

Aid Fragmentation or Aid Pluralism? The Effect of Multiple Donors on Child Survival in Developing Countries, 1990–2010

LU HAN^a and MATHIAS KOENIG-ARCHIBUGI^{b,*}

^a *University of York, UK*

^b *London School of Economics and Political Science, UK*

Summary. — While most policy-makers and researchers stress the negative impact of “aid fragmentation” on development outcomes in recipient countries, we argue that the greater diversity of perspectives entailed by higher multiplicity of donors can help select better policies. We hypothesize a U-shaped relationship: countries with a moderate number of donors fare better than countries with either few or many donors. The hypothesis is supported by a generalized method of moments (GMM) analysis of the relationship between health aid donors and child survival in 110 low- and middle-income countries during 1990–2010.
© 2015 Elsevier Ltd. All rights reserved.

Key words — development assistance for health, aid fragmentation, health policy, child mortality, collective wisdom, diversity

1. INTRODUCTION

Over the past decades, the number of donors who contribute development assistance to the typical recipient country has grown considerably. On average, a developing country received aid from less than two donors in 1960 and from more than 28 in 2006 (Frot & Santiso, 2008). This trend is continuing in low-income countries, while it is showing signs of being reversed in lower middle-income recipients (OECD, 2011).¹ Warnings about the negative impact of the fragmentation of development aid – understood here as “the extent of dispersion in the sources of aid received by an aid recipient” (Acharya, Fuzzo De Lima, & Moore, 2006, p. 12) – have been voiced for over 30 years, but political and scholarly attention to the issue has increased considerably during the 2000s. The 2004 World Development Report discussed its disadvantages and gave the example of Tanzanian government officials having to prepare about 2,000 reports of different kinds to donors and receiving more than 1,000 donor delegations each year (World Bank, 2003). Donor and recipient governments have repeatedly pledged to take steps to address the perceived problem. In the 2005 Paris Declaration on Aid Effectiveness, major players in official development assistance (ODA) acknowledged that “[e]xcessive fragmentation of aid at global, country or sector level impairs aid effectiveness” and committed themselves to a division of labor based on their respective comparative advantage at sector or country level. These commitments were reaffirmed in the 2008 Accra Agenda for Action and other contexts, and the Organization for Economic Cooperation and Development (OECD) systematically monitors and analyzes trends in the fragmentation of aid provided by the member states represented in its Development Assistance Committee (DAC). In 2007, the European Union member states committed themselves to implement the principles of a Code of Conduct on Complementarity and the Division of Labour in Development Policy, which requires EU member states to focus their active involvement in a recipient country on a maximum of three sectors (Council of the European Union, 2007).²

The widely shared view that fragmentation harms the effectiveness of development aid is supported by quantitative

empirical evidence, which indicates that aid fragmentation decreases bureaucratic quality, increases corruption, and hampers economic growth in recipient countries (Djankov, Montalvo, & Reynal-Querol, 2009; Kimura, Mori, & Sawada, 2012; Knack & Rahman, 2007). However, while the existing literature has provided important theoretical and empirical assessments of the *costs* of aid fragmentation, systematic analyses of its potential *benefits* are still lacking. This paper aims at filling this gap by focusing on one particular domain of aid: development assistance for health (DAH). Without denying that fragmentation entails costs, we argue that there are good reasons to expect that interacting with a broad range of DAH donors also has positive effects on the ability of developing countries to achieve health goals, and in particular to reduce child mortality.

The existing literature on fragmentation stresses the transaction cost that interacting with multiple donors imposes on recipients and the obstacles that higher numbers pose in the way of solving collective action problems among donors. Collective action problems arise from the fact that donors have the common goal of promoting the long-term development in the recipient country, but at the same time they also have a number of “private” goals. Such collective action problems are more difficult to overcome when the number of donors is large, which results in donors pursuing private goals by engaging in harmful practices such as funding personal projects rather than providing budget support, poaching capable managers from the recipient’s administration, releasing funds without adequate checks, and tying aid to purchases from the donor. We do not deny that donor multiplicity may have such harmful consequences. But we argue that more attention should be devoted to examining how a larger and more diverse pool of donors can help in the pursuit of those goals that donors share with each other, and with the recipient.

* The Agence Française de Développement provided financial support for the research reported in this article. The design of the study, the collection, analysis and interpretation of data, and the writing of the report was conducted exclusively by the authors. We are grateful to Kai Spiekermann and Joachim Wehner for insightful comments. The authors remain responsible for any shortcoming. Final revision accepted: July 15, 2015.

Our assumption is that it is not always clear which policies would be more effective in promoting those shared goals, and we draw on recent theories of “collective wisdom” to argue that the greater diversity of perspectives that larger numbers of donors entail can help select better policies. Because we expect the benefits of donor multiplicity to display decreasing returns to scale, we hypothesize that its relationship with child survival has the shape of an inverted U: countries with a moderate number of donors fare better than countries with either few or many donors.

This hypothesis is confirmed by a statistical analysis of a sample of 110 low- and middle-income countries during 1990–2010. Crucially, the analysis has to address the problem of selection, whereby recipients have higher levels of donor multiplicity due to unobserved conditions that are systematically related to our dependent variable, child mortality. Thus, we fit a generalized method of moments (GMM) model to address the self-dependence in child mortality over time, the potential endogeneity of some independent variables, country-specific fixed effect, and possible heteroskedasticity and autocorrelation in the error terms.

The paper is structured as follows. In the next section, we provide an overview of the drawbacks of aid fragmentation. Since these are well covered in the existing literature, the section is short in order to leave more space for the subsequent discussion of why we should expect some benefits from a multiplicity of donors. We do this in the third section from the perspective of the theoretical literature on collective problem-solving and in the fourth section by specifically addressing the domain of development aid for health. The fifth section develops a number of hypotheses, the sixth section presents our research design, the seventh section summarizes our findings, and the eighth section discusses some additional analyses. In the conclusions, we discuss how our arguments relate to aid given to sectors other than health.

A note on terminology. Labeling the extent of dispersion in the sources of aid received by an aid recipient “fragmentation” carries negative connotations that may or may not be justified empirically. We prefer the more neutral term “donor multiplicity” to denote that dispersion, but given the entrenched use of “aid fragmentation” in academic and policy literatures, we will use the two terms interchangeably in this paper.

2. THE DRAWBACKS OF DONOR MULTIPLICITY

The literature on aid fragmentation has identified several reasons for expecting fragmentation to have a negative effect on the desired outcomes of development aid. These reasons can be divided in two broad categories. First, managing relationships with donors absorbs significant amounts of time on the part of recipients, and the larger the number of donors, the more attention and effort is diverted away from other tasks that may be more productive. Meeting numerous separate donor missions is time-consuming and wastes effort because of duplication. Moreover, since donor reporting requirements are seldom standardized, bureaucracies in recipient countries spend considerable time in learning how to comply with the various requirements as well as retrieving and presenting the requested information. Knack and Rahman point at some egregious instances of this problem: “In Vietnam, it took 18 months and the involvement of 150 government workers to purchase five vehicles for a donor-funded project, because of differences in procurement policies among aid agencies. . . In Bolivia, five donors sponsoring a single poverty survey each

required separate financial and technical reporting, leading the government official assigned to the project to spend nearly as much of her time meeting these requirements as in undertaking the actual survey” (Knack & Rahman, 2007, p. 178). In Cambodia, senior government officials are said to be spending half their working hours meeting with donors (Fengler & Kharas, 2011).

The second category of reasons why aid fragmentation decreases the effectiveness of aid is that higher numbers make it more difficult for donors to solve collective action problems and hence to prioritize their shared interest in the long-term development of the recipient over their more “private” interests (Acharya *et al.*, 2006; Knack & Rahman, 2007). Failure to solve collective action problems can have a number of consequences. First, donors may decide to prioritize support for individual projects that provide opportunities for claiming credit in the short-term and neglect activities that strengthen governmental capabilities, such as budget support, which are likely to have a stronger long-term impact, but for which political credit will be diluted among many donors (Arimoto & Kono, 2009). Second, if donors have less of a stake in the recipient’s overall policy effectiveness, they will be more interested in the success of their own individual projects and “poach” the most qualified managers from the recipient’s bureaucracy, which worsens the quality of the latter (Knack & Rahman, 2007). Third, competition among donors may lead them to disburse funds more quickly and with less supervision, which facilitates the appropriation of funds through corrupt practices (Djankov *et al.*, 2009). Fourth, donors that have a smaller share in the recipient’s aid are less interested to maximize the development impact of their aid by tying less of it to purchases from the donor country (Knack & Smets, 2012).

Harmful practices such as underfinancing government budgets, poaching managers, lax financial management, and aid tying are reputed to be less common when one or very few donors occupy a dominant position in a particular sector in a particular recipient. Cross-national statistical studies on the consequences of aid fragmentation are still scarce, but they tend to support such assessments: higher levels of fragmentation are associated with lower bureaucratic quality, more corruption, more aid-tying and less economic growth in recipient countries (Djankov *et al.*, 2009; Kimura *et al.*, 2012; Knack & Rahman, 2007; Knack & Smets, 2012).

Donors have acknowledged the problems of uncoordinated aid and since the 1990s responded with various measures, most notably by committing to direct more aid toward general budget support, setting up sector-wide approaches (SWAPs), and creating a variety of coordination and consultation forums involving donors and government agencies at various levels. Several researchers who have studied how such initiatives work in practice have expressed scepticism about their impact. For instance, an analyst of aid relationships in Mali found that, despite the establishment of a SWAP in the health sector in 1999 (named PRODESS), the thirty donors providing health aid to the country continued to use different modalities to deliver their funds and promoted their individual priorities rather than aligning their activities with plans developed by the government of Mali. She concluded that the “multiplication of projects and aid modalities within the PRODESS framework, as well as the complexity and number of donor demands in terms of control, procedures, and project evaluation, prevent the personnel within the Ministry of Health from focusing on the actual needs and problems facing the sector” (Bergamaschi, 2008, p. 230). Mozambique had taken steps toward increasing donor coordination even earlier than Mali,

by establishing a National Emergency Executive Commission in 1987, but researchers found that, with the shift toward general budget support, “the administrative burden of aid coordination is probably increasing rather than decreasing, as government officials need to devote attention both to the large number of projects that still exist, while at the same time attending all the working group meetings created as part of the budget support machinery” (De Renzio & Hanlon, 2008, p. 260). The researchers also note that, as an increasing number of donors decided to provide some budget support in other to “buy a seat at the table” of governmental decision-making, meetings of the original budget support groups have become less technical and less able to produce agreement on policy issues, and the diverse priorities of the donors led to long lists of demands made to government (De Renzio & Hanlon, 2008, p. 262).

