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# Relative Effectiveness of Bilateral and Multilateral Aid on Development and Social Outcomes

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**Abstract**

Aid donors are interested in the arguments for allocating aid via bilateral versus multilateral channels, and specifically in understanding which channel is more "effective" at supporting positive development and social outcomes. We contribute to the literature on this subject by summarizing recent OECD data on aid flows and reviewing the theoretical arguments from the aid literature on the different characteristics supporting effectiveness of bilateral versus multilateral aid. We then review the empirical literature, analyzing 40 papers that study the effectiveness of different aid channels on various outcomes. Many studies do not directly compare the effectiveness of aid channels, and the studies vary in how aid channels are defined, measured, and evaluated. Further, these studies do not directly test the hypothesized advantages of one channel of aid versus another; rather they test bilateral versus multilateral aid flows associations with development outcomes, assuming some causal mechanism is at work to explain differences in impact. We evaluate studies reporting the impacts of aid on GDP growth, governance, government investment spending, health, the HDI, poverty, and private investment, and find no consistent evidence that either bilateral or multilateral aid is more effective. The lack of conclusive evidence supporting either aid channel is likely related to differences in the methodologies of the studies included in this review, but may also be due to differences in how the theoretical arguments for the effectiveness of either channel apply in different circumstances.

## Research Question and Scope

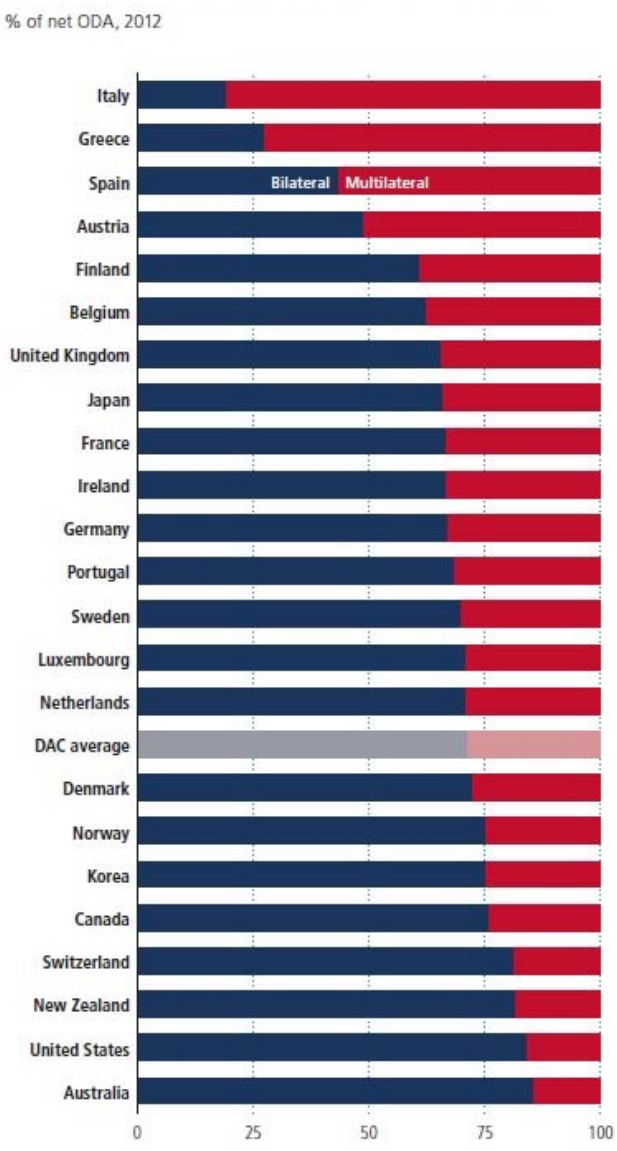
The primary research question addressed in this brief is: What is the evidence on the aid effectiveness of bilateral versus multilateral aid? "Effectiveness" is defined as the ability to achieve targeted development outcomes, as measured by indicators such as GDP growth, increases in the Human Development Index (HDI), decreases in infant mortality, and others. The purpose is to assess the empirical evidence supporting theoretical arguments for the relative effectiveness of either bilateral or multilateral aid for realizing desired development outcomes.

We begin by briefly summarizing recent Organization for Economic Development (OECD) Development Assistance Committee (DAC) data on aid flows to highlight differences in the volume and allocation of bilateral versus multilateral aid. We summarize the composition (bilateral vs. multilateral) of aid flows from different donors and within different sectors, and the major recipients of social services aid flows through bilateral versus multilateral channels.

We then review the theoretical arguments drawn from the aid literature for the relative strengths and weaknesses of bilateral versus multilateral aid. We consider how bilateral and multilateral aid differ in terms of development orientation (whether social sector goals are targeted), control over aid and accountability to donors (including whether aid is tied), ability to impose conditionality, potential for aid flows to provide signaling to spur private investment, perceived legitimacy of aid flows among recipient countries, cost-effectiveness of project implementation, and challenges associated with aid (e.g., fragmentation and donor proliferation).

We conclude with a review of 40 papers from the recent aid literature, summarizing the published evidence on the effectiveness of bilateral versus multilateral aid, predominantly examining flows of Official Development Assistance (ODA) from DAC member countries. We also highlight the limitations and gaps in the body of evidence, which stem both from the limited number of studies that directly measure the relative impacts of bilateral versus multilateral aid on development outcomes and from inconsistencies in how these types of aid are defined, measured, and evaluated. We note that none of the studies directly tests the hypothesized advantages of one form of aid versus another; rather they test bilateral versus multilateral aid flows against development outcomes, assuming some causal mechanism such as control or efficiency – differentially associated with multilateral or bilateral aid – is at work. This weakness leaves open the possibility that something entirely other than the hypothesized relative strengths and weaknesses of bilateral and multilateral aid flows are responsible for variations in outcomes.

