia and Sudan. Together, they account for a high proportion of the world's out-of-school children, their school systems are often of poor quality, and recent levels of aid to education, both from UK and other sources, have been far smaller than is required.

The paper has also argued, however, that aid allocation criteria which mix both absolute and relative measures of underperformance are relevant and useful as a guide to decision-making. Many of the smaller countries with low levels of MDG achievement deserve priority for aid purposes because it may often be easier, with the help of aid, to increase PNER values by a given proportionate amount in small, rather than in larger, countries. Furthermore, even where enrolments are relatively high, educational quality may remain poor, and the potential impact of aid on education policy may bring benefits beyond those countries having the largest numbers of children out-of-school. Accordingly there are several grounds for individual donors not placing their educational aid efforts entirely on the large countries. A more diversified strategy spreads risks and may well achieve more per dollar than would an exclusive concentration on such states. It remains the

case, however, that there is substantial room to improve the efficiency of targeting within such diversified strategies.

In that context, I have shown that MDG-relevant factors, namely out-of-school children, the primary net enrolment ratio and the survival rate to grade 5, have had some influence upon DFID aid allocations to education, and that such influence has increased since 2000. Although across all developing countries, allocations of DFID education aid are only weakly influenced by 'objective' indicators of need, the influence of such considerations is somewhat stronger across the particular group of countries which DFID chooses to support. However, it remains the case that the most important factors that influence the size and direction of educational aid from UK are per capita income, population size and the historical links created by the British Empire. The paper has shown that the allocation of global aid to education is slightly more optimally distributed than DFID aid to education but, there too, population size remains a dominant determinant. Both for agencies like DFID, which has espoused the achievement of the education MDGs as its first priority, and for all aid agencies taken together, we can conclude that the revealed practice of aid resource allocation in education is currently not properly serving MDG goals.

Footnotes

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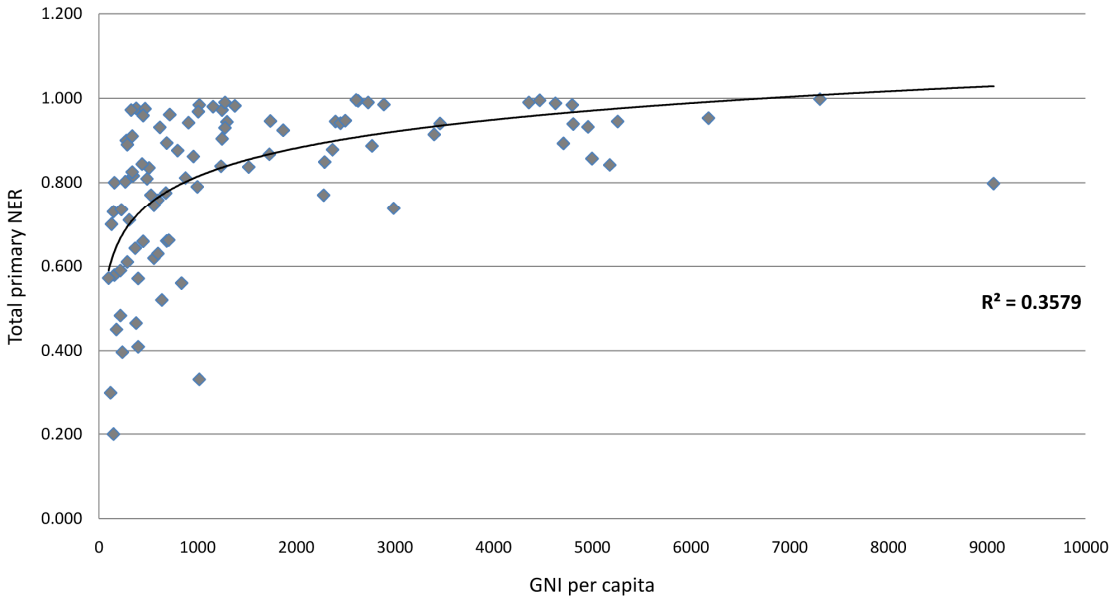
Tables and Figures

Table 1: Out-of-school children and UK aid to education

Countries	Out-of-school children (000) 1999	DFID bilateral spending on education 1998/9 (£)	Total aid to education 1999/00 ($ millions)	Countries	Out-of-school children (000) 2004	DFID bilateral spending on education 2008/9 (£)	Total aid to education 2007 ($ millions)
India	20,549	9,779,134	522	Nigeria	8,110	9,979,712	489
Nigeria	8,218	1,217,935	83	DR Congo	6,512	835,746	261
China	8,055	2,154,891	188	Pakistan	6,463	24,060,929	316
Pakistan	7,785	4,947,816	31	China	5,555	9,316,166	697
Ethiopia	7,069	505,698	59	India	4,583	72,397,472	423
DR Congo	5,571	0	16	Ethiopia	3,615	28,388,504	186
Tanzania	3,148	1,391,201	95	Sudan	2,562	2,315,250	75
Sudan	2,405	107,167	23	Niger	1,326	2,992,545	46
Indonesia	2,046	2,457,151	293	Afghanistan	1,288	12,000,000	277
Kenya	1,859	3,646,432	73	Burkina Faso	1,271	0	112
Bangladesh	1,687	4,832,664	149	Kenya	1,226	33,983,892	69
Iran	1,616	28,956	88	Cote D'Ivoire	1,223	0	65
Mozambique	1,574	996,106	176	Mali	1,172	1,103,600	136
Yemen	1,410	91,687	78	Ghana	1,129	28,836,509	188
Ghana	1,350	6,614,711	138	Somalia	1,126	5,045,279	9
Cote D'Ivoire	1,290	38,982	156	Mozambique	1,089	15,270,430	384
Niger	1,255	0	37	Turkey	900	0	144
Burkina Faso	1,231	0	81	Yemen	861	3,304,405	78
Morocco	1,183	15,798	296	Iran	803	0	56
Turkey	1,049	553,335	247	Brazil	800	0	73
Totals	80,350	39,379,664	2,829		51,614	249,830,439	4,084
Global totals for education	97,209	93,533,362	6,512		65,360	418,034,274	9,148
% of global total	83%	42%	43%		79%	60%	45%

Note: Data for Somalia and Afghanistan, both among the countries with most out-of-school children in 2004, are not available for 1999.
Source: Appendix Table A1.

Figure 1: Net enrolments and per capita income 2004/5



Source: data from Appendix Table A1.