3. THE BENEFITS OF DIVERSITY

Participants in the debate on aid (in)effectiveness occasionally point out that having a multiplicity of donors can have beneficial effects. For instance, Frot and Santiso (2010, p. 11) note that “[i]deally one would like to have some competition, to not have developing countries depending on a single country for aid, but not so much competition that the costs of administering all the partnerships become unmanageable.” An analysis of Cambodia’s experiences with donors leads Sato and his colleagues to conclude that “a greater number of donors with diverse institutional characteristics encourages constructive donor competition and thus creates opportunities for balanced development” (Sato, Shiga, Kobayashi, & Kondoh, 2011, p. 2100). Brief references to the potential benefits of having multiple donors have also appeared in official documents that otherwise stress the need to reduce fragmentation (OECD, 2011, p. 67). However, so far the mechanisms that generate desirable outcomes have been subject to much less scrutiny than the mechanisms that generate undesirable outcomes, and they are usually limited to generic references to the benefits of some degree of “competition” between donors. How donors compete is usually left unspecified.

As noted above, both donors and recipients of development aid are motivated, among other things, by a shared desire to promote development in poorer countries. While the collective-action perspective on the cost of fragmentation focuses on the incentive to pursue this objective in the presence of competing private interests, in the following we stress the uncertainty over which policies are more likely to promote that objective. In other words, the emphasis is not on whether policy makers are willing to pursue policies that promote development, but on how they can find out what those policies are. Framing the issue of multiple donors in this way allows us to draw on recent analyses of the conditions for effective problem-solving in groups. In this section, we first review the theoretical literature that is most relevant to the size of the decision-making group, and then show how it relates to the way in which development aid is organized.

At least since Aristotle, numerous authors have argued that larger groups tend to produce better decisions than smaller groups. In recent years, the question of “collective wisdom” has generated a substantial amount of research. Two theoretical approaches have been particularly fruitful sources of insights on the relationship between the composition of groups and their ability to provide correct answers to questions and to solve problems. Following Hong and Page (2012), we call

them statistical and cognitive approaches. As they note, the two approaches conceptualize the link between numbers and quality of outcomes differently, but in the context of this paper their differences are less important than the fact that they generate similar expectations with regard to the impact of different group sizes within the range that is relevant to debates on aid fragmentation. As such, they can be seen as complementary sources of empirical hypotheses on donor multiplicity.

Statistical approaches to collective wisdom are based on applications of the law of large numbers. The Condorcet Jury Theorem (CJT) is probably the most prominent example of this approach. The theorem states that the likelihood that a “jury” reaches the correct decision by majority voting increases with the number of its members, provided that certain assumptions hold. The basic CJT has been developed and extended in a number of ways (List & Goodin, 2001). The variant developed by Dietrich and Spiekermann (2013) is particularly suited to capture real-world situations, as it does not rely on the classical but implausible assumption that judgements of the members of a group are independent from each other. Dietrich and Spiekermann assume that the judgements of the members are independent for any given problem (where “problem” is defined as those determinants of judgements that are common across members) and that the question to be judged is more likely to be easy than difficult (where “easy” is defined as a situation in which individual members are more likely to be right than wrong). With these assumptions, they show that increasing the group size will increase the probability of the majority view being correct, sampled across prediction problems. Dietrich and Spiekermann support the classical conclusion that larger groups perform better, but reject the classical conclusion that very large groups are infallible. In both approaches, group size displays decreasing returns to scale. Dietrich and Spiekermann’s approach also addresses the role of deliberation in the functioning of the CJT, as in their framework deliberation can increase the members’ problem-specific competence, and thus the probability that the majority is correct, without undermining the independence of the members’ judgements, as they defined it.

The cognitive approach to collective wisdom theorizes the benefit of diverse perspectives among group members. In so far as larger groups tend to be more diverse, all else being equal, the cognitive perspective addresses the question of the relationship between group size and performance. Using computational experiments and mathematical theorems, Hong and Page have examined how the problem-solving ability of groups is affected by their cognitive diversity, which is conceptualized in terms of their individual members’ “perspectives”, i.e., representations of solutions in the agent’s internal language, and “heuristics”, i.e., rules for mapping and searching for solutions (Hong & Page, 2004; Page, 2007). They found that collective problem-solving capacity tends to increase with cognitive diversity. Strikingly, they also found that a random – and thus highly diverse – collection of agents drawn from a large set of agents usually outperforms a collection of the most able agents from that same set – a result that leads them to conclude that “diversity trumps ability”. In essence, able agents with similar perspectives and heuristics tend to converge toward the same local optima but miss opportunities to identify global optima, which are more likely to be found by more diverse collections of agents. While increasing group size often increases diversity, the returns are diminishing: beyond a certain size, it is unlikely that further increases would generate additional diversity (Landemore, 2012).

4. DIVERSITY IN DEVELOPMENT ASSISTANCE FOR HEALTH

These arguments are mathematically compelling, and experimental and observational studies provide support for the proposition that certain forms of diversity enhance problem-solving under certain conditions (Stahl, Maznevski, Voigt, & Jonsen, 2009). But are they relevant to the issue of donor multiplicity? In this section we argue that they are, at least in the area of development aid for health. Our argument for relevance is based on three considerations. First, policy-makers in donor and recipient countries who play an official role in negotiating and managing DAH for a specific country can be considered as a collection of agents who aim to solve a common problem, i.e., how to improve population health in that country. It needs to be stressed that those policy-makers are *not exclusively* motivated by that goal when promoting and deciding policies: they are likely to pursue a wide range of goals linked in complex ways, such as maintaining their professional and political position, advancing their careers, maximizing the budget of their own department, maintaining or increasing the international influence of their government, and so on.³ Helping to improve health outcomes in recipient countries may be conducive to attaining such other objectives, but this is not necessarily and not always the case. For our purposes, it suffices to say that promoting health is *one* goal held by policy-makers involved in DAH and that is widely shared among them. We leave it open as an empirical question how much weight this motive has in comparison with other motives, and hence how much variation in outcomes our hypothesized causal mechanism is able to explain.

Second, the views of the donors providing DAH to a country influence the health policies that are implemented in that country. This influence can operate through a variety of channels. Most directly, a donor's views are likely to be reflected in the content of the projects that it funds. More indirectly, a donor's view may influence the views of the recipient government, and this affects what the latter demands in negotiations on projects funded by other donors. A donor's views may influence policy even when its DAH provided budget support for the recipient's government, as budget support generally gives donors a say over general government policy in a particular policy domain (Whitfield, 2008). Finally, recipient governments may decide to implement the policy interventions advocated by particular donors also in projects and programs that are financed exclusively with national means, for instance when donor-funded pilot projects are continued and scaled up. Importantly, this influence may be felt not only in relation to policy content but also with regard to the process through which policies should be developed. For instance, a study on the use of "evidence" in the policy process in India and Vietnam has shown that donor influence played a major role in increasing the belief that policies on child health need to be based on high-quality evidence. The authors of the study note that "the channel of donors' influence may have shifted from policy conditionality to that of an intellectual influence" (Sumner & Harpham, 2008, p. 725). In other words, an internalization of the belief in the appropriateness of evidence-based policy-making seems to have taken place. In sum, from the perspective of the CJT, the donors active in a country can be seen as forming a "jury" that provides information on policy options to decision-makers, which could be individual donors, or policy-makers at various governance levels in the recipient country, or both.

Third, even if donors share the goal of improving health in the recipient countries, there is significant diversity among

them with respect to their beliefs on the best ways to achieve it. In terms of the cognitive approach to collective wisdom, donors have different perspectives and heuristics. While a systematic mapping of such perspectives is well beyond the scope of this paper, we can point at some important differences in perspectives on health policy. These can be found at various levels, from general paradigmatic differences in the way health policies are conceptualized down to specific issues such as assessments of the comparative effectiveness of certain drugs or health technologies. At the most general level, the design of health policies is influenced by at least three broad paradigms, which can be called the "biomedical", "social medicine" and "economic" paradigms (Lee, 2009; Rushton & Williams, 2012). The biomedical paradigm focuses on physical processes and is based on biological and chemical discoveries about physiology, pathology, and pharmacological effects of substances. The biomedical perspective highlights the function that medical technology, notably vaccines and antibiotics, play in the prevention and treatment of morbidity. The social medicine paradigm focuses on the social determinants of health and on the contribution of the social sciences in identifying them. It highlights the function that different health systems play in promoting or hindering effective access to medical services, and more broadly the way in which inequality and poverty affect health (Porter, 2006). The economic paradigm is based on cost-benefit analysis and aims at identifying efficient allocations of resources through the reduction of various values (healthy life years, money, etc) to a common metric. It encourages policy-makers to measure and compare the economic costs and benefits of various health care policy options and those of specific interventions. As Rushton and Williams note, in global health there is almost never only one paradigm at work, and moreover "many international actors would subscribe to many or all of these paradigms, at least in the abstract. At the level of particular responses to particular problems, however, they often come into conflict" (Rushton & Williams, 2012, p. 158).

At a less abstract level, that of operational approaches, health policy-makers differ as to their orientation toward "vertical" *vs* "horizontal" health policy interventions. Vertical interventions focus on one or a small number of diseases or conditions, are guided by internationally defined targets and often managed internationally, and are time-limited; by contrast, horizontal approaches aim to improve the regular health infrastructure of countries and are generally not time-bound. As Atun *et al.* point out, "[f]ew issues related to the organization of health systems and service delivery have attracted as much attention as the debate on vertical versus integrated health programmes" (Atun, Bennett, & Duran, 2008, p. 1). There are broad trends, or "waves", in the orientation of health donors with regard to these types of interventions: the emphasis was on vertical approaches in the 1950s and 1960s, on primary health care in the 1970s, on health sector reform and sector-wide approaches in the 1980s and 1990s, on vertical initiatives from the 1990s, and again horizontal approaches in the form of "health system strengthening" since the mid-2000s (Hafner & Shiffman, 2013; Shiffman, 2006). In none of those phases did one approach completely displace the other. Crucial for the purposes of this paper is the fact that donors did not shift support from one approach to the other in lockstep, but a degree of perspectival diversity was preserved at any point in time.