*Figure 1: Bilateral and Multilateral Aid Given By DAC Members*[1]




*Source:* Development Initiatives, 2013

## Introduction

Our use of aid terminology is based on OECD definitions, but attempts to provide the necessary nuance for interpretations specific to the question of relative effectiveness for development outcomes. *Bilateral aid* is defined here as all Official Development Assistance (ODA) provided by an official bilateral donor (state or local government) directly to the government of a developing country, or to a multilateral agency with use restrictions (e.g., USAID funding to the UNDP earmarked for use in Afghanistan). *Multilateral aid* (or multilateral ODA) is core funding disbursed by a bilateral donor to a regional or multilateral organization without use restrictions. *Bilateral disbursements* include all disbursements originating from a bilateral donor, including disbursements to or through multilateral agencies. In contrast, *multilateral disbursements* include only unrestricted funds flowing from a multilateral agency to recipient countries (e.g., WHO funding to Sierra Leone). Funds channeled through multilateral agencies with restrictions on use (e.g. specific projects or countries where the funds must be used) are reported by the OECD as bilateral aid, and referred to as *earmarked aid*, *non-core multilateral aid*, or *multi-bilateral aid*.[1]

International resource flows have grown in recent years, more than doubling since 2000 and becoming much more diverse in nature. Total resource flows reached US$2.1 trillion in 2011. This includes ODA and other official flows, Foreign Direct Investment (FDI), remittances, portfolio equity, long and short term loans, military expenditure, development finance institutions, and non-DAC development cooperation (Development Initiatives, 2013). A recent trend of note is the increasing levels of aid channeled through non-governmental organizations (NGOs) and other organizations such as universities and think-tanks (Development Initiatives, 2013).

[1] This classification is based on OECD practice for classifying aid. Among the studies we reviewed 22 used OECD aid data, and an additional 14 studies used World Bank data, which is from the OECD, so likely follows the same definition. No study explicitly contrasts core and non-core multilateral aid, so non-core multilateral aid likely fell under bilateral aid, as per OECD convention. We note, however, that when funds and therefore data are classified by use restrictions (allocation) it is difficult to test for differences in implementation effectiveness between multilateral and bilateral aid. The mechanisms that might make multilateral aid more or less effective, for example, would be at work in non-core multilateral aid counted as bilateral, but delivered as multilateral.

The data on flows from non-DAC donors is limited and incomplete, and subject to a changing list of activities classified as aid. Accordingly, for consistency our review focuses on ODA from DAC donors, but we note this as a weakness in the literature trying to associate resource flows more broadly with development outcomes. The OECD defines ODA as flows provided by official agencies to countries and territories on the DAC List of ODA Recipients and to multilateral development institutions. ODA transactions must (1) have economic development and welfare as their main objective and (2) be concessional in character, with a grant element of at least 25% (calculated at 10% discount rate) (OECD, 2014). ODA is the most important source of aid for countries with government spending below PPP[2] $500 per person per year, providing roughly 70% of funding from international resources. FDI, not included in ODA, is a more important resource for countries with higher government spending (Development Initiatives, 2013).

Many of the empirical studies of aid effectiveness restrict their analysis to ODA from DAC members. While this does exclude some development cooperation, the amounts are quite small in comparison to DAC ODA. In 2013, 18 non-DAC members reported their aid flows to the OECD, including Middle Eastern states, non-DAC European states, and Russia. ODA from these sources[3] totaled US$16.3 billion in 2013, while DAC members gave $134.8 billion in 2013. OECD also estimates aid flows of nine other countries, including China and India. In 2012, estimated ODA from seven of these countries[4] totaled $4 billion. In 2010, it is estimated that Brazil gave $500 million of ODA (OECD, 2014). Adding these figures gives a total of $155.6 billion of ODA, of which 86.6% is DAC ODA.

**Patterns in Bilateral and Multilateral Aid Flows**

Since the advent of foreign aid in the post-World War era, bilateral ODA has been the primary instrument of fund delivery. As international cooperation has increased and more countries have begun to provide development assistance, the dominance of bilateral aid has eroded somewhat, though it still represents about two thirds of total ODA. Total ODA excluding debt relief was US$140 billion in 2012. Core multilateral funding (40 billion) accounted for 28% of this total, while non-core multilateral aid (17 billion) made up 12% and bilateral aid (83 billion) made up the remaining 60% (OECD, 2014) [5].

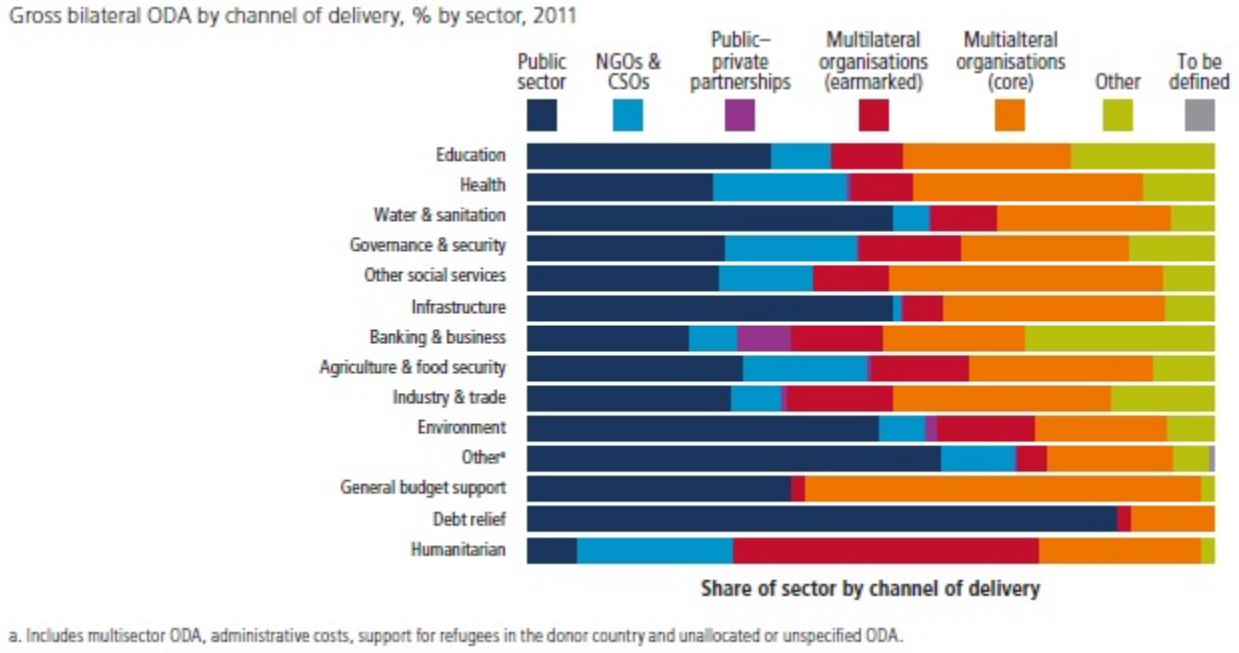
States vary widely in how they choose to allocate their foreign aid. Figure 1 shows the relative bilateral and multilateral aid given by 23 DAC member states. Appendix A provides more detail about DAC donor ODA.