Table 2: Ranking of countries according to different 'needs' criteria

Ranking on basis of absolute number of out-of-school children	Ranking on basis of low NER and survival rate to grade 5 (Index 0)	Ranking on basis of low NER, survival rate and gender (Index 1)	Ranking on basis of low NER, survival rate, gender and out-of-school children (Index 2)
Nigeria	Somalia	Somalia	DR Congo
DR Congo	DR Congo	Chad	Somalia
Pakistan	Guinea Bissau	Guinea Bissau	Pakistan
China	Chad	Afghanistan	Nigeria
India	Niger	Niger	Chad
Ethiopia	Burkina Faso	DR Congo	Afghanistan
Sudan	Equatorial Guinea	Burkina Faso	Niger
Niger	East Timor	Mozambique	Guinea Bissau
Afghanistan	Rwanda	Cote D'Ivoire	Ethiopia
Burkina Faso	Mozambique	Mali	Burkina Faso
Kenya	Burundi	Djibouti	Cote D'Ivoire
Cote D'Ivoire	Djibouti	Equatorial Guinea	Mozambique
Mali	Malawi	Eritrea	Mali
Ghana	Cote D'Ivoire	Pakistan	Burundi
Somalia	Pakistan	Burundi	Eritrea
Mozambique	Eritrea	Sierra Leone	Djibouti
Turkey	Sierra Leone	Yemen	Yemen
Yemen	Ghana	Guinea	Equatorial Guinea
Iran	Mali	Ethiopia	Guinea
Brazil	Ethiopia	Malawi	Sierra Leone

Notes: Index 0 = (NER + survival rate to grade 5)/2

Index 1 = (NER + survival rate to grade 5 + gender parity index)/3

Index 2 = (NER + survival rate to grade 5 + gender parity index + out-of-school children index)/4

Source: Appendix Table A1.

Table 3: Priorities for the allocation of education aid, based upon different 'needs' criteria

	Out-of-school ranking	Ranking on Index 0	Ranking on Index 2	Change in rank (out-of-school - Index 2)	Index 2 ranking	Low income country	Fragile state	Aid to basic education per primary-school-age child 2003 ($)	DFID aid per school age child, 2005/6 ($)
Nigeria	1	23	4	-3	DR Congo	*	*	2.6	0.03
DR Congo	2	2	1	1	Somalia	*	*	2.1	0.00
Pakistan	3	14	3	0	Pakistan	*		4.1	0.09
China	4	89	37	-33	Nigeria	*	*	1.1	0.78
India	5	56	27	-22	Chad	*	*	16.7	0.00
Ethiopia	6	20	9	-3	Afghanistan	*	*	16.2	0.00
Sudan	7	26	26	-19	Niger	*	*	16.7	0.00
Niger	8	5	7	1	Guinea Bissau	*	*	23.4	0.00
Afghanistan	9	21	6	3	Ethiopia	*	*	3.9	0.39
Burkina Faso	10	6	10	0	Burkina Faso	*		18.2	0.00
Kenya	11	36	35	-24	Cote D'Ivoire	*	*	0.7	0.00
Cote D'Ivoire	12	15	11	1	Mozambique	*		7.6	6.16
Mali	13	19	13	0	Mali	*	*	19	0.00
Ghana	14	18	22	-8	Burundi	*	*	0.8	2.23
Somalia	15	1	2	13	Eritrea	*	*	43.2	0.00
Mozambique	16	11	12	4	Djibouti		*	29.9	0.00
Turkey	17	75	54	-37	Yemen	*	*	23.2	1.05
Yemen	18	33	17	1	Equatorial Guinea			27.2	0.00
Iran	19	63	58	-39	Guinea	*	*	7.6	0.00
Brazil	20	62	60	-40	Sierra Leone	*	*	41.8	6.83
Colombia	21	46	51	-30	Malawi	*		4.5	5.01
Nepal	22	25	29	-7	Ghana	*		16.4	10.18
Chad	23	4	5	18	Liberia		*	4.2	1.19
Philippines	24	52	56	-32	Rwanda	*		1.7	18.55
Myanmar	25	44	48	-23	East Timor		*	51.2	6.09
Viet Nam	26	65	61	-35	Sudan	*	*	2.2	0.76
Senegal	27	27	30	-3	India	*		3.6	1.40
Tanzania	28	50	49	-21	Benin	*		15.5	0.00
Cameroon	29	59	47	-18	Nepal	*	*	23.8	2.70
Uganda	30	40	36	-6	Senegal	*		8.4	0.00
Morocco	31	51	43	-12	Togo	*	*	3.9	0.00
Guinea	32	30	19	13	Gambia, The	*	*	12.3	5.31
Burundi	33	10	14	19	Lao P D R	*	*	10.3	0.00
South Africa	34	60	62	-28	Papua New Guin.		*	31.5	0.00
Malawi	35	13	21	14	Kenya	*	*	12.8	1.74
Zambia	36	64	55	-19	Uganda	*		5.2	3.40
Zimbabwe	37	35	44	-7	China			0.5	0.04
Bangladesh	38	47	45	-7	Madagascar	*		4.7	0.00
Rwanda	39	9	24	15	Cambodia	*		2.9	0.01
Sierra Leone	40	17	20	20	Lesotho			50.8	0.00
Ukraine	41	69	73	-32	Dominican Rep.			3.9	0.00
Eritrea	42	16	15	27	Mauritania	*		1.7	0.00
Madagascar	43	29	38	5	Morocco			1.5	0.00
Liberia	44	24	23	21	Zimbabwe	*	*	0.5	0.10
Indonesia	45	78	82	-37	Bangladesh	*		24.8	2.86
Papua New Guin.	46	28	34	12	Nicaragua		*	14.2	0.09
Malaysia	47	83	83	-36	Cameroon		*	5.2	0.00
Benin	48	37	28	20	Myanmar	*		0.9	0.00
Egypt	49	92	80	-31	Tanzania	*		8.4	5.11
Venezuela	50	76	72	-22	Swaziland			1.2	0.00

Notes: Out-of-school children ranking in columns 1 and 2 is based upon numbers out of school, in descending order of magnitude.
Index 0 = (NER + survival rate to grade 5)/2
Index 2 = (NER + survival rate to grade 5 + gender parity index + out-of-school children index)/4
In the cases of Rwanda, Burundi and Malawi, DFID aid for education increased substantially between 2003 and 2005/6, causing thee figures shown in the final column to exceed those in the penultimate column for those countries.

Sources: DFID (2005) for fragile states classification and UNESCO (2006) for aid to basic education per primary-school-age child. All other variables were calculated using data from Appendix Table A1,

Table 4: Theoretical models for DFID aid (only aid recipients) and total aid (all countries)

	DFID aid 1998/9	DFID aid 2008/09[1]	Total aid 1999/00[2]	Total aid 2007
Log GNI per capita	-.155	-1.208**	-.041	-.242
	(-.45)	(-3.25)	(-.28)	(-1.68)
Log out-of-school children	.287	.552***	.361***	.476***
	(1.70)	(4.32)	(5.03)	(7.02)
Total primary NER	1.589	1.599*	.632	1.444***
	(1.75)	(2.34)	(1.79)	(4.12)
Survival rate to grade 5	-.745	.476	-.210	.157
	(-.85)	(.61)	(-.59)	(.416)
Intercept	4.395**	6.745***	.568	.026
	(3.53)	(7.26)	(1.16)	(.06)
# of observations	59	43	78	93
R^2	.099	.457	.295	.422
Adjusted R^2	.032	.400	.256	.395

[1] Excludes one case receiving less than £10'000.
[2] Excludes 15 cases due to missing data.
Dependent variables: Log of DFID aid to education 1998/9, log of DFID aid to education 2008/09, log of total aid commitments to education 1999/00 (average), log of total aid commitments to education 2007.
t-values in parentheses.
* p < .05. ** p < .01. *** p < .001.
Source: Appendix Table A1.