Other dimensions on which health policy experts and policy-makers have different perspectives are far too many to be listed here, so we can only point some examples that have proven to be significant in practice: the complex relationship

between treatment and prevention of diseases, most notably HIV (Merson, O'Malley, Serwadda, & Apisuk, 2008); the question whether a reduction of the under-5 mortality rate requires investments in interventions that specifically target neonatal mortality (Shiffman & Sultana, 2013); the way in which people are categorized and labeled for the purposes of health interventions, such as the creation of the category of "orphans and vulnerable children" in HIV/AIDS policy (Green, 2011); the distinction between utilitarian and activist perspectives on the involvement of communities in the design and implementation of health policies (Morgan, 2001); and the circumstances in which a treatment regime should be replaced by another, e.g., the changing fortunes of amodiaquine and chloroquine in malaria treatment (Garner, Meremikwu, Volmink, Xu, & Smith, 2004).

Cognitive diversity produces communication problems and deadlock in some cases, but existing research on diversity leads us to expect positive outcomes as well. An example of how a perspective oriented toward a single disease positively interacted with a sector-wide perspective is offered by Cambodia during the 1990s, a period of significant growth of health aid fragmentation in that country (our multiplicity index explained in the next section increased from 0.42 in 1991 to 0.88 in 1996). The Cambodian ministry of health received support from the World Health Organization and 14 donors to develop an ambitious tuberculosis (TB) program, and simultaneously but separately it pursued a major donor-supported general re-organization of its general health services, which involved a systematic redistribution of health service provision among larger hospitals and smaller health centers (Hill & Eang, 2007). After some initial tensions between the proponents of the national TB program and health sector reformers, the two approaches were fruitfully combined: tuberculosis control was decentralized and extended from hospital-based delivery to health center delivery, and from the year 2000 onward the number of health centers offering targeted TB therapies increased steadily. Cambodia made significant progress in meeting the Millennium Development Goals on TB as a result of the interaction of different perspectives, notably those supporting the replacement of hospitalization-based TB control strategies with the WHO-sponsored "directly observed treatment, short-course" (DOTS) approach, those stressing the advantages of decentralized provision of health care in general and DOTS in particular, and those stressing the benefits of targeting some donor funding toward transportation, diagnostic smears, X-rays, and other measures required for the decentralization of control activities to the health center level (Hill & Eang, 2007).

Another example of fruitful diversity of perspectives is the development of health sector reforms in Zambia during the 1990s (where the health donor multiplicity index introduced in the next section was already high at 0.76 in 1990 and peaked at 0.89 in 2002). Most health aid to Zambia was traditionally directed toward funding specific health projects, but in the early 1990s the country's health indicators had deteriorated to such an extent that sections of the government and some of the donors decided that a major reform of the health system was required. The Danish international development agency (DANIDA) took the lead in 1993 by promising substantial funds for direct budget support to districts, which enabled the government to start a major decentralization program in health service planning and provision (Lake & Musumali, 1999). An increasing proportion of health aid was channeled through a "basket", whereby governments and donors pooled funding for district health services using a single set of procedures. For a variety of reasons, not all donors wanted

to contribute to the basket. The reform process involved major disagreements between (and within) donors about the weight to be given to building administrative capacities *vs* supporting the local delivery of basic services and the supply of drugs, and about other important aspects of the reform agenda (Simms, 2000). The key period of reforms, from 1993 to 1998, was characterized by considerable diversity of views about the best way to strengthen the Zambian health system as well as an intensification of government-donor discussions within institutionalized consultative forums (Lake & Musumali, 1999). These discussions and controversies led to a positive outcome: reforms in the Zambian health system is credited with playing a major role in the reduction of child mortality from 1993 onward, thus reversing the trend toward higher child mortality during the 1975–1992 period despite the continued decline of per capita income after the early 1990s (Garenne & Gakusi, 2006).

As noted above in relation to vertical *vs* horizontal approaches, the perspectives of donors are not independent from one another; on the contrary, they influence each other and sometimes aggregate to produce broad health policy trends. However, they are rarely identical at any given point in time, and so a significant degree of diversity is the rule rather than the exception. To illustrate this in relation to a small number of donors and funding priorities, in 2010 the United Kingdom distributed its health aid relatively evenly between activities targeting HIV/AIDS, maternal and child health, and general health sector support. By contrast, the United States devoted most of its health aid to HIV/AIDS, whereas most of Denmark's health aid was directed toward health sector support. None of those three areas was a priority for Japan (see Figure 1).

But is it really the case that more donors expose recipients to more diverse perspective than fewer donors, considering that individual donor agencies harbor a number of different perspectives internally? Development agencies typically employ specialists from a range of disciplinary backgrounds – the perspectival differences between economists and non-economists in the same organization are particularly well documented (Mosse, 2011). However, there are good reasons to expect that policy-makers in recipient countries are exposed to more diversity of perspectives when they interact with a larger number of donors. First, individual donor agencies are bureaucracies where the diversity of perspectives may be suppressed by a range of mechanisms, such as hierarchical direction, conformism, or career incentives (Broad, 2006; Mosse, 2011; Uchiyama, 2004). Second, recipients may not gain insight into the full range of diverse perspectives to be found in the donor agency, because the latter aims at presenting a single "official" position in its dealings with recipients. Third, the presence of many donors may stimulate a competitive dynamic where donors need to underpin their policy advice and prescriptions with more extensive and persuasive arguments and evidence, creating a livelier "marketplace of ideas". Of course, donors often form a "cartel" when dealing with recipient governments, but this is unlikely to negate completely the effects of multiple donor perspectives. For all these reasons, we should expect the benefits of diverse perspectives to be stronger in the presence of multiple donors.

5. HYPOTHESES ON DONOR MULTIPLICITY AND CHILD SURVIVAL

We can formulate two hypotheses on the effect of donor multiplicity on health outcomes in developing countries. We

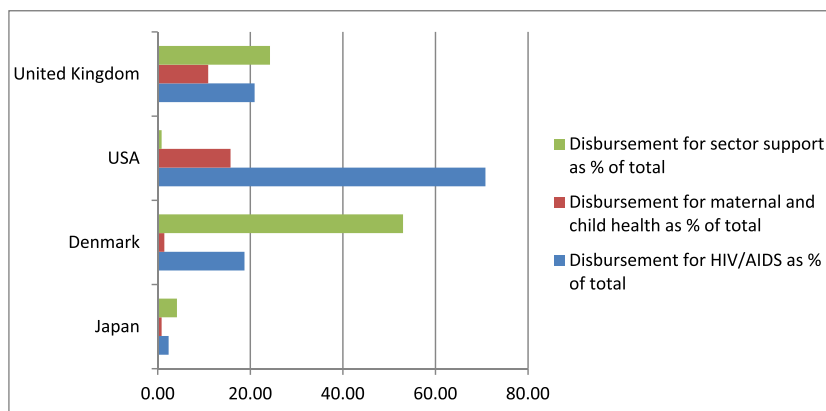


Figure 1. Disbursements for health sector support, maternal and child health, and HIV/AIDS by four donors, 2010. Source: Our calculations based on data from Ravishankar et al. (2009).

focus on child (i.e., under-5) survival, since the reduction of the under-5 mortality rate is often stated as a key objective of development policy, and it is an explicit and quantified target of the Millennium Development Goals. Our first hypothesis is relatively straightforward:

H1. Donor multiplicity in the health sector decreases child mortality.

Our second hypothesis is more nuanced. The statistical and cognitive theories summarized above lead us to expect decreasing returns to scale from the number of problem-solvers. Beyond a certain threshold, we should not expect additional donors to contribute much in the way of additional perspectives and heuristics on health policy problems. This means that there is a level of aid fragmentation beyond which we would expect its benefits to be offset by the costs that we have discussed in Section 2 above. We should thus expect the relationship between donor multiplicity and child mortality to be U-shaped: the marginal effect increases up to a certain value of fragmentation, and then decreases as fragmentation increases beyond that value. Our second hypothesis can thus be formulated as follows:

H2. Child mortality is lowest at intermediate levels of donor multiplicity in the health sector.

6. RESEARCH DESIGN

The effect of donor multiplicity on health outcomes can and should be studied utilizing a variety of methods and research designs. For instance, ethnographic studies could usefully shed light on how proponents of competing paradigms interact in specific policy-making settings and how those interactions shape the content of policies. In this paper, we employ a strategy that is commonly used in studies of aid fragmentation: we consider a large number of countries across time to identify associations between donor multiplicity and our outcome of interest. Specifically, our analyses are based on a sample of 110 low- and middle-income countries⁴ with population greater than 1 million⁵ during 1990–2010. The countries are listed in the Annex. By examining the period from 1990 onward, we take into account that humanitarian goals – and thus solving health policy problems – are likely to be more

important to donors after the Cold War than before, and we are able to use more reliable data on both the dependent and main independent variable.

For our dependent variable, under-5 mortality, we use the dataset compiled by the Institute for Health Metrics and Evaluation (IHME), which used information from a wide range of sources to estimate the probability of death between birth and age 5 years for a large number of countries (Rajaratnam et al., 2010).

Our primary independent variable is donor multiplicity, i.e., fragmentation, in health aid that is effectively disbursed. We focus on disbursements rather than commitments because most of the effects of donor multiplicity that have been discussed in this paper are conditional on projects and programs being operational, rather than merely planned. We rely on one of the most sustained efforts to collate relevant data on the effective disbursement of development assistance for health on the basis of a clear set of definitions: the dataset published by the IHME, which covers the period since 1990 (Ravishankar et al., 2009).⁶ The IHME disbursement dataset covers 22 bilateral donors, 11 multilateral donors and some U.S.-based private organizations such as the Bill and Melinda Gates Foundation. We use the IMHE dataset rather than the Creditor Reporting System (CRS) of the OECD because the former provides health aid disbursements starting in 1990, whereas the CRS database does not provide disbursements figures disaggregated by sector before 2002. The span of the IHME dataset also determines the start and end point of our analysis.