The use of multilateral channels for ODA grew by 31% between 2007 and 2012. A major component in this growth has been increasing levels of earmarked "non-core" or "multi-bilateral" funding, which grew by 79% over the same time period. This type of aid is channeled through multilateral agencies, but is earmarked for specific themes, sectors, regions, or countries, and as the donor country restricts its use, is reported as bilateral aid by the OECD. In contrast, "core" aid is provided with no use restrictions to multilateral organizations who allocate it according to their own procedures (OECD, 2014).

Figure 2 shows the gross ODA given by DAC members by delivery channel and recipient sector. Bilateral aid is represented here as aid channeled to the public sector of recipient countries, plus earmarked aid to multilateral organizations. The use of bilateral, core multilateral, and non-core multilateral channels for aid varies widely in different sectors. This may support the widely accepted view that bilateral aid is used for strategic political reasons, while multilateral aid is more neutral and is allocated based on development considerations. For example, the vast majority of debt relief ODA comes from bilateral channels, consistent with the contention that it may be more politically acceptable for donor countries to provide bilateral aid in the form of debt forgiveness as opposed to new cash funding.

[2] Purchasing Power Parity, an inflation-adjusted metric of consumer purchasing power allowing comparisons of financial flows across countries and regions.
[3] Bulgaria, Croatia, Cyprus, Estonia, Hungary, Israel, Kuwait, Latvia, Liechtenstein, Lithuania, Malta, Romania, Russian Federation, Saudi Arabia, Chinese Taipei, Thailand, Turkey, and United Arab Emirates
[4] Chile, People's Republic of China, Colombia, India, Indonesia, Mexico, and South Africa
[5] These figure represents gross ODA disbursements in 2012, excluding debt relief and contributions from EU institutions. In addition, these figures are based on the OECD/DAC Creditor Reporting System (CRS), and therefore include some non-DAC ODA. Total ODA (including bilateral and multilateral aid) originating from DAC member states in 2012 was US$127 billion (OECD.stat, 2014).

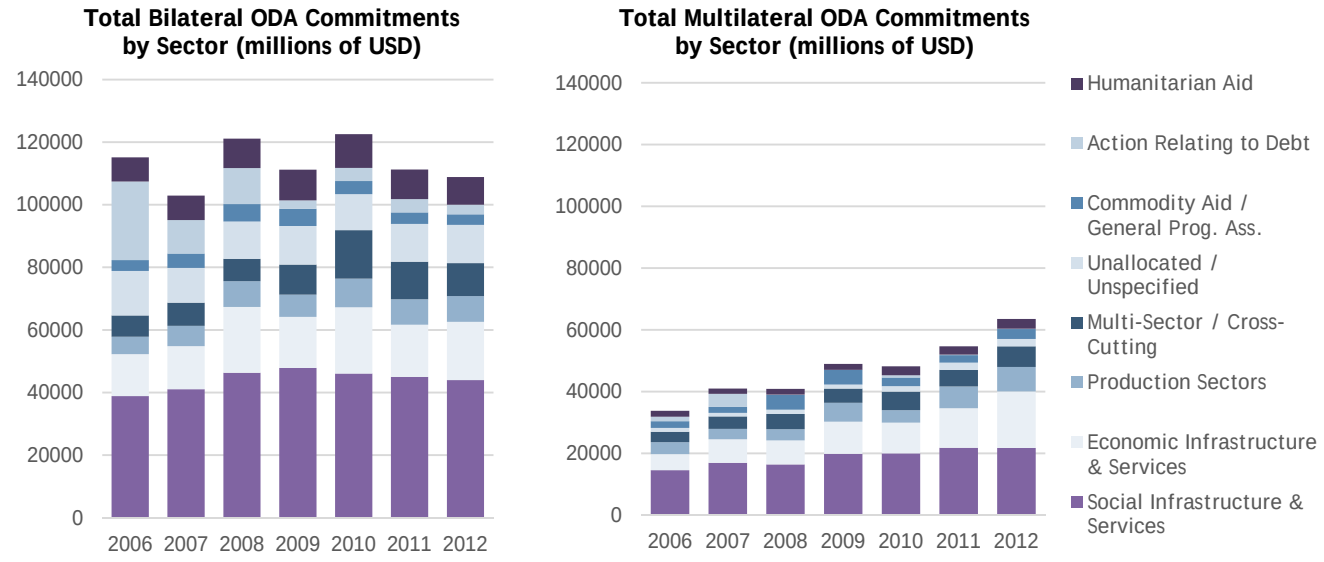
*Figure 2: Proportion of Aid Given to Each Sector*




*Source:* Development Initiatives, 2013

Figure 3 uses data from the OECD to illustrate how much bilateral and multilateral aid has been committed to each sector from 2006 to 2012.[6] Appendix B provides more detail on types of interventions included in each sector.