Table 5: DFID 2008-09 best-fit model (only aid recipients[1])

	OLS
Step 1	
Log total population	.504**
	(2.90)
Intercept	4.313***
	(5.71)
R^2	.170
Adjusted R^2	.149
Step 2	
Log total population	.600***
	(3.95)
Log GNI per capita	-1.145***
	(-3.91)
Intercept	6.983***
	(7.40)
ΔR^2	.229
Adjusted ΔR^2	.220
Step 3	
Log total population	.604***
	(4.44)
Log GNI per capita	-1.193***
	(-4.54)
Commonwealth membership	.622**
	(3.30)
Intercept	6.818***
	(8.05)
ΔR^2	.131
Adjusted ΔR^2	.125
# of observations	43
Final R^2	.530
Final adjusted R^2	.494

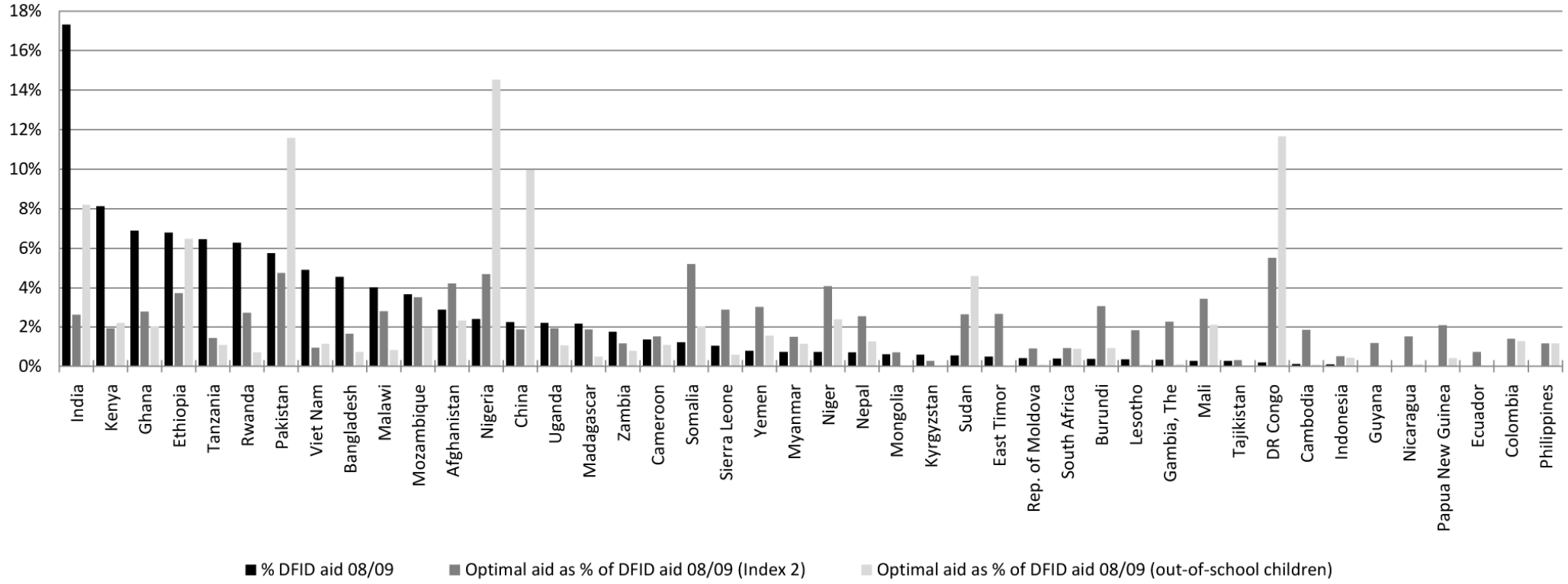
[1] Excludes one case receiving less than £10'000.
Dependent variable: Log of DFID aid to education 2008-09.
t-values in parentheses.
* p < .05. ** p < .01. *** p < .001.
Source: Appendix Table A1.

Table 6: Total aid 2007 best-fit model

	OLS
Step 1	
Log total population	.585***
	(8.77)
Intercept	-.736**
	(-2.67)
R^2	.458
Adjusted R^2	.452
Step 2	
Log total population	.572***
	(8.81)
Log GNI per capita	-.235*
	(-2.52)
Intercept	.012
	(.03)
ΔR^2	.036
Adjusted ΔR^2	.031
# of observations	93
Final R^2	.494
Final adjusted R^2	.483

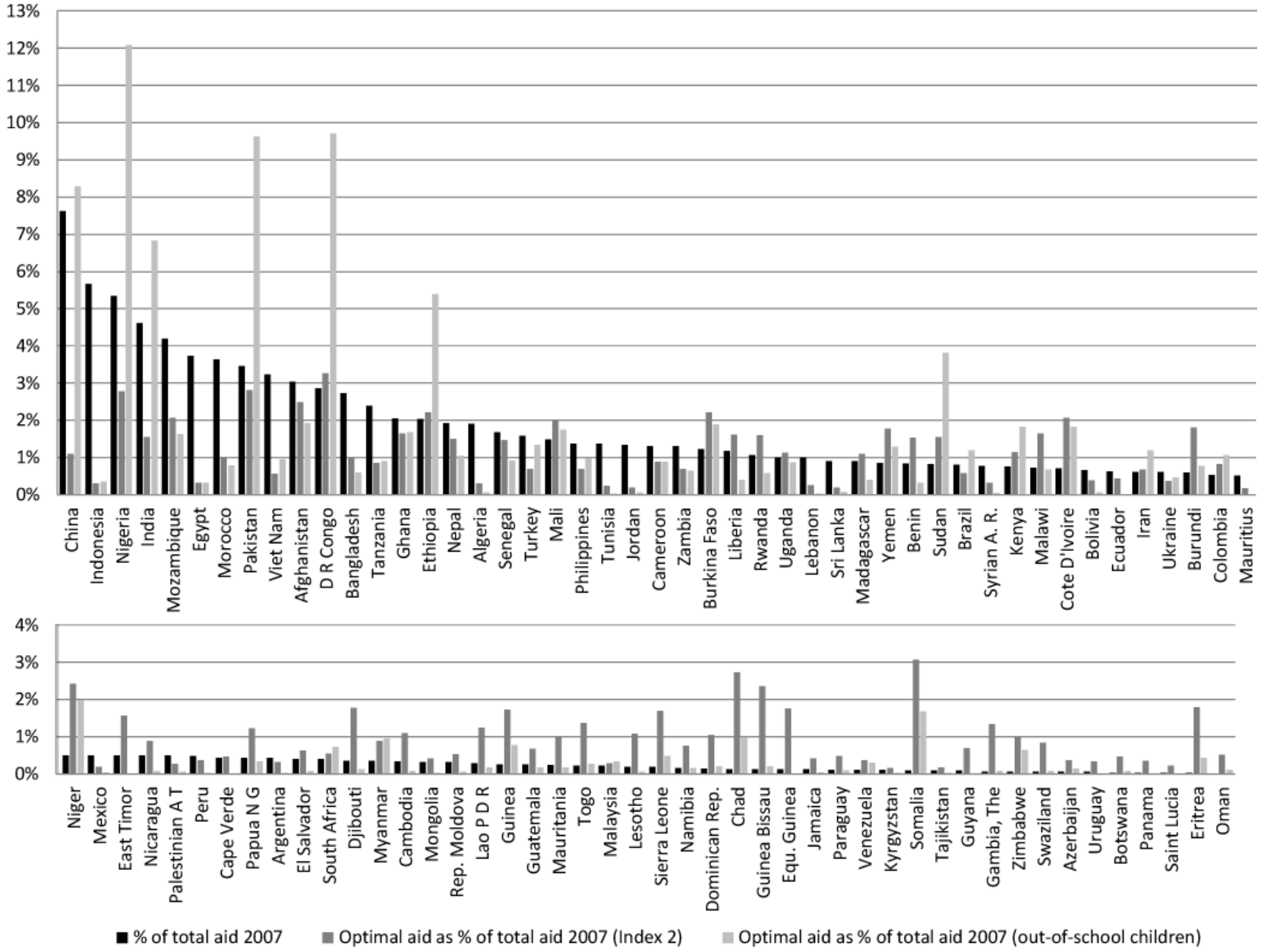
Dependent variable: Log of total aid commitments to education 2007.
t-values in parentheses.
* p < .05. ** p < .01. *** p < .001.
Source: Appendix Table A1.