Among the various ways in which donor multiplicity can be measured, an index consisting of 1 minus the Herfindahl index is the most appropriate in the light of the theoretical concerns discussed in the first part of this article. The Herfindahl index for a recipient/year consists of the sum of squared aid shares (denoted by s_i) of all donors in that year. The index typically ranges from $1/N$ (where N denotes the number of donors for a recipient–year dyad) to 1, with the former indicating maximum multiplicity and the latter representing the opposite. Subtracting the index from 1 enables the degree of multiplicity to increase as it approaches 1. Thus, we constructed the multiplicity index as follows:

$$multiplicity = 1 - Herfindahl = 1 - \sum_{i=1}^N s_i^2 \quad (1)$$

Our multiplicity index expresses the probability that two aid dollars taken at random from a recipient’s total health aid come from different donors. The index has three advantages.

First, it is the most widely used measure of fragmentation in the aid literature, which enhances comparability (Acharya *et al.*, 2006; Djankov *et al.*, 2009; Kimura *et al.*, 2012; Knack & Rahman, 2007; Knack & Smets, 2012). Second, it is “the most common measure of diversity” across the social and natural sciences (Page, 2011, p. 70). But the most important reason is that it fits particularly well with the specific argument developed above. We assume that health policies are discussed in a multiplicity of settings in each recipient country, from the ministerial level down to rural health centers; donors who provide larger volumes of health aid are likely to be involved in a larger number of such settings; therefore, a suitable measure of fragmentation should not only count donors but also weigh them, as the 1 – Herfindahl index does. Moreover, each additional donor increases the 1 – Herfindahl index less than the previous one, which is consistent with our assumption that cognitive diversity increases less than proportionally to the number of actors.

Over the 1990–2010 period, average multiplicity in the countries included in our analysis (see below) has grown until about 2007 and showed signs of decline afterward (see Figure 2). The change occurred at the time when the reduction of fragmentation was formally placed on the international aid reform agenda through the 2005 Paris Declaration on Aid Effectiveness.

We include in our estimation several control variables that according to the literature may have an effect on health outcomes in general and more specifically on child survival.⁷ We include net official development assistance received (per capita) across all sectors, since both health and non-health interventions (such as infrastructures and education) could have an effect on health outcomes.⁸ A second control variable is GDP per capita, as it is likely to influence the private and public resources that can be invested in health care, and moreover it is often considered a proxy for general state capacity. A third control variable is urbanization, as it can be easier to provide health services to a population concentrated in urban areas than to a population more widely dispersed in rural areas. Our data capture urban population as percentage of total population. A fourth control variable is trade as

percentage of GDP, which we include as an indicator of economic globalization. A fifth control variable is the type of political regime. We use the Polity2 variable from Polity IV dataset, which measures democratic and authoritarian features of regimes on the basis of measures that capture modes of executive recruitment, constraints on executive authority, and political competition. A sixth control variable captures major political violence in a country, either internal or international.⁹ Finally, we incorporated in our model dummy variables to account for the unobserved year-specific fixed effects. Table 1 presents descriptive statistics.

Testing our hypotheses requires us to address the possibility of selection effects. It is conceivable that donors are more likely to be present in, or channel more resources to, countries where child mortality is highest, for instance if they are responsive to needs. Or donors may be more likely to be present in, or channel more resources to, countries where child mortality has declined faster in recent times, for instance if they wish to claim political credit for improvements of child survival rates. Therefore, we expect potential reverse causality between child mortality and a set of independent variables, such as aid per capita, multiplicity, and GDP per capita. We fit a two-step robust generalized method of moments (Difference GMM) model to examine our hypotheses 1 and 2 as outlined by Eqns. (2) and (3). We utilize this estimation strategy to address (1) the self-dependence in child mortality over time; (2) the potential endogeneity of some independent variables; (3) country-specific fixed effects; and (4) possible heteroskedasticity and autocorrelation in the error terms (Arellano & Bond, 1991; Roodman, 2009).¹⁰ Moreover, the Windmeijer finite-sample correction is also made by specifying a robust covariance matrix in the two-step estimation (Roodman, 2009).

$$\begin{aligned} mortality_{it} = & \beta_1 mortality_{it-1} + \beta_2 mortality_{it-2} + \beta_3 aidpc_{it-1} \\ & + \beta_4 multiplicity_{it-1} + \beta_5 GDPpc_{it-1} + \beta_6 urban_{it-1} \\ & + \beta_7 trade_{it-1} + \beta_8 polity2_{it-1} + \beta_9 pviolence_{it} \\ & + \alpha_i + \gamma_t + \varepsilon_{it} \end{aligned} \quad (2)$$

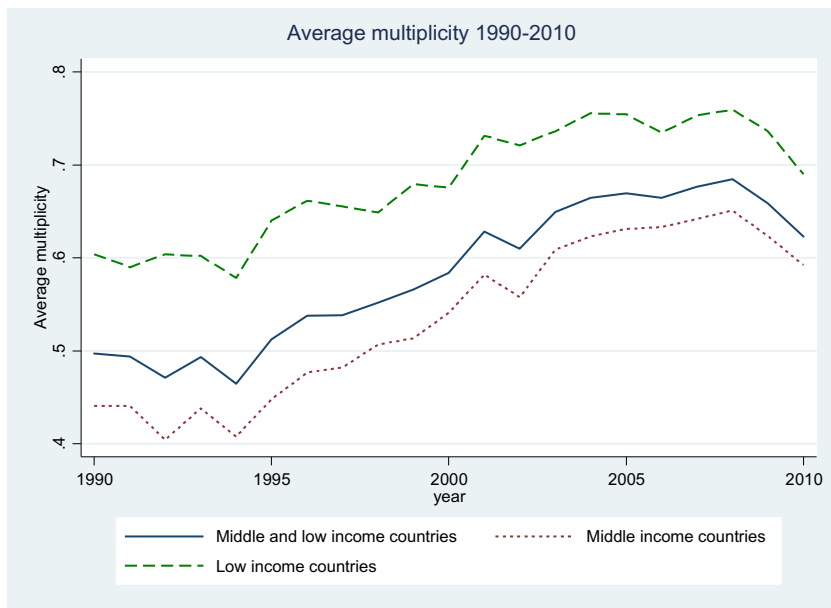


Figure 2. Average donor multiplicity in health aid, 1990–2010. Note: Countries listed in Annex. World Bank country classification by income.

$$\begin{aligned}
 mortality_{it} = & \beta_1 mortality_{it-1} + \beta_2 mortality_{it-2} + \beta_3 aidpc_{it-1} \\
 & + \beta_4 multiplicity_{it-1} + \beta_5 multiplicity_{it-1}^2 \\
 & + \beta_6 GDPpc_{it-1} + \beta_7 urban_{it-1} + \beta_8 trade_{it-1} \\
 & + \beta_9 polity2_{it-1} + \beta_{10} pviolence_{it} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (3)
 \end{aligned}$$

We use one-year lags of all independent variables (except political violence and year dummies) in the equation to reduce their endogeneity. As one-year lagged multiplicity, squared multiplicity, GDP per capita, aid per capita and the interaction terms among them (used in additional analysis) are likely to be predetermined, we instrument them using their own lags starting from the second and choose the lag length based on diagnostic tests and model specification. By construction, the lags of child mortality would be correlated with the error terms through time-invariant country-specific characteristics. Taking the first difference would not completely remove such simultaneous problem. Hence, we also instrument the dynamics of child mortality following the same logic. We log-transformed child mortality, GDP per capita, urbanization, and trade as percentage of GDP to bring them closer to a normal distribution.

There are two main points worth mentioning regarding the GMM estimation. First, the number of instruments is quadratic in the time dimension T. Finite samples may lack of adequate information to well estimate the elements of the variance matrix when many instruments are used (Roodman, 2009). Moreover, the Sargan/Hansen over-identifying restrictions could be weakened and generate a *p*-value equal to 1 (Andersen & Sørensen, 1996). We keep in mind the commonly used “rule of thumb” and try not to let the number of instruments exceed the number of cross-sectional units (Kimura *et al.*, 2012; Roodman, 2009). However, our model specification introduces a number of predetermined variables to instrument for, which in some cases makes it impossible to keep the number of instruments well below the number of countries. Therefore, we try to find a balance between controlling the number of instruments and utilizing adequate information. We instrument with only lag 2 when there are five or more predetermined variables, because every additional lag will significantly increase the instrument counts. In the models with four or fewer predetermined variables, we try to incorporate more information by instrumenting using lag 2 and 3, and compare the estimation results and diagnostic tests. We have obtained consistent results by changing the lag length in general, but the diagnostic test (Hansen’s over-identification test) performed better when only lag 2 was used as instrument, as shown in the next section. The second point worth noting is that the asymptotic of the GMM model is based on the “large N and small T” assumption. Our data set contains 110 countries, which is not exactly a “large” N compared to the time

span of 21 years. This data limitation should be kept in mind while interpreting the results.

Our dependent variable, child mortality, is estimated on the basis of a variety of data sources and different sample sizes across countries. This can introduce heteroskedasticity into the model due to the variation in the sample variance of different units of analysis (Lewis & Linzer, 2005). However, two reasons suggest that our findings are not affected by the problem. First, child mortality was estimated following a Gaussian Process Regression procedure designed to distinguish the observed trend in the data from the fluctuations due to sampling and non-sampling errors. Thus, errors due to varying sample sizes and data sources are largely controlled for (Rajaratnam *et al.*, 2010). Second, we apply robust estimators to correct the inefficiency caused by heteroskedasticity and autocorrelation in the error term due to various reasons.