*Figure 3: Bilateral vs. Multilateral Aid Commitments by Sector*

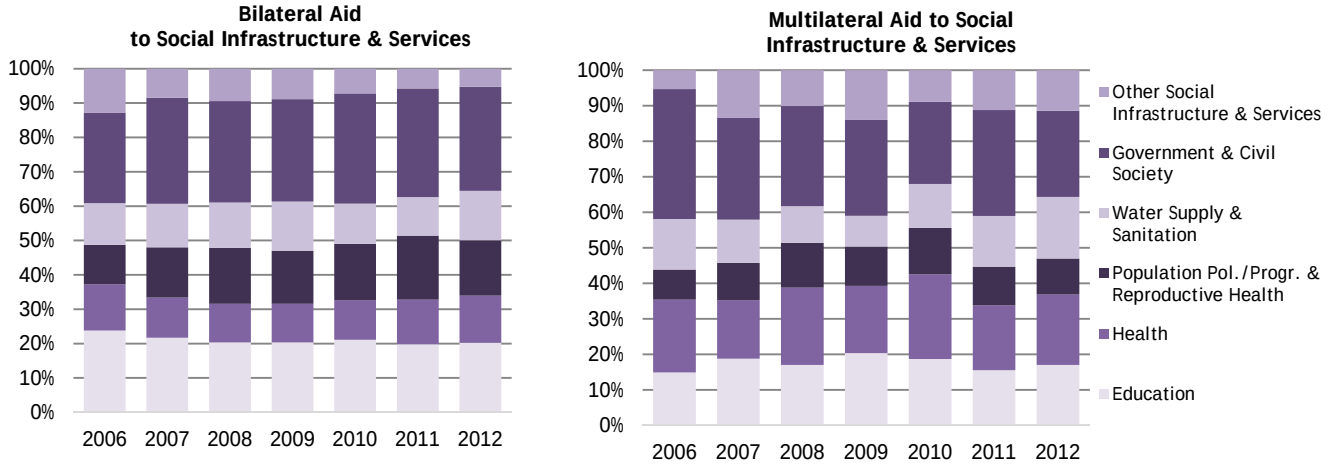



*Source:* OECD.stat, 2014

Figure 4 shows the relative allocations within the Social Infrastructure & Services Sector for bilateral and multilateral funding. While the allocation of bilateral and multilateral aid to most subsectors within social infrastructure & services is similar, a much larger percentage of multilateral aid is dedicated to health. An average of 20% of all multilateral aid to this sector from 2006 to 2012 was allocated to health, compared to 12% for bilateral aid (OECD.stat, 2014).

[6] As previously noted, the OECD reports non-core funding channeled through multilateral agencies as bilateral aid.

*Figure 4: Social Infrastructure and Services ODA Allocations*




*Source:* OECD.stat, 2014

Aid Fragmentation and Donor Proliferation

Between 2006 and 2010, 81% of DAC member multilateral aid was provided to just five clusters of multilateral channels: the European Development Fund (EDF) and EDF+EU, the International Development Association of the World Bank (IDA), the UN Funds and Programmes, the African and Asian Development Banks, and the Global Fund for AIDS, Tuberculosis and Malaria. The remaining 19% of ODA was distributed among over 200 other multilateral organizations and funds (OECD, 2013). The growing number of multilateral aid channels, combined with new bilateral donors, contributes to a trend called *donor proliferation* at the country level. According to a 2007 report by the International Development Association (IDA), the average number of donors active in a country in the 1960s was 12. From 2001-2005, it had risen to 33. Because each donor usually has its own implementation and monitoring processes that recipients must follow, receiving aid from many different channels can strain the capacity of developing country governments (IDA, 2007). Donor proliferation is suggested to be especially pronounced in the health sector (IDA, 2007).

As the number of aid channels has grown, so has the number of aid projects or activities. This phenomenon is referred to as *aid fragmentation*, and is also argued to create more reporting requirements for recipient governments and divert resources from other government bureaucracy functions (IDA, 2007). The IDA describes, "Where implementation capacity is very low, donors tend to finance a large number of small activities in a relatively reduced number of sectors. As government capacity becomes higher, donors seem more willing to support larger projects in more sub-sectors and to increase the overall amount of aid resources to the country, as measured by commitments per capita." This trend leads to higher fragmentation in countries with the lowest institutional capacity (IDA, 2007).

Both bilateral and multilateral aid activities contribute to fragmentation and proliferation, though increased multilateral cooperation has been suggested as a way to minimize them (OECD, 2014; IDA, 2007). The OECD High Level Forums on Aid Effectiveness have examined the problems of fragmentation and proliferation and have encouraged better alignment, harmonization, and partnership among donors, and ownership by recipient countries (OECD, 2014; IDA, 2007).

**Theoretical Arguments for Effectiveness of Bilateral Versus Multilateral Aid in Supporting Economic and Social Development**

As multilateral aid has increased as a proportion of total aid in recent decades, many authors have studied why donor states choose to use multilateral channels, and whether multilateral channels might be more effective in achieving certain outcomes (for example, Headey, 2005; Minoiu & Reddy, 2007; Radelet, 2006; Ram, 2004; Rodrik, 1995). Much of the literature focuses on why donors choose to deliver their aid multilaterally or bilaterally, specifically on the benefits of each type of channel for the donor (for example, Milner, 2006).

In addition to generally using a donor perspective, the recent research discusses theories of bilateral aid superiority only in contrast to proposed theories of multilateral aid effectiveness (for example, Minoiu & Reddy, 2007; Headey, 2005; Rodrik, 1995), and authors are generally in agreement that bilateral aid has largely retained its dominance for donor country political reasons, despite compelling arguments for the use of multilateral channels (Milner, 2006).

Table 1 summarizes the major theoretical arguments as drawn from the comparative literature on bilateral and multilateral aid. We consider whether each argument is related to aid effectiveness through either the *funding volumes* mobilized for development goals (as opposed to, for example, national security or other geopolitical goals) among bilateral versus multilateral sources, or through the *cost-effectiveness* of bilateral versus multilateral channels seeking to achieve development objectives. *Funding volumes* refer to aid attributes considered relevant if one conceives of an additional dollar potentially available for investing in development from a donor government (i.e., donor control matters) or the private sector (i.e., signaling matters). *Cost-effectiveness* refers to factors that affect the rate of return on that investment dollar, or the impact per dollar invested through the different aid channels. This categorization is simply based on the premise that the likelihood of achieving a desired outcome increases through either attracting more funds or using existing funds more efficiently. Each key theoretical argument is then discussed in more detail in the text below.