Figure 2: Actual and optimal DFID aid 2008/9 according to Index 2 and out-of-school children



Source: Appendix Table A1.

Figure 3: Actual and optimal total aid 2007 according to Index 2 and out-of-school children



Source: Appendix Table A1.

Table 7: Optimal allocation coefficients[1] of aid to education: DFID and global total

	Index 2	Out-of-school children
DFID 1998/9 (all countries)	1.34	1.20
	(n = 78)	(n = 78)
DFID 2008/9 (all countries)	1.27	1.14
	(n = 93)	(n = 93)
DFID 1998/9 (recipient countries)	1.19	1.18
	(n = 59)	(n = 59)
DFID 2008/9 (recipient countries)	0.96	1.03
	(n = 44)	(n = 44)
Total aid 1999/0 (all countries)	0.82	0.97
	(n = 78)	(n = 78)
Total aid 2007 (all countries)	0.88	0.83
	(n = 93)	(n = 93)

[1] Optimal allocation coefficient = sum(actual – optimal aid)/ sum (actual aid)
Note: Coefficients for 1998/9 and 1999/00 were calculated using 1998/9 variables and coefficients for 2007 and 2008/09 using 2004 variables. Limited 1998/9 data availability meant that 15 countries had to be excluded. These 15 countries were also excluded in 2007 and 2008/09 to maintain comparability between the years.
Source: Appendix Table A1.

Appendix

Table A1: Data set

	Countries	EFA supp. index 2	EFA supp. index 1	EFA supp. index 0	Index for out-of-school child.	DFID aid to education 2008/9 (£)	DFID aid to education 2005/6 (£)	DFID aid to education 1998/9 (£)	Total aid to educ. 2007 ($ mil.)	Total aid to educ. 1999/00 ($ mil.)	Commo n-wealth memb.	Total primary NER 2004	GEI 2004	Survival rate to grade 5 2004	GNI p.c. 2005 ($)	Total pop. 2004 (000)	School-age pop. 2003 (000)	Out-of-school children 2004 (000)	Out-of-school children 1999 (000)	Index 2 optimal DFID aid[1]	Index 2 DFID aid discre-pancy[2]	Out-of-school children optimal DFID aid[3]	Out-of-school children DFID aid discrep.[4]
1	DR Congo	0.520	0.577	0.425	0.349	835,746	148,119	0	261	16	No	0.300	0.880	0.550	120	55,853	9,304	6,512	5,571	13,626,461	-3.06%	40,579,318	-9.51%
2	Somalia	0.547	0.433	0.400	0.887	5,045,279	0	37,959	9	6	No	0.200*	0.500*	0.600*	150*	7,964	1,407	1,126*	n. a.	12,856,196	-1.87%	7,016,633	-0.47%
3	Pakistan[11]	0.586	0.663	0.630	0.354	24,060,929	1,016,017	4,947,816	316	31	Yes	0.660	0.730	0.600*	690	154,794	19,748	6,463	7,785	11,747,610	2.95%	40,273,976	-3.88%
4	Nigeria	0.591	0.725	0.673	0.189	9,979,712	9,815,850	1,217,935	489	83	Yes	0.619	0.829	0.726	560	128,709	21,277	8,110	8,218	11,607,144	-0.39%	50,534,711	-9.70%
5	Chad	0.597	0.485	0.514	0.934	0	0	0	12	35	No	0.571	0.425	0.458	400	9,448	1,585	657	654	11,434,803	-2.74%	4,094,074	-0.98%
6	Afghanistan	0.633	0.553	0.665	0.871	12,000,000	0	227,117	277	8	No	0.730	0.330	0.600*	150*	28,574	4,771	1,288	n. a.	10,417,732	0.38%	8,026,130	0.95%
7	Niger	0.644	0.570	0.566	0.867	2,992,545	0	0	46	37	No	0.396	0.578	0.736	240	13,499	2,194	1,326	1,255	10,091,480	-1.70%	8,262,926	-1.26%
8	Guinea Bissau	0.652	0.540	0.475	0.987	0	0	0	12	16	No	0.450	0.670	0.500	180	1,540	247	135	114	9,883,653	-2.36%	841,248	-0.20%
9	Ethiopia	0.674	0.686	0.656	0.639	28,388,504	1,935,727	505,698	186	59	No	0.579	0.745	0.733	160	75,600	8,430	3,615	7,069	9,246,959	4.58%	22,526,756	1.40%
10	Burkina Faso	0.675	0.609	0.584	0.873	0	0	0	112	81	No	0.409	0.661	0.758	400	12,822	2,150	1,271	1,231	9,216,015	-2.20%	7,920,195	-1.89%
11	Cote D'Ivoire	0.694	0.633	0.630	0.878	0	0	38,982	65	156	No	0.560	0.640	0.700	840	17,872	2,877	1,223	1,290	8,669,386	-2.07%	7,621,085	-1.82%
12	Mozambique	0.696	0.631	0.601	0.891	15,270,430	13,694,255	996,106	384	176	Yes	0.710	0.691	0.492	310	19,424	3,761	1,089	1,574	8,622,251	1.59%	6,786,068	2.03%
13	Mali	0.702	0.641	0.656	0.883	1,103,600	0	0	136	106	No	0.465	0.613	0.846	380	13,124	2,191	1,172	862	8,463,526	-1.76%	7,303,280	-1.48%
14	Burundi	0.734	0.663	0.601	0.948	1,556,665	1,600,000	2,740	55	7	No	0.572	0.787	0.630	100	7,282	1,212	518	703	7,535,900	-1.43%	3,227,900	-0.40%
15	Eritrea	0.736	0.657	0.643	0.971	0	0	134,216	2	39	No	0.483	0.686	0.803	220	4,232	564	291	335	7,498,882	-1.79%	1,813,357	-0.43%
16	Djibouti	0.737	0.653	0.604	0.992	0	0	0	33	54	No	0.332	0.749	0.877	1020	779	124	83	83	7,452,475	-1.78%	517,212	-0.12%
17	Yemen	0.738	0.679	0.745	0.914	3,304,405	2,201,872	91,687	78	78	No	0.758	0.548	0.732	600	20,329	3,552	861	1,410	7,438,022	-0.99%	5,365,294	-0.49%
18	Equat. Guinea	0.741	0.654	0.591	0.999	0	0	0	11	11	No	0.857	0.780	0.326	5000	492	65	9	7	7,359,563	-1.76%	56,083	-0.01%
19	Guinea	0.746	0.679	0.732	0.948	0	0	0	24	47	No	0.643	0.575	0.820	370	9,202	1,451	519	699	7,193,506	-1.72%	3,234,132	-0.77%
20	Sierra Leone	0.749	0.677	0.645	0.967	4,332,332	3,223,309	11,771	17	27	Yes	0.590	0.740	0.700	220	5,336	798	327	n. a.	7,111,833	-0.66%	2,037,690	0.55%
21	Malawi	0.757	0.691	0.619	0.955	16,826,887	6,729,006	10,944,796	67	160	Yes	0.800	0.834	0.438	160	12,608	2,274	455	20	6,902,882	2.37%	2,834,072	3.35%
22	Ghana	0.759	0.716	0.646	0.887	28,836,509	19,798,722	6,614,711	188	138	Yes	0.659	0.855	0.633	450	21,664	3,291	1,129	1,350	6,848,809	5.26%	7,035,327	5.22%
23	Liberia	0.763	0.693	0.700	0.973	0	389,214	0	108	2	No	0.700	0.680	0.700	130	3,241	552	271	268	6,717,479	-1.61%	1,688,728	-0.40%
24	Rwanda[11]	0.764	0.699	0.596	0.961	26,234,617	16,112,332	3,373,584	98	89	Yes	0.735	0.904	0.458	230	8,882	1,470	390	210	6,687,628	4.68%	2,430,272	5.69%
25	East Timor[7, 10]	0.769	0.692	0.595	1.000	2,056,709	431,933	12,452	46	9	No	0.630	0.887	0.560	600	887	120	3	n. a.	6,546,309	-1.07%	18,694	0.49%
26	Sudan[11]	0.771	0.780	0.720	0.744	2,315,250	2,404,221	107,167	75	23	No	0.520	0.900	0.920	640	35,523	5,337	2,562	2,405	6,498,316	-1.00%	15,965,020	-3.27%
27	India[11]	0.772	0.848	0.875	0.542	72,397,472	96,987,501	9,779,134	423	522	Yes	0.961	0.795	0.789	720	1,087,124	117,206	4,583	20,549	6,478,675	15.77%	28,558,817	10.49%
28	Benin	0.775	0.707	0.764	0.978	0	0	0	76	49	No	0.835	0.592	0.694	510	8,177	1,335	220	586	6,392,107	-1.53%	1,370,923	-0.33%
29	Nepal	0.779	0.729	0.705	0.930	2,954,950	5,643,185	1,205,822	175	66	No	0.802	0.776	0.608	270	26,591	3,534	698	1,043	6,266,840	-0.79%	4,349,564	-0.33%
30	Senegal	0.783	0.731	0.722	0.938	0	0	41,166	153	169	No	0.662	0.749	0.782	710	11,386	1,819	616	740	6,162,798	-1.47%	3,838,584	-0.92%
31	Togo	0.797	0.735	0.788	0.982	0	0	0	20	16	No	0.816	0.631	0.760	350	5,988	974	180	148	5,761,353	-1.38%	1,121,664	-0.27%
32	Gambia, The	0.804	0.740	0.665	0.995	1,349,902	674,655	106,365	6	13	Yes	0.610	0.890	0.720	290	1,478	215	52	53	5,569,174	-1.01%	324,036	0.25%