7. FINDINGS

Table 2 presents our main findings. As shown in model 2, which uses lag 2 and lag 3 of the endogenous variables as instruments, donor multiplicity has a negative and statistically significant effect on child mortality rates. As suggested by Roodman (2009), we check the robustness of the result by instrumenting only with lag 2, which keeps the number of instruments below the number of countries. This yields a similar result, although at a lower level of statistical significance (model 3). This finding provides support for our Hypothesis 1: donor multiplicity increases child survival. In order to test Hypothesis 2, which states that child survival is highest at *intermediate* levels of donor multiplicity, we included a quadratic term for multiplicity in model 4. Quadratic multiplicity has a positive and statistically significant effect, which supports Hypothesis 2. Multiplicity has a negative but diminishing marginal effect until it reaches a value of 0.57, and then the marginal effect becomes positive. Correspondingly, predicted mortality keeps decreasing but at a slower speed until the turning point, and then increases. Figure 3 shows these results graphically. Thus, we find some support for our hypothesis that child mortality is lower at moderate multiplicity than low multiplicity, and that the effect weakens beyond a certain threshold. In 1990, 47 countries had a multiplicity value lower than the 0.57 threshold and 37 countries were at or over the threshold. The number of countries below the threshold exceeded the number of those above it until 1995, while from 1996 onward more countries were above than below the threshold. In the last year in our dataset (2010), 68 countries were at or over the 0.57 threshold and 41 were below it.¹¹

Table 1. *Descriptive statistics*

Variable	Observations	Mean	Std. Dev.	Min	Max
Child mortality	2,264	78.92	60.10	4.30	300.20
Donor multiplicity	2,165	0.59	0.24	0.00	0.91
Aid per capita	2,152	51.96	58.56	-40.24	890.48
Health aid per capita	2,166	3.32	5.74	0.00	124.41
GDP per capita	2,142	1817.23	1899.38	50.04	11533.82
Trade as % of GDP	2,133	74.37	37.21	0.31	220.41
Urbanization	2,264	44.56	19.84	5.42	93.31
Polity2 score	2,201	1.39	6.25	-10.00	10.00
Major political violence	2,248	0.95	1.92	0.00	13.00

Table 2. *Determinants of child mortality, 1990–2010. Main results*

	(1) [†]	(2) [†]	(3)	(4)
Lag of donor multiplicity		−0.020 ^{***} (0.008)	−0.019 [*] (0.010)	−0.054 ^{***} (0.019)
Lag of squared multiplicity				0.047 ^{**} (0.021)
Lag of aid per capita	−0.149 [*] (0.083)	−0.116 ^{**} (0.058)	−0.107 [*] (0.060)	−0.104 [*] (0.058)
Lag of GDP per capita	−0.061 ^{**} (0.025)	−0.054 ^{**} (0.024)	−0.108 ^{**} (0.051)	−0.097 ^{**} (0.039)
Lag of trade as % of GDP	−0.016 (0.016)	−0.012 (0.011)	−0.011 (0.010)	−0.013 (0.013)
Lag of urbanization	0.058 (0.042)	0.047 (0.041)	0.017 (0.042)	0.034 (0.042)
Lag of polity2 score	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Major political violence	0.010 (0.008)	0.009 (0.007)	0.006 (0.006)	0.007 (0.006)
Lag 1 of child mortality	0.533 ^{***} (0.044)	0.527 ^{***} (0.048)	0.553 ^{***} (0.171)	0.557 ^{***} (0.086)
Lag 2 of child mortality	0.311 ^{***} (0.025)	0.321 ^{***} (0.031)	0.252 (0.156)	0.266 ^{***} (0.037)
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
No. of observations	1,671	1,669	1,669	1,669
No. of groups	102	102	102	102
No. of instruments	130	166	94	113
AR(1) test	−1.344	−1.337	−1.157	−1.341
AR(1) <i>p</i> value	0.179	0.181	0.247	0.180
AR(2) test	−0.760	−0.812	0.0151	−0.287
AR(2) <i>p</i> value	0.447	0.417	0.988	0.774
Hansen overid test	80.70	71.69	53.39	59.43
Hansen overid <i>p</i> value	0.956	1.000	0.886	0.984
Wald chi2 test	15,595	16,064	16,719	19,008
Wald chi2 <i>p</i> value	0	0	0	0

Standard errors in parentheses.

The models use lag 2 of the endogenous variables as instruments, except the models marked with † where lag 2 and lag 3 of endogenous variables are used as instruments.

*** *p* < 0.01.

** *p* < 0.05.

* *p* < 0.1.

8. ADDITIONAL ANALYSES

We performed several additional analyses to test the robustness and scope conditions of our findings, which are presented in Table 3. First, we controlled for the effect of aid specifically targeted at health interventions as opposed to aggregate aid. Previous research on the effects of the volume of health aid on health outcomes has yielded mixed findings, with some studies finding a beneficial effect (Chauvet, Gubert, & Mesplé-Somps, 2013; Mishra & Newhouse, 2009) and others finding no statistically significant effect (Mukherjee & Kizhakethalackal, 2013; Williamson, 2008; Wilson, 2011).¹² These studies are based on data on commitments rather than disbursements of health aid, whereas we use health aid disbursement data. We find that, while aggregate aid reduces child mortality at conventionally accepted levels of statistical significance,¹³ health aid does not (model 6). This might be because health aid has decreasing returns, but adding health aid squared to our model does not lend support to this interpretation (model 7).¹⁴ Another explanation could be that, so far, the volume of health aid has been too low to make a real difference: on average, the low- and middle-income countries

in our dataset received only \$3.32 (2010 USD) per capita per year over the period we are considering. A third possible explanation is that governments reduce their own spending on health in response to inflows of health aid (Frag, Nandakumar, Wallack, Gaumer, & Hodgkin, 2009; Lu *et al.*, 2010).

Second, we considered the possibility that health donor multiplicity may be especially beneficial to recipient countries that receive small amounts of health aid. When a country receives large inflows of health aid, donors that provide a small share in relative terms may still have a country presence that is large enough in absolute terms to ensure substantial perspectival diversity, despite the dominance of one or few donors. This may be less likely when health aid inflows are small. Thus we examined whether the beneficial effect of health aid multiplicity on child mortality decreases as the volume of health aid per capita increases. We also investigated whether larger volumes of health aid per capita have a beneficial effect that gets weaker as multiplicity increases. The symmetric logic of interactive hypotheses suggests that, if the impact of health aid financial flows is conditional on multiplicity levels, then the impact of multiplicity should be conditional on the size of

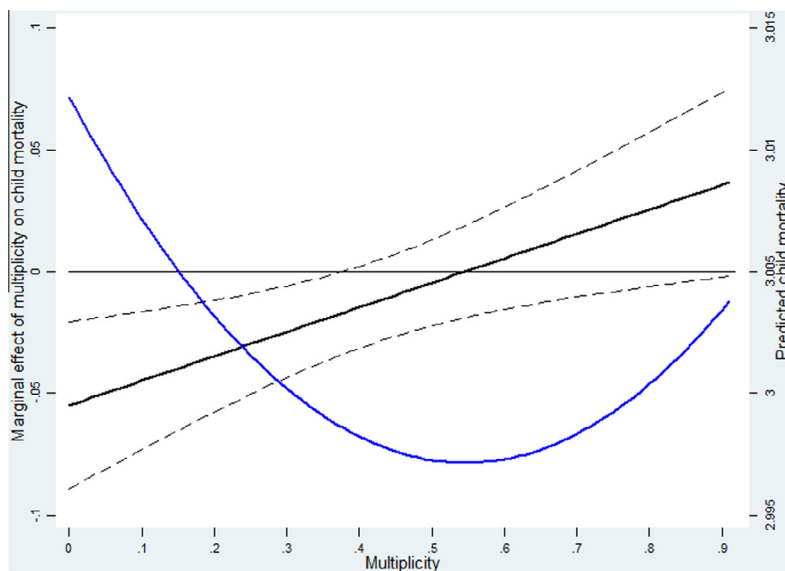


Figure 3. Marginal effect of donor multiplicity on child mortality and predicted mortality. Note: The solid black line represents the marginal effect and the dashed curves represent the 95% confidence interval. The blue curve represents predicted mortality based on various values of multiplicity when the other variables, including aid per capita, are held at their means. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

health aid financial flows (Berry, Golder, & Milton, 2012). To assess both possibilities, Model 8 includes an interaction term between donor multiplicity and health aid per capita, as well as an additional interaction term with multiplicity squared to capture the possibility that the marginal effect of aid on mortality is highest at intermediate levels of multiplicity rather than at the lowest level. Neither interaction terms is statistically significant at conventional levels, so we cannot reject the null hypothesis that the impact of multiplicity is independent of the volume of health aid and that the impact of health aid per capita is independent of multiplicity (Kam & Franzese, 2007, p. 49).

Third, we created a measure of public health spending per capita from domestic sources by subtracting the amount of health aid per capita received by a country in a given year from public health expenditure per capita in that country/year.¹⁵ The new variable does not have a statistically significant effect on child mortality. However, the debate on aid fungibility shows that the relationship between health aid and public health spending from domestic sources is complex (Lu et al., 2010; Ooms et al., 2010; Sridhar & Woods, 2010), and thus the absence of a statistically significant effect of the new variable in our analysis should be interpreted with caution. Health donor multiplicity retains a statistically significant effect after including the new variable (Model 9), but loses it in a model that includes both multiplicity and multiplicity squared (and draws on a substantially reduced number of observations) (Model 10).

Fourth, we estimated models that control for the average years of schooling of women of reproductive age (15–44).¹⁶ The results for multiplicity and multiplicity squared are not substantially affected (Models 11 and 12).

Fifth, we considered the possibility that donor multiplicity may be either beneficial or harmful depending on how aid is delivered. For the most part, the literature discussed in section two maintains that the pathological effects of aid derive from donors pursuing their own projects and neglecting the strengthening of governance capabilities in the recipient. In the terminology of the Paris Declaration and Accra Agenda for Action, health aid that reflects high levels of “coordination”

among donors and “alignment” with recipient government structures and priorities is considered to be less susceptible to those pathologies than uncoordinated and unaligned aid. Those official documents also identify the use of program-based approaches (PBAs) as one way to increase coordination and alignment, and commit donors to provide an increasing proportion of aid in the context of PBAs. PBAs entail that domestic and donor funding is provided in a single budget framework that relies of the recipient’s own systems for program design and management (Winters & Martinez, 2015). Donors typically participate in the recipient’s planning and budgetary process, with processes that are expected to be more coherent and less fragmented than in the case of project support. It is possible that donor multiplicity entails fewer negative effects when it occurs in the context of PBAs, such as a sector-wide approach (SWAP) in health. But this raises the question of whether the beneficial effects of donor multiplicity are really due to diversity among donors, as we hypothesized, or to the increased coordination and alignment resulting from PBAs and SWAPs. To answer this question, we subtracted the disbursements specifically targeted toward health sector program support from the health aid data we use, and repeated our analyses taking into account only the remaining, “uncoordinated” health aid. The multiplicity and multiplicity squared variable remain statistically significant with the expected sign (Model 13), which indicates that diversity yields benefits beyond those that may stem from formal coordination and integration.