*Table 1. Theoretical Arguments for Effectiveness of Bilateral v. Multilateral Aid for Development Goals*

| Attribute | | Increases Funding Volumes | | Increases Cost Effectiveness | | Theoretical Justification for Effectiveness |
|---|---|---|---|---|---|---|
| | | Bilateral | Multilateral | Bilateral | Multilateral | |
| **1. Aid Orientation** | 1.1. Development Goals | | ✓ | | ✓ | Multilateral aid is less likely to be determined by donor foreign policy goals, and more likely to be based on humanitarian or development considerations.[a] |
| | 2.1. Strategic Goals | ✓ | | ✓/- | | Restrictions on aid and alignment with donor strategic goals may increase the ability of bilateral donors to increase and sustain aid volumes. These restrictions on how aid money is spent or provided may improve cost effectiveness through greater control over aid funds, but the effect depends on what restrictions are imposed.[b] |
| **2. Donor Control** | 2.2. Conditionality | | ✓ | | ✓ | Because they are seen as politically neutral, multilateral agencies can more effectively exercise conditionality, demanding social (e.g., human rights) or economic (e.g., liberalization) policy reforms that support development outcomes in exchange for aid flows. Multilaterals are also able to mobilize more aid in exchange for the promise of increased effectiveness associated with conditionality.[c] |
| | 2.3. Accountability to Donors | ✓ | ✓ | ✓ | | Both bilateral and multilateral channels impose accountability measures designed to increase donor confidence and cost effectiveness. Arguably donors can better exercise their own accountability and oversight processes when using bilateral channels, whereas donors to multilateral channels are further removed.[d] |
| **3. Signaling for Private Investment** | | ✓ | ✓ | | | Private firms may trust multilateral aid disbursements as a stamp of approval for a developing country's policies, and thus are more likely to invest in countries receiving multilateral aid. However, both bilateral and multilateral Development Finance Institutions may serve to decrease risk or establish standards to attract private investment.[e] |
| **4. Legitimacy to Recipients** | | | | | ✓ | Multilateral agencies are viewed as more politically neutral and publicly acceptable, leading to better cooperation with recipient countries.[f] |
| **5. Specialization and Expertise** | | | | | ✓ | Multilateral agencies accumulate implementation expertise and information about recipients.[g] Multilateral agencies can also take advantage of economies of scale.[h] |
| **6. Institutional Compatibility** | | ✓ | | ✓ | | Bilateral donors may have advantages owing to institutional compatibility - as in the case with European countries working with former colonies, who are also likely to benefit from larger aid flows.[i] |

| | | | | | |
|---|---|---|---|---|---|
| **7. Reducing Aid Fragmentation** | | | ✓ | ✓ | Channeling core funding through multilateral agencies can reduce the number of active aid channels in a country. When donor proliferation is not an issue, however, for the same volume of aid bilateral channels may more effectively minimize overall transaction costs.[j] |

[a]Milner & Tingley, 2013; Milner, 2006; Burnside & Dollar, 2000; Alesina & Dollar, 2000; Headey, 2005; Minoiu & Reddy, 2007; Schraeder et al., 1998
[b]Milner & Tingley, 2013; Berthelemy, 2006; Fleck & Killby, 2006a, 2006b; Miniou & Reddy, 2007
[c]Rodrik, 1995; Ram, 2003; Charron, 2011; Burnside & Dollar, 2000
[d]OECD, 2013; Christensen, Homer, & Nielson, 2011
[e]Bird, Mori, & Rowlands, 2000; Rodrik, 1995; Kingombe et al., 2011; Romero & Van de Poel, 2014
[f]Rodrik, 1995; OECD, 2013; Bird, Mori, & Rowlands, 2000
[g]Rodrik, 1995
[h]OECD, 2013
[i]Cassen, 1994
[j]Acharya, Fuzzo de Lima, & Moore, 2006; IDA, 2007; OECD, 2012; OECD, 2013; Kharas, 2010

Theoretical Arguments for Bilateral Versus Multilateral Aid

Multilateral aid is believed to be less influenced by donor political objectives and thus, in theory, more *development-oriented* or needs-based (Milner & Tingley, 2013). According to Milner (2006), though some bilateral donors do emphasize development over geopolitical goals,[7] most authors agree that multilateral aid will be less affected by donor foreign policy goals and more motivated by humanitarian aims than bilateral aid will. Several authors suggest that multilateral aid is more often a function of income level, population, and policy of the recipient country (Burnside & Dollar, 2000), while bilateral aid tends to be driven by strategic political motivations (Alesina & Dollar, 2000; Headey, 2005; Minoiu & Reddy, 2007; Schraeder, Hook, & Taylor, 1998). In addition, multilaterals provide untied aid, which often gives recipient countries more control over the funds and limits the pursuit of donor economic interests over those of recipient countries (Milner, 2006). Thus, multilaterals provide greater volumes of aid for development, and this targeting of aid flows is expected to support cost-effectiveness in improving development outcomes.

On the other hand, donors using bilateral channels can exert more *control* over where and how their aid is delivered and spent by the recipient. Bilateral aid may be given in the form of goods or services, or it may be *"tied"* – restricted for purchases from the donor country. This restriction allows donors to increase domestic benefits from their foreign aid programs, which may make aid more politically palatable and thus help sustain funding flows that might otherwise be cut. However, such practices have led to widespread criticisms of bilateral aid as self-serving and not necessarily targeting those in need (Alesina & Dollar, 2000; Headey, 2005; Minoiu & Reddy, 2007; Schraeder, Hook, & Taylor, 1998). Rodrik (1995) asserted that bilateral aid is motivated by strategic political and military considerations, a common criticism of US aid (Milner & Tingley, 2013). On a dollar-for-dollar basis multilateral aid is hypothesized to be more effective at realizing desired development outcomes because it focuses exclusively on recipient country interests rather than a mix of donor and recipient country goals (Milner & Tingley, 2013; Miquel-Florensa, 2006). Still, others including Berthelemy (2006) and Fleck & Killby (2006a, 2006b) have found that bilateral donors often also allocate aid on the basis of need – particularly the Nordic countries (Denmark, Finland, Norway, Sweden, and Iceland) and other European countries such as Austria, Luxembourg, the Netherlands, and Switzerland (Minoiu & Reddy, 2007). Therefore the arguments on cost-effectiveness of tied bilateral aid are mixed, as greater control by bilateral donors only increases aid effectiveness to the extent that donor goals prioritize development outcomes of recipient countries.