	Countries	EFA supp. index 2	EFA supp. index 1	EFA supp. index 0	Index for out-of-school child.	DFID aid to education 2008/9 (£)	DFID aid to education 2005/6 (£)	DFID aid to education 1998/9 (£)	Total aid to educ. 2007 ($ mil.)	Total aid to educ. 1999/00 ($ mil.)	Commo n-wealth memb.	Total primary NER 2004	GEI 2004	Survival rate to grade 5 2004	GNI p.c. 2005 ($)	Total pop. 2004 (000)	School-age pop. 2003 (000)	Out-of-school children 2004 (000)	Out-of-school children 1999 (000)	Index 2 optimal DFID aid[1]	Index 2 DFID aid discre-pancy[2]	Out-of-school children optimal DFID aid[3]	Out-of-school child. DFID aid discrep.[4]
33	Lao P D R	0.817	0.759	0.735	0.988	0	0	81,798	26	35	No	0.844	0.809	0.626	440	5,792	760	119	178	5,205,333	-1.25%	741,545	-0.18%
34	Papua NG[6, 7, 8, 9, 11]	0.818	0.766	0.727	0.977	45,540	0	0	40	116	Yes	0.775	0.843	0.678	680	5,772	926	231	196	5,151,417	-1.22%	1,439,469	-0.33%
35	Kenya	0.832	0.817	0.762	0.877	33,983,892	5,478,318	3,646,432	69	73	Yes	0.770	0.928	0.753	530	33,467	5,325	1,226	1,859	4,764,092	6.99%	7,639,779	6.30%
36	Uganda	0.833	0.797	0.770	0.941	9,211,941	11,820,924	18,500,485	92	172	Yes	0.900	0.850	0.640	280	27,821	5,883	588	n. a.	4,743,586	1.07%	3,664,103	1.33%
37	China[11]	0.837	0.968	0.968	0.445	9,316,166	2,225,297	2,154,891	697	188	No	0.946	0.969	0.990	1740	1,307,989	102,869	5,555	8,055	4,610,815	1.13%	34,615,803	-6.05%
38	Madagascar	0.838	0.793	0.730	0.973	9,029,452	0	31,579	82	85	No	0.890	0.920	0.570	290	18,113	2,521	272	796	4,590,384	1.06%	1,694,959	1.75%
39	Cambodia	0.839	0.787	0.787	0.995	513,551	16,464	803,781	31	44	No	0.976	0.787	0.597	380	13,798	2,023	48	366	4,568,604	-0.97%	299,110	0.05%
40	Lesotho	0.840	0.788	0.748	0.996	1,504,909	0	312,438	18	18	Yes	0.862	0.869	0.634	960	1,798	326	45	152	4,533,198	-0.72%	280,416	0.29%
41	Dominican Rep.	0.845	0.798	0.735	0.986	0	0	22,865	13	24	No	0.878	0.923	0.592	2370	8,768	1,145	140	174	4,401,758	-1.05%	872,405	-0.21%
42	Mauritania	0.849	0.803	0.781	0.988	0	0	0	22	46	No	0.745	0.848	0.816	560	2,980	461	117	139	4,271,010	-1.02%	729,082	-0.17%
43	Morocco	0.852	0.820	0.840	0.947	0	0	15,798	332	296	No	0.867	0.781	0.812	1730	31,020	3,843	528	1,183	4,199,842	-1.00%	3,290,215	-0.79%
44	Zimbabwe	0.854	0.819	0.761	0.957	0	140,446	219,318	5	27	No	0.825	0.936	0.697	340	12,936	2,433	429	406	4,145,297	-0.99%	2,673,300	-0.64%
45	Bangladesh	0.856	0.821	0.813	0.960	19,045,966	27,894,232	4,832,664	250	149	Yes	0.975	0.837	0.651	470	139,215	16,480	404	1,687	4,095,936	3.58%	2,517,513	3.95%
46	Nicaragua	0.868	0.826	0.765	0.995	48,747	42,987	0	45	84	No	0.942	0.949	0.588	910	5,376	840	49	165	3,731,777	-0.88%	305,342	-0.06%
47	Cameroon[7]	0.869	0.845	0.885	0.940	5,618,326	0	122,806	120	125	Yes	0.790*	0.766	0.980	1000	16,038	2,552	598*	n. a.	3,715,009	0.46%	3,726,418	0.45%
48	Myanmar	0.870	0.847	0.790	0.937	3,054,208	986	12,142	33	3	No	0.876	0.963	0.703	800	50,004	5,112	634	921	3,697,660	-0.15%	3,950,751	-0.21%
49	Tanzania	0.875	0.853	0.835	0.940	26,984,615	21,190,730	1,391,201	219	95	Yes	0.910	0.890	0.760	340	37,627	7,023	604	3,148	3,549,178	5.61%	3,763,807	5.55%
50	Swaziland	0.875	0.836	0.769	0.995	0	0	375,081	5	2	Yes	0.770	0.969	0.768	2280	1,034	204	48	54	3,533,271	-0.85%	299,110	-0.07%
51	Colombia	0.879	0.862	0.812	0.929	29,500	2,749	59,374	49	39	No	0.849	0.963	0.775	2290	44,915	4,727	713	369	3,439,851	-0.82%	4,443,036	-1.06%
52	Namibia	0.888	0.854	0.810	0.989	0	0	1,338,172	14	28	Yes	0.738	0.942	0.881	2990	2,009	408	106	65	3,187,429	-0.76%	660,536	-0.16%
53	Guyana[7, 8, 9]	0.897	0.863	0.813	1.000	78,854	808,158	419,799	8	7	Yes	0.984	0.963	0.643	1020	750	88	1	4	2,909,646	-0.68%	6,231	0.02%
54	Turkey[11]	0.898	0.894	0.920	0.910	0	0	553,335	144	247	No	0.893	0.841	0.946	4710	72,220	8,437	900	1,049	2,902,779	-0.69%	5,608,321	-1.34%
55	Zambia	0.899	0.879	0.897	0.957	7,312,305	12,973,767	833,717	119	158	Yes	0.809	0.844	0.985	490	11,479	2,278	435	616	2,876,479	1.06%	2,710,688	1.10%
56	Philippines	0.899	0.887	0.849	0.935	5,085	35,209	127,716	125	170	No	0.944	0.963	0.753	1300	81,617	11,586	646	895	2,868,281	-0.68%	4,028,021	-0.96%
57	Guatemala	0.900	0.870	0.862	0.989	0	0	14,524	24	34	No	0.945	0.886	0.779	2400	12,295	2,015	112	299	2,847,525	-0.68%	697,924	-0.17%
58	Iran	0.901	0.895	0.895	0.920	0	0	28,956	56	88	No	0.887	0.897	0.902	2770	68,803	7,093	803	1,616	2,798,561	-0.67%	5,003,869	-1.20%
59	El Salvador	0.907	0.878	0.834	0.995	0	0	8,356	37	16	No	0.941	0.965	0.728	2450	6,762	914	54	158	2,637,310	-0.63%	336,499	-0.08%
60	Brazil	0.914	0.912	0.892	0.920	0	0	1,084,489	73	52	No	0.940	0.951	0.844	3460	183,913	13,509	800	1,033	2,442,648	-0.58%	4,985,174	-1.19%
61	Viet Nam	0.918	0.912	0.899	0.937	20,547,668	8,229,688	601,334	295	211	No	0.931	0.937	0.868	620	83,123	8,523	634	447	2,326,017	4.36%	3,950,751	3.97%
62	South Africa	0.920	0.909	0.886	0.951	1,663,241	5,449,424	4,960,800	37	95	Yes	0.932	0.955	0.841	4960	47,208	7,153	487	97	2,278,458	-0.15%	3,034,725	-0.33%
63	Rep. of Moldova	0.921	0.897	0.855	0.996	1,734,053	0	0	29	11	No	0.811	0.979	0.900	880	4,218	237	45	11	2,229,882	-0.12%	280,416	0.35%
64	Oman	0.925	0.903	0.887	0.993	0	0	0	1	1	No	0.798	0.934	0.976	9070	2,534	351	71	61	2,123,046	-0.51%	442,434	-0.11%
65	Paraguay[5]	0.928	0.907	0.873	0.994	0	0	14,199	10	5	No	0.930	0.974	0.816	1280	6,017	894	63	28	2,029,387	-0.49%	390,090	-0.09%