Sixth, we considered the possibility that child mortality is affected not only by multiplicity at $t - 1$ but also by multiplicity in previous periods. The analyses reported in the previous section included two lags of child mortality as independent variables in addition to the lags of other controlling variables. In addition to estimating self-dependence over time, the lags of mortality are also proxies of independent variables in preceding periods. We also explicitly included multiplicity at $t - 2$ in the model and found that it is weakly statistically significant (at the $p < .10$ level). By contrast, health aid pc at $t - 2$ is not statistically significant (Model 14).

Finally, we considered alternative explanations for our empirical findings. In this paper we stressed the effects of

Table 3. *Determinants of child mortality, 1990–2010. Additional analyses*

	(5)	(6) [†]	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Lag of donor multiplicity	−0.078 ^{***} (0.024)	−0.021 ^{**} (0.009)	−0.014 (0.014)	−0.053 ^{***} (0.020)	−0.030 ^{***} (0.011)	−0.015 (0.025)	−0.017 [*] (0.010)	−0.053 ^{**} (0.022)		−0.021 ^{**} (0.009)
Lag of squared multiplicity	0.069 ^{**} (0.028)			0.050 ^{**} (0.023)		−0.018 (0.029)		0.051 ^{**} (0.023)		
Lag of aid per capita					−0.109 (0.079)	−0.120 [*] (0.073)	−0.116 [*] (0.062)	−0.108 [*] (0.066)	−0.103 [*] (0.055)	
Lag of aid as % of GDP	−0.001 [*] (0.000)									
Lag of health aid per capita		−0.217 (0.435)	−0.940 (1.465)	−0.455 (0.488)						−0.344 (0.659)
Lag of squared health aid per capita			4.576 (10.045)							
Lag of multiplicity * health aid per capita				0.895 (4.319)						
Lag of squared multiplicity * health aid per capita				−0.762 (4.423)						
Lag of domestic health spending per capita					−0.000 (0.000)	−0.000 (0.000)				
Lag of years of schooling, women aged 15–44							−0.003 (0.016)	−0.005 (0.016)		
Lag of uncoordinated multiplicity									−0.051 ^{**} (0.023)	
Lag of squared uncoordinated multiplicity									0.045 [*] (0.025)	
Lag 2 of donor multiplicity										−0.009 ^{**} (0.004)
Lag 2 of health aid per capita										−0.018 (0.132)
Lag of GDP per capita	−0.100 ^{**} (0.044)	−0.042 ^{**} (0.019)	−0.099 (0.066)	−0.063 [*] (0.034)	−0.114 ^{**} (0.057)	−0.110 [*] (0.061)	−0.119 ^{**} (0.060)	−0.106 [*] (0.052)	−0.104 ^{**} (0.041)	−0.115 [*] (0.049)
Lag of trade as % of GDP	−0.014 (0.013)	−0.014 (0.012)	−0.022 [*] (0.012)	−0.014 (0.014)	−0.023 (0.019)	−0.026 (0.020)	−0.010 (0.010)	−0.012 (0.010)	−0.014 (0.012)	−0.018 (0.014)
Lag of urbanization	0.044 (0.048)	0.050 (0.039)	0.055 (0.041)	0.022 (0.039)	−0.111 [*] (0.059)	−0.115 [*] (0.063)	0.023 (0.045)	0.020 (0.044)	0.021 (0.037)	0.021 (0.046)
Lag of polity2 score	−0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Major political violence	0.009 (0.006)	0.008 (0.006)	0.010 (0.006)	0.008 (0.007)	0.009 (0.007)	0.010 (0.007)	0.006 (0.005)	0.007 (0.006)	0.008 (0.007)	0.007 (0.008)
Lag 1 of child mortality	0.521 ^{***} (0.086)	0.540 ^{***} (0.051)	0.715 ^{***} (0.200)	0.687 ^{***} (0.176)	0.566 ^{***} (0.070)	0.554 ^{***} (0.087)	0.523 ^{***} (0.127)	0.556 ^{***} (0.121)	0.574 ^{***} (0.167)	0.650 ^{***} (0.202)
Lag 2 of child mortality	0.293 ^{***} (0.064)	0.308 ^{***} (0.033)	0.141 (0.176)	0.179 (0.160)	0.251 ^{***} (0.081)	0.246 ^{***} (0.087)	0.269 ^{**} (0.109)	0.242 ^{**} (0.103)	0.222 (0.145)	0.178 (0.180)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	1,665	1,680	1,680	1,680	1,322	1,322	1,669	1,669	1,669	1,656
No. of groups	102	102	102	102	97	97	102	102	102	102
No. of instruments	112	166	112	148	112	130	95	113	112	96
AR(1) test	−1.296	−1.341	−1.243	−1.261	−1.110	−1.073	−1.21	−1.25	−1.19	−1.215
AR(1) <i>p</i> value	0.195	0.180	0.214	0.207	0.267	0.283	0.227	0.210	0.234	0.224
AR(2) test	−0.502	−0.732	0.571	0.402	−0.447	−0.370	−0.13	0.03	0.14	0.349
AR(2) <i>p</i> value	0.616	0.464	0.568	0.687	0.655	0.712	0.900	0.978	0.887	0.727
Hansen overid test	66.11	68.60	76.51	55.41	68.66	69.13	53.08	53.93	59.47	62.24
Hansen overid <i>p</i> value	0.925	1.000	0.707	1.000	0.887	0.994	0.892	0.996	0.980	0.642
Wald chi2 test	14,519	23,871	16,681	30,852	10,041	10,330	13,944	14,020	15,083	11,511
Wald chi2 <i>p</i> value	0	0	0	0	0	0	0	0	0	0

Standard errors in parentheses.

The models use lag 2 of the endogenous variables as instruments, except the model marked with † where lag 2 and lag 3 of endogenous variables are used as instruments.

*** *p* < 0.01.** *p* < 0.05.* *p* < 0.1.

competition to provide better policy ideas, but an alternative account could point at forms of competition that are unrelated to the search of better policy ideas. This account would posit that fragmentation reduces the bargaining power of donors vis-à-vis any particular recipients, which in turn improves aid practices and development outcomes. We cannot rule out that at least some of our findings could be accounted for in this way. However, there is some evidence that casts doubt over this alternative explanation. Tying aid is generally considered to be a particularly detrimental aid practice, as it is estimated to increase costs substantially (Knack & Smets, 2012). In so far as donor multiplicity reduces the bargaining power of individual donors, it should be associated with less aid tying. But the opposite is actually the case: Knack and Smets (2012) analyzed aid in all sectors and found that donors with larger shares of aid in a country are *less* likely to tie their aid, and that aid tying is *more* likely to occur in recipient countries with more donors and higher aid fragmentation, measured as $1 - \text{Herfindahl}$ as we do. Moreover, they found evidence of a quadratic relationship: tied aid first increases but then declines as the number of donors increases beyond 30. Tied aid and fragmentation also show a statistically significant quadratic relationship, although all countries in their sample have fragmentation values below the value at which tied aid is predicted to peak. What is important to note for our purpose is that this quadratic relationship has the opposite sign of the quadratic relationship revealed by our analysis, which suggested that the development outcome is *worst*, not best, at extreme values of aid fragmentation. To the extent that tied aid can be considered as a proxy for non-ideational competition among donors, it does not seem that the latter factor accounts particularly well for the empirical patterns reported in the previous section. Of course, untied aid is not the only benefit that may conceivably stem from non-ideational competition among donors. For instance, a recipient government might be in a better position to reject burdensome reporting and monitoring demands when it faces a multiplicity of donors. Unfortunately this conjecture cannot be tested at this time because of lack of necessary data, but we can note that it contradicts widespread perceptions and anecdotal evidence on reporting and monitoring requirements under conditions of high aid fragmentation. Another qualification is that the results of Knack and Smets refer to aid in general, and we cannot rule out that there may be some feature about health aid that sets it apart from other types of aid. So we can only conclude that at this stage the ideational competition argument developed in this paper seems to fit the empirical patterns better than alternative competition-based hypotheses, but more research is needed to tease apart the effects of the two forms of competition.

9. CONCLUSIONS

As noted in the introduction, the view that donor fragmentation is detrimental to the ability of governments to deliver development outcomes is widespread among policy-makers as well as scholars. It is remarkable that all main indices and rankings of the “quality” of development assistance penalize donors for contributing to multiplicity (Birdsall, Kharas, Mahgoub, & Perakis, 2010; Easterly & Williamson, 2011; Knack, Halsey Rogers, & Eubank, 2010). Easterly and

Williamson (2011) acknowledge that complete specialization by country or sector is not necessarily optimal, but nonetheless their index assumes a linear negative relationship between contribution to fragmentation and donor performance. They justify this assumption by arguing that most of their observations are at a high level of fragmentation that plausibly corresponds to suboptimal behavior.

Our findings qualify these assumptions in relation to the health sector. We find that increasing multiplicity of health aid donors has a beneficial effect on child survival, if the relationship between the two is modeled in a simple linear fashion. But we also argue that, given the nature of the costs and benefits of multiplicity, the relationship should be seen as curvilinear, and our empirical findings support this interpretation: child mortality is lowest at intermediate levels of donor multiplicity in the health sector. While we would not want to convey a false impression of precision, we can tentatively say that in 1990 47 countries in our sample would have benefitted from more multiplicity and 37 countries from less, whereas in 2010 68 countries may have had “too much” multiplicity and 41 “too little”. While such estimates need to be treated with appropriate caution, they suggest that calls for a reduction of aid fragmentation across the board fail to do justice to a more complex relationship between multiplicity and performance.

We also found that the quantity of aid in general (for any sector) is associated with a reduction of child mortality, whereas the quantity of health aid is not. It is possible that increasing the volume of health aid has limited impacts on child survival because it often displaces government spending on health. We would argue that a larger number of health aid donors bring diverse perspectives on health policy into a country, *and the benefits of diversity are not offset by a similar displacement effect*. In short, our analysis points at the possibility that, over the past 20 years, aid targeted specifically to the health sector has been beneficial less because of the material resources it provided and more because of the wider range of knowledge and policy ideas to which it exposes national policy-makers and officials. Some analysts of broad trends note that “[k]nowledge transfer has become as important as financial aid, and combining the two can be remarkably transformative” (Fengler & Kharas, 2011, p. 2). At least in the domain of health policy, our analysis suggests that knowledge transfer may be *more* important than financial aid, and that preserving a relatively high degree of donor multiplicity can be an effective way of promoting that transfer.