While most published research presumes bilateral aid channels entail more donor control, Rodrik (1995) proposed that because interactions between multilateral agencies and recipients are relatively less politicized, multilaterals may be able to exercise pro-poor *conditionality* more effectively than bilateral agencies can. As the argument goes, since the legitimacy of multilateral organizations hinges on their ability to support development outcomes, such organizations have a greater incentive to impose pro-development conditions for developing countries to receive aid. For example, disbursement of multilateral aid from the World Bank and IMF is conditional on the preparation of and compliance with recipient country Poverty Reduction Strategy Papers (PRSPs) that outline multi-year macroeconomic and social plans to promote economic growth and reduce poverty (Ram, 2003). Often, multilateral aid is conditional on government reform and anti-corruption measures (Charron, 2011). When these conditions are imposed and agreed to by recipient countries, multilateral donors are

[7]Nordic donors are more likely to allocate aid on the basis of need, as are bilateral donors ranked highly on the Commitment to Development Index, though even these donors are also motivated by geopolitical objectives (Minoiu & Reddy, 2007; Minoiu & Reddy, 2010).

able to mobilize increased aid flows to those countries. Since the conditions imposed on recipients are typically designed with the intent of promoting development and reducing poverty, authors hypothesize that multilateral aid flows and conditions combined should be more effective at supporting development outcomes (Burnside & Dollar, 2000). Conditionality is harder to exercise for bilateral donors, and such conditions are often intended to benefit the donor country, for example by mandating trade liberalization to open new markets for donor country firms. As a result, bilateral conditionality may be less effective at promoting recipient country development than the conditions imposed by multilaterals (Rodrik, 1995). Tied aid mandating the use of aid funds to purchase goods or services produced in the donor country (reducing funding available for development) may be more common than other forms of bilateral conditionality.

However there is some debate surrounding whether multilateral conditionality is truly more effective: a dissenting strand of literature argues that multilateral donors often face more constraints in addressing adverse selection[8] than bilateral donors, as a result of developing country voting blocs pushing for policies that favor them in the allocation of funding. This process of "negotiated rules" may inhibit the ability of multilateral organizations to impose conditions on recipient countries. Bilateral aid is believed to be less susceptible to this type of manipulation. As a result, multilateral accountability systems developed by consensus may be weaker than accountability mechanisms direct from bilateral donors (Christensen, Homer, & Nielson, 2011). Indeed, an oft-cited advantage of bilateral channel cost-effectiveness (including both goal attainment and ability to efficiently implement projects) in the literature is the ability to demand *accountability* from recipients. Though multilateral agencies do have accountability and oversight processes, individual country donors are one step removed in a multilateral arrangement and are therefore hypothesized to have less control than in bilateral aid relationships (OECD, 2013). Overall, though, there is consensus in the literature that accountability processes for both aid channels increase donor confidence that aid will be used effectively to achieve development and social outcomes (ibid.). Thus, accountability mechanisms support increased funding volumes for both bilateral and multilateral aid.

A relatively new field of research surrounding development funding via bilateral versus multilateral channels considers the impacts of bilateral versus multilateral aid flows on private sector actors. Since multilateral agencies conduct extensive policy analysis in recipient countries, multilateral aid can act as a *catalyst for private investment* (Bird, Mori, & Rowlands, 2000). A multilateral agency's decision to lend to a country may provide a "stamp of approval" which private firms trust in making their own investment decisions. As this type of information is a public good, it is more likely to be shared by a multilateral agency than by private firms (Rodrik, 1995). Bilateral donors may also attract private investment to recipient countries. Both bilateral and multilateral Development Finance Institutions (DFIs) provide loan guarantees to decrease the risk to private investors and make loans more attractive, or promote government or corporate standards that attract private sector resources (Kingombe et al., 2011; Romero & Van de Poel, 2014), thus "crowding in" private investment. Aid flows in general may also "crowd out" private investment by providing resources that might otherwise have been provided by private channels. To the extent that the displacement of private flows exceeds the attraction of new private flows, aid might have a negative impact on private investment. However, the literature comparing bilateral and multilateral aid does not directly address this possibility, nor is there any consensus on whether bilateral or multilateral aid is more likely to crowd out (or crowd in) private investment.

On the other hand, multilateral aid has long been seen as a more effective channel for development assistance because of its perceived *legitimacy* in recipient countries. Multilateral aid is viewed as more publicly acceptable and politically neutral, not being beholden to individual donors' strategic or political interests. This better positions multilateral channels to take on global issues (Rodrik, 1995; OECD, 2013). Governments may be more willing to work with multilateral agencies, in the belief that the perceived endorsement of economic policy signaled by the presence of multilateral agencies has a positive capital market value (Bird, Mori, & Rowlands, 2000). In addition, the perception that multilateral agencies "operate autonomously from Western capitals and in a relatively non-political manner" makes recipient countries more willing to share information and accept conditions on aid that are designed to make it more effective, but that may infringe on national sovereignty (Rodrik, 1995).

Rodrik (1995) further hypothesized that another strength of multilateral aid was in information-provision. Since information about recipient countries is a collective good, Rodrik argued, multilateral agencies might better provide the information

[8] In this situation, recipient countries have information that bilateral or multilateral donors do not, creating a risk that aid will not be allocated efficiently. Donors would like to make aid conditional on good political and economic policies to ensure that aid is used to promote development outcomes, but recipient countries tend to vote against such restrictions during multilateral policy-setting. This behavior allows recipient countries as a group to avoid the political and other costs of complying with donor conditions while continuing to receive aid.

necessary to properly channel development funds and to monitor recipient activities. This wealth of information, as well as the broad base of *technical and implementation expertise* possessed by multilateral agencies, allows them to be more efficient than bilateral agencies in delivering aid. Multilateral agencies can also take advantage of economies of scale by pooling resources and extending the geographical reach beyond what each donor country could do bilaterally (OECD, 2013).

Conversely, Cassen (1994) contends that in some cases bilateral programs may be more efficient when aid is provided by donors to countries with which they have long-standing historical relationships and *institutional compatibility* (as in post-colonial relationships between European donors and many developing countries). In such cases accumulated linguistic and personal affinities, technical skills, and shared institutional structures may facilitate trust, mutual understanding, and implementation efficiency more effectively than multilateral relationships. In addition, long-standing colonial relationships also help to mobilize larger bilateral aid volumes for recipient countries.