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66	Botswana	0.931	0.909	0.877	0.995	0	4,315	738,164	3	15	Yes	0.842	0.973	0.912	5180	1,769	314	50	55	1,970,754	-0.47%	311,573	-0.07%
67	Cape Verde	0.932	0.910	0.918	0.999	0	0	0	40	30	No	0.924	0.893	0.912	1870	495	77	6	1	1,920,010	-0.46%	37,389	-0.01%
68	Ecuador	0.936	0.915	0.878	0.999	30,663	0	176,992	57	11	No	0.994	0.989	0.763	2630	13,040	1,702	11	17	1,813,809	-0.43%	68,546	-0.01%
69	Mongolia	0.938	0.919	0.901	0.998	2,508,181	0	52,876	30	16	No	0.894	0.954	0.909	690	2,614	226	24	22	1,746,840	0.18%	149,555	0.56%
70	Jamaica	0.939	0.920	0.906	0.997	0	0	635,453	11	24	Yes	0.914	0.949	0.897	3400	2,639	348	30	38	1,723,784	-0.41%	186,944	-0.04%
71	Bolivia	0.943	0.925	0.916	0.996	0	0	228,772	60	45	No	0.968	0.944	0.864	1010	9,009	1,362	44	52	1,622,527	-0.39%	274,185	-0.07%
72	Venezuela	0.945	0.933	0.925	0.980	0	0	0	10	25	No	0.939	0.950	0.910	4810	26,282	3,287	199	424	1,561,274	-0.37%	1,240,062	-0.30%
73	Ukraine[11]	0.946	0.938	0.912	0.968	0	512	235,365	56	0	No	0.837	0.991	0.986	1520	46,989	1,953	317	803	1,543,678	-0.37%	1,975,375	-0.47%
74	Peru	0.946	0.928	0.916	0.999	0	3,634	142,712	44	31	No	0.996	0.953	0.836	2610	27,562	3,630	15	6	1,533,024	-0.37%	90,979	-0.02%
75	Azerbaijan	0.947	0.932	0.909	0.990	0	0	251	5	8	No	0.839	0.979	0.978	1240	8,355	627	101	82	1,512,959	-0.36%	629,378	-0.15%
76	Panama	0.948	0.931	0.916	1.000	0	0	0	3	15	No	0.988	0.963	0.843	4630	3,175	383	5	11	1,462,844	-0.35%	31,157	-0.01%
77	Uruguay[5]	0.951	0.935	0.930	1.000	0	0	0	5	6	No	0.990	0.945	0.869	4360	3,439	336	3	25	1,386,432	-0.33%	21,187	-0.01%
78	Syrian Arab Rep.	0.952	0.937	0.950	0.997	0	0	0	70	44	No	0.982	0.911	0.918	1380	18,582	1,784	32	139	1,364,441	-0.33%	199,407	-0.05%
79	Argentina	0.953	0.938	0.919	0.998	0	0	45,590	39	18	No	0.995	0.976	0.843	4470	38,372	4,156	22	26	1,337,696	-0.32%	137,092	-0.03%
80	Egypt	0.953	0.945	0.979	0.978	0	6,133	1,294,136	341	161	No	0.972	0.876	0.986	1250	72,642	7,873	220	285	1,334,592	-0.32%	1,370,923	-0.33%
81	Algeria	0.955	0.941	0.976	0.996	0	0	36,222	174	139	No	0.990	0.872	0.962	2730	32,358	4,036	41	357	1,283,740	-0.31%	255,490	-0.06%
82	Indonesia[11]	0.956	0.949	0.941	0.976	363,350	497,462	2,457,151	519	293	No	0.990	0.966	0.891	1280	220,077	24,917	242	2,046	1,257,906	-0.21%	1,508,015	-0.27%
83	Malaysia	0.957	0.950	0.958	0.978	0	0	429,953	20	84	Yes	0.932	0.933	0.984	4960	24,894	3,299	222	70	1,226,869	-0.29%	1,383,386	-0.33%
84	Palest. Aut. Terr.[6]	0.960	0.948	0.945	0.996	0	26,376	979,475	45	62	No	0.904	0.954	0.985	1250	3,587	418	40	4	1,141,167	-0.27%	249,259	-0.06%
85	Lebanon	0.963	0.951	0.965	0.998	0	0	8,612	92	48	No	0.953	0.924	0.976	6180	3,540	425	20	44	1,056,747	-0.25%	124,629	-0.03%
86	Tunisia	0.965	0.953	0.975	0.998	0	0	65,236	125	200	No	0.985	0.910	0.965	2890	9,995	1,118	17	82	1,006,552	-0.24%	105,935	-0.03%
87	Saint Lucia	0.966	0.955	0.942	1.000	0	0	12,665	3	3	Yes	0.984	0.981	0.901	4800	159	23	0	1	954,471	-0.23%	2,493	0.00%
88	Mexico	0.971	0.962	0.962	0.997	0	0	774,453	46	24	No	0.998	0.962	0.926	7310	105,699	13,540	30	56	826,535	-0.20%	184,451	-0.04%
89	Sri Lanka[11]	0.971	0.963	0.950	0.995	0	515,024	1,529,042	83	60	Yes	0.980	0.990	0.920	1160	20,570	1,650	47	3	813,531	-0.19%	292,879	-0.07%
90	Jordan	0.972	0.964	0.967	0.996	0	0	428,207	122	29	No	0.947	0.957	0.988	2500	5,561	815	43	40	798,016	-0.19%	267,953	-0.06%
91	Tajikistan[11]	0.973	0.965	0.983	0.998	1,103,600	6,982	24,105	8	9	No	0.972	0.929	0.994	330	6,430	691	20	25	761,229	0.08%	124,629	0.23%
92	Mauritius	0.975	0.967	0.967	0.999	0	0	272,656	47	28	Yes	0.945	0.968	0.989	5260	1,233	123	7	12	702,240	-0.17%	43,620	-0.01%
93	Kyrgyzstan	0.977	0.970	0.959	0.998	2,458,018	0	0	10	11	No	0.959	0.991	0.958	450	5,204	453	18	28	659,381	0.43%	112,166	0.56%
	Total					418,034,274	280,175,735	93,533,362	9,148	6,512						4,872,109	534,340	65,360	97,209	418,034,274	0.00%	418,034,274	0.00%