What about aid sectors other than health? Based on the logic of our argument, we would expect differences between aid sectors to reflect mainly two variables. The first variable is the weight that donors attach to the goal of promoting development outcomes compared to their other geo-strategic, economic, and bureaucratic goals. The second variable is the degree of epistemic complexity of the problems addressed in the policy sector: the higher the complexity, the more policy-making will benefit from a diversity of perspectives on what policies are conceivable and effective. Both variables are extremely difficult to measure, but it is plausible that both humanitarian motives and epistemic complexity may be high in the health sector compared to other policy sectors. If this is the case, then the net effect of donor multiplicity may start to be detrimental at lower levels of multiplicity in those sectors than in health. We highlight this as a promising topic for further research.

NOTES

1. See also Nunnenkamp, Öhler, and Thiele (2013). There are important sectoral differences. As we show below, the growth of donor fragmentation in the health sector has been reversed since the mid-2000s in both low- and middle-income countries.
2. At least some recipient governments do not appear to share the view that fragmentation needs to be reduced (Greenhill, Prizzon, & Rogerson, 2013).
3. See, for instance, the findings of Hook, Taylor, and Schraeder (1998), Alesina and Dollar (2000), Neumayer (2003), Gibson, Andersson, Ostrom, and Shivakumar (2005), Mosse (2005), Bearce and Tirone (2010), Baccini and Urpelainen (2012), and Heinrich (2013).
4. As classified by the World Bank.
5. Countries with smaller populations present significant missing data problems.
6. The IHME defines DAH as follows: "Financial and in-kind contributions from channels of assistance to improve health in low-income and middle-income countries. DAH aims to achieve either country-specific health improvements or to finance health-related global public goods such as research and development, disease surveillance, monitoring and evaluation, and data collection. DAH does not include support for allied fields such as humanitarian assistance, food aid, water and sanitation, education, and poverty alleviation that indirectly affect health." Ravishankar *et al.* (2009).
7. For discussions of why these control variables should affect child survival see Gomane, Morrissey, Mosley, and Verschoor (2005), Li and Wen (2005), Besley and Kudamatsu (2006), Ross (2006), Owen and Wu (2007), Mishra and Newhouse (2009).
8. We thank an anonymous reviewer for pointing out the relevance of non-health aid for health outcomes. See also Gomane *et al.* (2005).
9. Data on net ODA/official aid received, GDP per capita, urban population and trade as a % of GDP are from <http://databank.worldbank.org>. Polity IV and major political violence data are from <http://www.systemicpeace.org>. For the latter, we use the variable "actotal" from the Major Episodes of Political Violence (MEPV2012) database, which measures the intensity of both interstate and intrastate violence.
10. A recent study that applies a similar methodology to examine the consequences of aid fragmentation is Kimura *et al.* (2012).
11. Over the whole 1990–2010 period, 1,350 country–years were at or over the threshold and 815 were under the threshold.
12. Dietrich (2011) and Feeny and Ouattara (2013) find a positive and statistically significant link between health aid and two measures of child health promotion: immunization against measles and immunization against diphtheria–pertussis–tetanus.
13. This holds both if aid is measured per capita and as a percentage of GDP (Model 5).
14. We are grateful to an anonymous reviewer for suggesting this test. See also Hansen and Tarp (2001).
15. Data on public health expenditures are from Clements, Gupta, and Nozaki (2013).
16. Data on schooling are from Institute for Health Metrics and Evaluation (2015).

REFERENCES

- Acharya, A., Fuzzo De Lima, A. T., & Moore, M. (2006). Proliferation and fragmentation: Transactions costs and the value of aid. *Journal of Development Studies*, 42(1), 1–21.
- Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom and why?. *Journal of Economic Growth*, 5(1), 33–63.
- Andersen, T. G., & Sørensen, B. E. (1996). GMM estimation of a stochastic volatility model: A Monte Carlo study. *Journal of Business & Economic Statistics*, 14(3), 328–352.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277–297.
- Arimoto, Y., & Kono, H. (2009). Foreign aid and recurrent cost: Donor competition, aid proliferation, and budget support. *Review of Development Economics*, 13(2), 276–287.
- Atun, R. A., Bennett, S., & Duran, A. (2008). *When do vertical (stand-alone) programmes have a place in health systems?*. Geneva: World Health Organization.
- Baccini, L., & Urpelainen, J. (2012). Strategic side payments: Preferential trading agreements, economic reform, and foreign aid. *Journal of Politics*, 74(4), 932–949.
- Bearce, D. H., & Tirone, D. C. (2010). Foreign aid effectiveness and the strategic goals of donor governments. *Journal of Politics*, 72(3), 837–851.
- Bergamaschi, I. (2008). Mali: Patterns and limits of donor-driven ownership. In L. Whitfield (Ed.), *The politics of aid: African strategies for dealing with donors*. Oxford: Oxford University Press.
- Berry, W. D., Golder, M., & Milton, D. (2012). Improving tests of theories positing interaction. *Journal of Politics*, 74(3), 653–671.
- Besley, T., & Kudamatsu, M. (2006). Health and democracy. *American Economic Review*, 96, 313–318.
- Birdsall, N., Kharas, H., Mahgoub, A., & Perakis, R. (2010). *Quality of official development assistance assessment*. Washington, DC: Center for Global Development.
- Broad, R. (2006). Research, knowledge, and the art of 'paradigm maintenance': The World Bank's Development Economics Vice-Presidency (DEC). *Review of International Political Economy*, 13(3), 387–419.
- Chauvet, L., Gubert, F., & Mesplé-Soms, S. (2013). Aid, remittances, medical brain drain and child mortality: Evidence using inter and intra-country data. *Journal of Development Studies*, 49(6), 801–818.
- Clements, B., Gupta, S., & Nozaki, M. (2013). What happens to social spending in IMF-supported programmes?. *Applied Economics*, 45(28), 4022–4033.
- Council of the European Union. (2007). EU Code of conduct on complementarity and division of labour in development policy. Document 9558/07. Brussels, 15 May 2007. At <<http://register.consilium.europa.eu/pdf/en/07/st09/st09558.en07.pdf>>.
- De Renzio, P., & Hanlon, J. (2008). Mozambique: Contested sovereignty? The dilemmas of aid dependence. In L. Whitfield (Ed.), *The politics of aid: African strategies for dealing with donors*. Oxford: Oxford University Press.
- Dietrich, S. (2011). The politics of public health aid: Why corrupt governments have incentives to implement aid effectively. *World Development*, 39(1), 55–63.
- Dietrich, F., & Spiekermann, K. (2013). Epistemic democracy with defensible premises. *Economics and Philosophy*, 29(1), 87–120.