A final hypothesized advantage of multilateral aid is the ability to deliver concentrated large volumes of aid through a relatively small number of channels. As noted previously, increasing numbers of bilateral and multilateral channels have contributed to increased *aid fragmentation*, which increases the costs to both recipients and donors of managing and monitoring the aid flows (Acharya, Fuzzo de Lima, & Moore, 2006; IDA, 2007). More concentrated aid mitigates this trend. The 2012 *DAC Report on Multilateral Aid* found concentration ratios of 65% for the average multilateral donor and 54% for the average DAC donor, which suggests that multilateral aid better minimizes fragmentation and transaction costs. Still, nearly 40% of multilateral relationships are financially non-significant[9] (OECD, 2012; OECD, 2013). When bilateral aid is given at financially significant levels or is relatively concentrated, it may be more effective than multilateral aid at financially non-significant levels at minimizing fragmentation. Further, Kharas (2010) showed that multilateral organizations do not always have lower implementation costs, explaining "South Korea, Spain, and Portugal provide aid with administrative costs of 4 to 5 cents per $1 disbursed, while IDA and the African Development Fund have administrative expenses of around 10 to 12 cents per $1 disbursed."

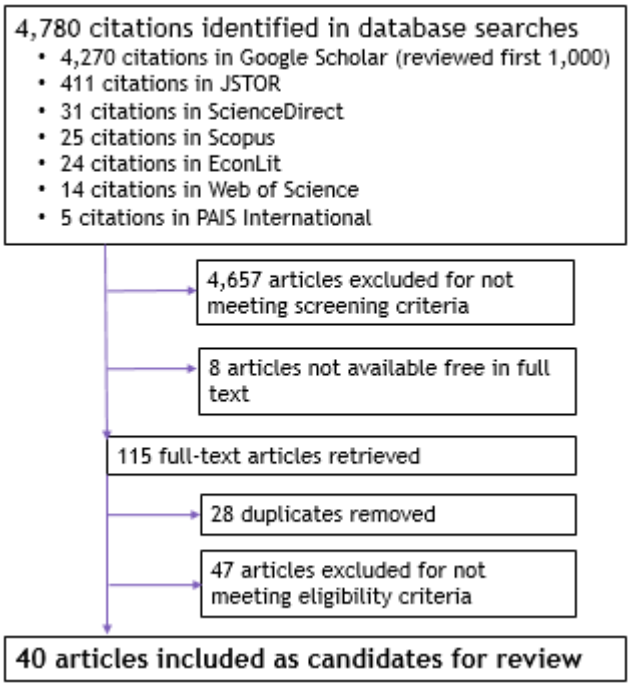
**Literature Search Process and Results**

To systematically conduct a literature search for studies empirically comparing the effectiveness of bilateral versus multilateral aid we used the following search string: ("multilateral aid" AND "bilateral aid") AND (evaluation OR analysis OR effectiveness OR evidence OR impact). These search terms were chosen to focus the results on studies that compared the effectiveness of bilateral versus multilateral aid, rather than studies that focused on particular bilateral donors or multilateral agencies. While the latter type of studies were not excluded from the search results, they are not the focus of this brief given the decision to prioritize comparative studies.

We identified the following *databases* to conduct the search:[10]

- Google Scholar
- JSTOR
- ScienceDirect
- Scopus
- EconLit
- Web of Science
- PAIS International
- The Cochrane Library
- Social Science Research Network

*Figure 5: Summary of Literature Search and Identification Process*




[9] "The OECD qualifies a donor's aid relation with a specific partner country as significant when (1) the volume of the donor's aid to that country is among the top 90% of the aid the country receives, and/or (2) the donor's share of aid to the partner country is higher than the donor's share of global aid. A donor's concentration/fragmentation ratio is determined by the number of "significant" to "non-significant" aid relations it maintains" (OECD, 2013).

[10] Note: Searches of The Cochrane Library and Social Science Research Network yielded no results.

Searches on these databases using the above keywords yielded 4,780 citations. We screened the titles and abstracts of these search results and retrieved 87 unique[11] full-text articles that met the following *screening criteria*:

1. The article mentions multilateral aid and bilateral aid;
2. The article evaluates effectiveness of aid; and
3. The article includes empirical data.

Following retrieval of these articles, we reviewed them to evaluate whether they were relevant to our research question. Eligibility criteria included disaggregated bilateral and multilateral data, evaluating the effect on recipient country, and containing reasonably robust empirical evidence. Out of the 87 articles, 47 were excluded from our review because the article:

1. Only evaluated the effectiveness of aggregate aid (without differentiating bilateral vs. multilateral);
2. Did not evaluate effectiveness of different aid channels on recipient countries and focused instead on impacts on donor countries; and/or
3. Focused only on theory and did not include empirical evidence.

Our literature search process, summarized in Figure 5, yielded *40 relevant empirical articles* comparing effectiveness of bilateral versus multilateral aid for review.[12]

General characteristics of the 40 articles reviewed:

- 34 articles were written in the year 2000 or later.
- 24 articles include data from the year 2000 or later.
- 37 articles compare effectiveness of bilateral and multilateral aid, 2 only evaluate bilateral aid, and 1 only evaluates multilateral aid.
- 29 articles focus on the different effects of bilateral and multilateral aid. 3 articles only look at one aid channel. The remaining 8 articles only disaggregate total aid into bilateral and multilateral channels as part of robustness checks on their evaluation of the effectiveness of total aid.
- Of the 29 articles that focus on the different effects of bilateral and multilateral aid, 17 hypothesize greater effectiveness of multilateral aid, 4 hypothesize greater effectiveness of bilateral aid, 2 hypothesize different effectiveness depending on the outcome measure, and 6 do not specify a hypothesis for which type of aid flow is more effective.
- 31 articles mention at least one of the eight theoretical arguments that are hypothesized to impact the effectiveness of bilateral versus multilateral aid. The other 9 articles only disaggregate multilateral and bilateral as part of robustness checks on their evaluation of the effectiveness of total aid.