Definitions

Total primary NER (net enrolment ratio) includes children of primary school age who are enrolled in either primary or secondary schools.

The GEI (gender-specific EFA index) is the simple average of the gender parity indexes for the gross enrolment ratio in primary education, the gross enrolment ratio in secondary education and the adult literacy rate.

Index 2 is the simple average of the primary net enrolment ratio (NER), the rate of survival to grade 5, the gender-specific EFA index (GEI) and the index for out-of-school children.

Index 1 is the simple average of the primary net enrolment ratio (NER), the rate of survival to grade 5 and the gender-specific EFA index (GEI).

Index 0 is the simple average of the primary net enrolment ratio and the rate of survival to grade 5.

Footnotes

1. Optimal DFID aid to education 2008/9 in £, calculated according to Index 2.

2. Actual minus optimal DFID aid to education 2008/9 in % of total DFID aid 2008/9, calculated according to Index 2.

3. Optimal DFID aid to education 2008/9 in £, calculated according to out-of-school children.

4. Actual minus optimal DFID aid to education 2008/9 in % of total DFID aid 2008/9, calculated according to out-of-school children.

5. The NER in primary education is not published in the statistical tables as the reported number of pupils of official primary school age is believed to be under-estimated.
   However, in order to calculate EDI, an estimate of the total primary NER was made by UNESCO. For more details, see the introduction to the Statistical Tables in UNESCO (2006).

6. GNI per capita is from Worldbank Data Catalog (2010).

7. GEI calculated by the author based on best available data for gender parity indexes for the gross enrolment ratio in primary education, the gross enrolment ratio in secondary education and the adult literacy rate.

8. Out-of-school children data are from 2003 (UNESCO, 2005).

9. NER data are from 2000 (for Guyana) and 2001 (for Papua New Guinea) from UNESCO (2004).

10. For East Timor, NER data are from 2007 (UNESCO, 2010b), out-of-school children data from 2005 (UNESCO, 2007), and survival rate to grade 5 from 2003 (UNDP, 2009).

11. Out-of-school children data from 1999 are not available and data from the closest previous or following years were used.

Sources

Commonwealth membership: Commonwealth Secretariat (2010).

DFID aid data: supplied to the author by DFID (2010).

All other data (unless specified otherwise): UNESCO GMR EDI Annex, Statistical Tables and Aid Tables (2004, 2005, 2006, 2007, 2008, 2010a) and UNESCO Institute for Statistics Data Centre (2010b).

Notes

Countries are ranked according to Index 2.

All DFID aid data are aid disbursements, and all total aid data are aid commitments.

All currencies are in current prices unless specified otherwise.

* Estimates made by the author based upon earlier observations or other available evidence.