- Djankov, S., Montalvo, J. G., & Reynal-Querol, M. (2009). Aid with multiple personalities. *Journal of Comparative Economics*, 37(2), 217–229.
- Easterly, W., & Williamson, C. R. (2011). Rhetoric versus reality: The best and worst of aid agency practices. *World Development*, 39(11), 1930–1949.
- Farag, M., Nandakumar, A. K., Wallack, S. S., Gaumer, G., & Hodgkin, D. (2009). Does funding from donors displace government spending for health in developing countries?. *Health Affairs*, 28(4), 1045–1055.
- Feeny, S., & Ouattara, B. (2013). The effects of health aid on child health promotion in developing countries: Cross-country evidence. *Applied Economics*, 45(7), 911–919.
- Fengler, W., & Kharas, H. (2011). Delivering aid differently: Lessons from the field. *World Bank-Economic Premise*, 49, 1–8.
- Frot, E., & Santiso, J. (2008). *Development aid and portfolio funds: Trends, volatility and fragmentation*. Paris: OECD.
- Frot, E., & Santiso, J. (2010). *Crushed aid: Fragmentation in sectoral aid*. Paris: OECD Development Centre.
- Garenne, M., & Gakusi, A. E. (2006). Vulnerability and resilience: Determinants of under-five mortality changes in Zambia. *World Development*, 34(10), 1765–1787.
- Garner, P., Meremikwu, M., Volmink, J., Xu, Q., & Smith, H. (2004). Putting evidence into practice: How middle and low income countries “get it together”. *British Medical Journal*, 329(7473), 1036–1039.
- Gibson, C. C., Andersson, K., Ostrom, E., & Shivakumar, S. (2005). *The Samaritan’s dilemma: The political economy of development aid*. Oxford: Oxford University Press.
- Gomane, K., Morrissey, O., Mosley, P., & Verschoor, A. (2005). Aid, government expenditure, and aggregate welfare. *World Development*, 33(3), 355–370.
- Green, M. (2011). Calculating compassion. In D. Mosse (Ed.), *Adventures in aidland: The anthropology of professionals international development*. Oxford: Berghahn Books.
- Greenhill, R., Prizzon, A., & Rogerson, A. (2013). *The age of choice: Developing countries in the new aid landscape*. London: Overseas Development Institute.
- Hafner, T., & Shiffman, J. (2013). The emergence of global attention to health systems strengthening. *Health Policy and Planning*, 28(1), 41–50.
- Hansen, H., & Tarp, F. (2001). Aid and growth regressions. *Journal of Development Economics*, 64(2), 547–570.
- Heinrich, T. (2013). When is foreign aid selfish, when is it selfless?. *Journal of Politics*, 75(2), 422–435.
- Hill, P. S., & Eang, M. T. (2007). Resistance and renewal: Health sector reform and Cambodia’s national tuberculosis programme. *Bulletin of the World Health Organization*, 85(8), 631–636.
- Hong, L., & Page, S. E. (2004). Groups of diverse problem solvers can outperform groups of high-ability problem solvers. *Proceedings of the National Academy of Sciences of the United States of America*, 101(46), 16385–16389.
- Hong, L., & Page, S. E. (2012). Some microfoundations of collective wisdom. In H. Landemore, & J. Elster (Eds.), *Collective wisdom: Principles and mechanisms*. Cambridge: Cambridge University Press.
- Institute for Health Metrics and Evaluation. (2015). *Global educational attainment 1970–2015*. Institute for Health Metrics and Evaluation (IHME): Seattle.
- Hook, S. W., Taylor, B., & Schraeder, P. J. (1998). Clarifying the foreign aid puzzle: A comparison of American, Japanese, French, and Swedish aid flows. *World Politics*, 50(2), 294–323.
- Kam, C. D., & Franzese, R. Jr., (2007). *Modeling and interpreting interactive hypotheses in regression analysis*. Ann Arbor, Mich.: University of Michigan Press.
- Kimura, H., Mori, Y., & Sawada, Y. (2012). Aid proliferation and economic growth: A cross-country analysis. *World Development*, 40(1), 1–10.
- Knack, S., Halsey Rogers, F., & Eubank, N. (2010). *Aid quality and donor rankings*. Washington, DC: World Bank.
- Knack, S., & Rahman, A. (2007). Donor fragmentation and bureaucratic quality in aid recipients. *Journal of Development Economics*, 83(1), 176–197.
- Knack, S., & Smets, L. (2012). Aid tying and donor fragmentation. *World Development*, 44, 63–76.
- Lake, S., & Musumali, C. (1999). Zambia: The role of aid management in sustaining visionary reform. *Health Policy and Planning*, 14(3), 254–263.
- Landemore, H. (2012). The mechanisms of collective intelligence in politics. In H. Landemore, & J. Elster (Eds.), *Collective wisdom: Principles and mechanisms*. Cambridge: Cambridge University Press.
- Lee, K. (2009). Understandings of global health governance: The contested landscape. In A. Kay, & O. Williams (Eds.), *Global health governance: Crisis, institutions and political economy*. Basingstoke: Palgrave Macmillan.
- Lewis, J. B., & Linzer, D. A. (2005). Estimating regression models in which the dependent variable is based on estimates. *Political Analysis*, 13, 345–364.
- Li, Q., & Wen, M. (2005). The immediate and lingering effects of armed conflict on adult mortality: A time-series cross-national analysis. *Journal of Peace Research*, 42, 471–492.
- List, C., & Goodin, R. E. (2001). Epistemic democracy: Generalizing the Condorcet jury theorem. *Journal of Political Philosophy*, 9(3), 277–306.
- Lu, C., Schneider, M. T., Gubbins, P., Leach-Kemon, K., Jamison, D., & Murray, C. J. L. (2010). Public financing of health in developing countries: A cross-national systematic analysis. *The Lancet*, 375(9723), 1375–1387.
- Merson, M. H., O’Malley, J., Serwadda, D., & Apisuk, C. (2008). The history and challenge of HIV prevention. *The Lancet*, 372(9637), 475–488.
- Mishra, P., & Newhouse, D. (2009). Does health aid matter?. *Journal of Health Economics*, 28(4), 855–872.
- Morgan, L. M. (2001). Community participation in health: Perpetual allure, persistent challenge. *Health Policy and Planning*, 16(3), 221–230.
- Mosse, D. (2005). *Cultivating development: An ethnography of aid policy and practice*. London and Ann Arbor, MI: Pluto Press.
- Mosse, D. (2011). Social analysis as corporate product: Non-Economists/anthropologists at work in the World Bank in Washington DC. In D. Mosse (Ed.), *Adventures in aidland: The anthropology of professionals in international development*. Oxford: Berghahn Books.
- Mukherjee, D., & Kizhakethalackal, E. T. (2013). Empirics of health-aid, education and infant mortality: A semiparametric study. *Applied Economics*, 45(22), 3137–3150.
- Neumayer, E. (2003). *The pattern of aid giving: The impact of good governance on development assistance*. London and New York: Routledge.
- OECD. (2011). *Aid effectiveness 2005–10: Progress in implementing the Paris Declaration*. Paris: OECD Publishing.
- Nunnenkamp, P., Öhler, H., & Thiele, R. (2013). Donor coordination and specialization: Did the Paris Declaration make a difference?. *Review of World Economics*, 149(3), 537–563.
- Ooms, G., Decoster, K., Miti, K., Rens, S., Van Leemput, L., Vermeiren, P., et al. (2010). Crowding out: Are relations between international health aid and government health funding too complex to be captured in averages only?. *The Lancet*, 375(9723), 1403–1405.
- Owen, A. L., & Wu, S. (2007). Is trade good for your health?. *Review of International Economics*, 15(4), 660–682.
- Page, S. E. (2007). *The difference: How the power of diversity creates better groups, firms, schools, and societies*. Princeton, NJ: Princeton University Press.
- Page, S. E. (2011). *Diversity and complexity*. Princeton, NJ: Princeton University Press.
- Porter, D. (2006). How did social medicine evolve, and where is it heading?. *PLoS Medicine*, 3(10), e399.
- Rajaratnam, J. K., Marcus, J. R., Flaxman, A. D., Wang, H., Levin-Rector, A., Dwyer, L., et al. (2010). Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970–2010: A systematic analysis of progress towards Millennium Development Goal 4. *The Lancet*, 375(9730), 1988–2008.
- Ravishankar, N., Gubbins, P., Cooley, R. J., Leach-Kemon, K., Michaud, C. M., Jamison, D. T., et al. (2009). Financing of global health: Tracking development assistance for health from 1990 to 2007. *The Lancet*, 373(9681), 2113–2124.
- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*, 9(1), 86–136.
- Ross, M. (2006). Is democracy good for the poor?. *American Journal of Political Science*, 50(4), 860–874.
- Rushton, S., & Williams, O. D. (2012). Frames, paradigms and power: Global health policy-making under neoliberalism. *Global Society*, 26(2), 147–167.
- Sato, J., Shiga, H., Kobayashi, T., & Kondoh, H. (2011). “Emerging donors” from a recipient perspective: An institutional analysis of foreign aid in Cambodia. *World Development*, 39(12), 2091–2104.

- Shiffman, J. (2006). Donor funding priorities for communicable disease control in the developing world. *Health Policy and Planning, 21*(6), 411–420.
- Shiffman, J., & Sultana, S. (2013). Generating political priority for neonatal mortality reduction in Bangladesh. *American Journal of Public Health, 103*(4), 623–631.
- Simms, C. (2000). Health reformers' response to Zambia's childhood mortality crisis. *IDS working paper series, no. 121*. Brighton: Institute of Development Studies at the University of Sussex.
- Sridhar, D., & Woods, N. (2010). Are there simple conclusions on how to channel health funding?. *The Lancet, 375*(9723), 1326–1328.
- Stahl, G. K., Maznevski, M. L., Voigt, A., & Jonsen, K. (2009). Unraveling the effects of cultural diversity in teams: A meta-analysis of research on multicultural work groups. *Journal of International Business Studies, 41*(4), 690–709.
- Sumner, A., & Harpham, T. (2008). The market for 'evidence' in policy processes: The case of child health policy in Andhra Pradesh, India and Viet Nam. *European Journal of Development Research, 20*(4), 712–732.
- Uchiyama, Y. (2004). Architecture of immanent power. Truth and nothingness in a Japanese bureaucratic machine. *Social Anthropology, 12*(1), 3–23.
- Whitfield, L. (Ed.) (2008). *The politics of aid: African strategies for dealing with donors*. Oxford: Oxford University Press.
- Williamson, C. R. (2008). Foreign aid and human development: The impact of foreign aid to the health sector. *Southern Economic Journal, 75*(1), 188–207.
- Wilson, S. E. (2011). Chasing success: Health sector aid and mortality. *World Development, 39*(11), 2032–2043.
- World Bank. (2003). *World development report 2004: Making services work for poor people*. Washington, DC and Oxford: World Bank and Oxford University Press.
- Winters, M. S., & Martinez, G. (2015). The role of governance in determining foreign aid flow composition. *World Development, 66*, 516–531.

ANNEX. AID RECIPIENTS INCLUDED IN THE
ANALYSIS AND NUMBER OF YEARS FOR EACH
COUNTRY

Country	Years	Country	Years
Afghanistan	21	Lebanon	21
Albania	21	Lesotho	21
Algeria	21	Liberia	21
Angola	21	Libya	21
Argentina	21	Macedonia, FYR	17
Armenia	19	Madagascar	21
Azerbaijan	19	Malawi	21
Bangladesh	21	Malaysia	21

Belarus	19	Mali	21
Benin	21	Mauritania	21
Bolivia	21	Mauritius	21
Bosnia and Herzegovina	18	Mexico	21
Botswana	21	Moldova	19
Brazil	21	Mongolia	21
Bulgaria	21	Morocco	21
Burkina Faso	21	Mozambique	21
Burundi	21	Myanmar	21
Cambodia	21	Namibia	21
Cameroon	21	Nepal	21
Central African Republic	21	Nicaragua	21
Chad	21	Niger	21
China	21	Nigeria	21
Colombia	21	Pakistan	21
Congo, Dem. Rep.	21	Panama	21
Congo, Rep.	21	Papua New Guinea	21
Costa Rica	21	Paraguay	21
Cote d'Ivoire	21	Peru	21
Cuba	21	Philippines	21
Dominican Republic	21	Romania	21
Ecuador	21	Rwanda	21
Egypt, Arab Rep.	21	Senegal	21
El Salvador	21	Serbia	17
Eritrea	17	Sierra Leone	21
Ethiopia	21	Somalia	21
Gabon	21	South Africa	21
Gambia, The	21	Sri Lanka	21
Georgia	19	Sudan	21
Ghana	21	Swaziland	21
Guatemala	21	Syrian Arab Republic	21
Guinea	21	Tajikistan	19
Guinea-Bissau	21	Tanzania	21
Haiti	21	Thailand	21
Honduras	21	Timor-Leste	12
Hungary	21	Togo	21
India	21	Tunisia	21
Indonesia	21	Turkey	21
Iran, Islamic Rep.	21	Turkmenistan	19
Iraq	21	Uganda	21
Jamaica	21	Ukraine	19
Jordan	21	Uzbekistan	19
Kazakhstan	19	Venezuela, RB	21
Kenya	21	Vietnam	21
Korea, Dem. Rep.	21	Yemen, Rep.	21
Kyrgyz Republic	19	Zambia	21
Lao PDR	21	Zimbabwe	21