The country selection includes the 78 states classified as having low or medium values in the EFA Development Index 2004, i.e. those with an EDI value of less than 0.95 (UNESCO, 2006: 200-2001).

Additional countries were included because of their importance or sheer size, historic links with the UK, or their presence in the current DFID aid programme.

Countries were excluded from this list or not added if they were high-income states, small or micro-states, close to achieving EFA goals, or if the data availability was poor.

Among the excluded high-income countries, Saudi Arabia is notable for its high number of out-of-school children (1,425,000).

NER, GEI, survival to grade 5 and GNI per capita data from 1998-1999, obtained from the sources listed above, are available from the author.

Table A2: Correlation matrix

	DFID aid to education 2008/9	Total aid to education 2007	GNI per capita 2005	Total primary NER 2004	Gender-specific EFA index (GEI) 2004	Survival rate to grade 5 2004	Out-of-school children 2004	Total population 2004
DFID aid to education 2008/9	1.000							
Total aid to education 2007	.437***	1.000						
GNI per capita 2005	-.554***	-.199†	1.000					
Total primary NER 2004	-.243*	-.012	.612***	1.000				
Gender-specific EFA index (GEI) 2004	-.208*	-.264*	.606***	.642***	1.000			
Survival rate to grade 5 2004	-.362***	-.030	.580***	.434***	.484***	1.000		
Out-of-school children 2004	.500***	.545***	-.479***	-.582***	-.515***	-.301**	1.000	
Total population 2004	.367***	.685***	-.052	.138	-.050	.029	.651***	1.000
Commonwealth membership	.387***	.040	-.027	-.055	.041	-.100	.071	-.049

All correlations are Spearman's Rho. N = 93. Two-tailed tests were used.
* p < .05. ** p < .01. *** p < .001. †p < .05 for one-tailed test.
Source: Appendix Table A1.

[1] Some earlier research also indicates that the record of donors' aid allocations as regards the MDGs is, at best, mixed, with aid for education generally not being closely aligned with the priorities suggested by the two education-related MDGs (Baulch, 2006; Thiele, Nunnenkamp, & Dreher, 2007; Kasuga, 2007).

[2] Evidence is given by the following quotations from the education policy paper issued by DFID in 1999: "Universal primary education by 2015….is an objective which will underpin and inform DFID's approach to education in its country-level and international partnerships. It will be a major benchmark against which to assess its investments in education…. Reform to remove gender disparities in primary and secondary schooling by 2005 will receive strong support from DFID…. This will be the second major benchmark against which DFID will assess its contribution to education for poverty elimination" (DFID, 1999).

[3] The 93 countries shown in Appendix Table A1 include 78 states classified as having medium or low values in the EFA Development Index 2004, i.e. all those with an EDI value of less than 0.95 (UNESCO, 2006: 200-201). From this list were excluded Portugal, Kuwait, Macao, Bahamas, Saudi Arabia, United Arabian Emirates and Malta because they are high income states. To this list were added Uganda, Sudan, Sierra Leone, Pakistan, Somalia, Sri Lanka, Liberia, Tanzania, DR Congo, Afghanistan, Guinea Bissau, the Gambia, Cote d'Ivoire, Madagascar, Kyrgyzstan, Cameroon, Papua New Guinea, East Timor and Guyana and, from the high EDI grouping, China, Ukraine and Tajikistan. These additions were made either because of the importance or sheer size of the countries from the perspective of EFA achievement, their historic links with the UK or their presence in the current DFID aid programme. Additions were not made for high income states, countries that are already close to achieving EFA goals, small or micro-states and countries having insufficient data even to allow estimation. Estimates were made by the author (using data for earlier years, or in some cases for countries in similar circumstances) for one or more of the variables shown in the table for some of the additional countries mentioned above (see footnotes and notes in Table A1 for details). The data

showing DFID bilateral spending on education in 1998/9, 2005/6 and 2008/9 are not available from published sources and were provided to the author by DFID.

[4] Primary net enrolment ratio.

[5] UNESCO, 2003:284-5, gives further arguments for the use of 'survival to grade 5' as a proxy for school quality.

[6] See UNESCO, 2005: 72.

[7] See Appendix Table A1, column 6.

[8] In fact, in this index, a value of zero has not been assigned to any country. Since Nigeria has the largest out-of-school population with an estimated 8.1 millions in 2004, its index value is 0.19. See Appendix Table A1, column 6.

[9] See Appendix Table A1, column 3.

[10] This is so, for example, in the case of China, where PNER is 95, yet 5.5 million children are estimated to be out of school. See Table 1.

[11] Both sets of OLS and Tobit regressions for DFID aid including all 93 countries generated significant coefficients for log GNI per capita ($p < .001$), log out-of-school children ($p < .01$) and NER ($p < .01$), whilst survival to grade 5 was not significant. These results are consistent with those shown in Table 4. However, explanatory power was lower, and the coefficients obtained when including all 93 countries were much larger than those of Table 4, especially so in the case of the Tobit regressions.

[12] It should also be noted, however, that the smaller sample of countries used for the 1999 analyses may constrain the direct comparability of the two sets of results in the total (though not the DFID) aid case. To test this, the 2007 regression was re-run using only the 78 countries included in the 1999/2000 analysis. This produced an R-Square of .421 (adjusted .390) - almost identical to that obtained with the larger sample, shown in Table 4. The levels of significance achieved were the same, with $p < .001$ for log out-of-school children and NER and log GNI per capita and survival rate to grade 5 being insignificant. The coefficients were also of similar magnitude. Thus, we can conclude that the differences between the two dates are not caused by sample selection bias.

[13] The procedure of stepwise modelling suffers from a number of limitations, notably potential overestimation of the R-Square and of the regression coefficients and a capitalisation on chance, which reduces the likelihood that results can be replicated in different data sets. Several steps were taken in order to minimize these problems. The list of candidate predictor variables was theoretically informed and. included all variables used to construct the indices, the indices themselves, school-age population, total population, commonwealth membership and a corruption index. All obtained models were tested against similarly well-fitting models in the wider literature.

[14] A fourth variable, GEI ($p < .05$) was selected in addition. In OLS and Tobit regressions containing all 93 countries, GEI ($p < .05$) was also selected as the fourth variable. However, caution is advised with this result. When added as fourth variable, GEI explains very little additional variance (delta R-Square is only .024 in the OLS regression containing all 93 countries) and, owing to the limitations of stepwise modelling mentioned above, it is likely that this result could fail to be replicated.

[15] The second variable selected, GNI per capita, explains very little additional variance (delta R-Square is only .036). Owing to the limitations of stepwise modelling detailed above, it is likely that this result could fail to be replicated.

[16] In addition, the high correlation between total population and out-of-school children means that the former variable could be replaced with the latter, reducing R-Square somewhat.

[17] It is worth noting that some earlier research also suggested that both the UK (McGillivray & Oczkowski, 1992) and OECD donors more generally (Frot & Santiso, 2009) tend to allocate their aid in line with other donors, rather than in a compensatory manner.

[18] See HM Treasury (2006). More recent aid statistics indicate that these targets for 2007/8 have not in fact been met (e.g. DFID, 2008).