**Findings on Effectiveness of Different Types of Aid**

Table 2 presents the findings from the literature on which hypotheses are most commonly cited to explain the differences in effectiveness between bilateral and multilateral aid. These findings are presented according to the outcome area studied (i.e. the empirical measure of "effectiveness" used), in order to show where certain hypotheses may be more relevant. The table indicates, for example, that GDP growth is the most frequently used indicator of "effectiveness" and that differences in donor control and the development orientation of the aid are the primary differences between bilateral and multilateral aid hypothesized (but not directly tested) to drive the results. The majority of these hypotheses were not explicitly stated in the papers reviewed, but were inferred from the authors' reviews of the literature and from their interpretations of their findings.

[11] Of the 115 articles retrieved, 28 were duplicates.
[12] See "Articles Reviewed" for the full list of articles.

*Table 2. Hypothesized Reasons for Increased Aid Effectiveness by Outcome Area Studied*[13]

| Outcome Area Studied | Article Hypothesizes Increased Effectiveness of One Type of Aid as a Result of: | | | | | | | | | Number of Articles |
|---|---|---|---|---|---|---|---|---|---|---|
| | Development Orientation | Strategic Orientation | Conditionality | Accountability to Donors | Signaling for Private Investment | Legitimacy to Recipients | Specialization / Expertise / Compatibility | Aid Fragmentation | None | |
| **GDP Growth** | 13 | 11 | 7 | | | | 1 | | 3 | 18 |
| **Governance** | 1 | 2 | 1 | | | | | | 1 | 3 |
| **Government Development Spending** | 2 | 4 | 3 | 1 | | | | | 0 | 6 |
| **Health & HDI** | 2 | 2 | 1 | 1 | | | | | 3 | 5 |
| **Poverty** | 1 | | | | | | | | 0 | 1 |
| **Private Investment** | 3 | 4 | 2 | | 3 | 2 | 2 | | 2 | 7 |
| **Total** | 22 | 23 | 14 | 2 | 3 | 2 | 3 | 0 | 9 | --- |

The targeting and use of aid is the most common argument for the different impacts of bilateral versus multilateral aid. Interestingly, as summarized in Table 3, there is no definitive consensus within this body of evidence on whether bilateral or multilateral aid is better targeted to ensure development outcomes. Some authors argue that the greater donor control of bilateral aid aligned with their strategic goals, and donors' ability to tie aid to certain expenditures allows them to ensure that the funds go to specific projects (Bandyopadhyay, Sandler, & Younas, 2013; Christensen, Homer, & Nielson, 2011). Others point out that bilateral donors like the Nordic countries with fewer political and strategic motivations could use their greater control over aid disbursement to more effectively target development needs (Minoiu & Reddy, 2007; Minoiu & Reddy, 2010). However, there is consensus within the literature that multilateral aid is more likely to be development-oriented than bilateral aid (Burnside & Dollar, 2000; Minoiu & Reddy, 2007; Rajan & Subramanian, 2010; Ram, 2003).

The next most commonly cited argument for the greater effectiveness of multilateral aid is that multilateral organizations have historically been better able to exercise conditionality over their aid. Since the conditions imposed on recipients are designed with the intent of promoting development, authors hypothesize that multilateral aid should be more effective at supporting development outcomes (Burnside & Dollar, 2000; Ram, 2003; Rodrik, 1995). On the other hand, Gebregziabher (2014) argues that the one-size-fits-all blanket policy prescriptions attached to multilateral aid may undermine its efficacy, whereas bilateral aid may have fewer strings attached.

The other hypotheses outlined in the theoretical section above (summarized in Table 3) for the effectiveness of bilateral versus multilateral aid were less commonly mentioned in the empirical literature. For example, no empirical articles tested the oft-cited hypothesis that multilateral aid could be more effective by reducing the fragmentation of aid and lowering the transaction costs to recipient countries related to monitoring and reporting on aid from a wide variety of sources with different expectations and standards. These gaps in the empirical evidence could be addressed by further research focused on testing the hypotheses that are not commonly addressed in the current literature.[14]

Tables 3 and 4 summarize the empirical analyses from the literature evaluating whether multilateral or bilateral aid is more effective. "Mixed" findings indicate that the study evaluated the impact of multilateral and bilateral aid on multiple

[13] Many studies mentioned several possible hypotheses for why multilateral or bilateral aid could be expected to be more effective. As a result, the sum for each row will add up to more than the number of articles that studied that particular outcome area.
[14] Some studies focusing only on particular bilateral donors or multilateral agencies may address these hypotheses.

indicators, and found that the two types of flows had different impacts for different indicators of the given outcome. "No difference" findings indicate that the study did not find a statistically significant difference between the impacts of multilateral and bilateral aid in the given outcome area.

Table 3 summarizes the findings on the effectiveness of bilateral versus multilateral aid as measured using empirical indicators of "effectiveness" in several primary outcome areas. The table indicates, for example, that five studies using indicators of GDP growth as the measure of aid effectiveness found that bilateral aid was more effective, three found that multilateral aid was more effective, two found that which type of aid was more effective varied depending on the indicator selected, and eight found no difference between the effectiveness of bilateral and multilateral aid.[15]

*Table 3. Findings on More Effective Type of Aid by Outcome Area Studied*

| Outcome Area Studied | More Effective Type of Aid | | | | | Number of Articles |
|---|---|---|---|---|---|---|
| | Bilateral | Multilateral | Mixed | No Difference | Did Not Compare | |
| GDP Growth[16] | 5 | 3 | 2 | 8 | | 18 |
| Governance[17] | | 2 | | 1 | | 3 |
| Government Development Spending[18] | 2 | 4 | | | | 6 |
| Health & HDI[19] | 2 | | | 1 | 2 | 5 |
| Poverty[20] | | 1 | | | | 1 |
| Private Investment [21] | 1 | 2 | 2 | 1 | 1 | 7 |
| Total | 10 | 12 | 4 | 11 | 3 | 40 |

Overall, 10 studies found that bilateral aid had a greater or more significant impact on the particular measure of effectiveness employed, 12 found that multilateral aid was more effective, 4 found that effectiveness varied depending on the model they used, and 11 found no difference in effectiveness. Three studies only looked at one aid channel, and therefore did not compare effectiveness of multilateral and bilateral aid. Yontcheva & Masud (2005) evaluated the impact of bilateral aid flows on infant mortality, adult illiteracy, and the share of government spending on health and education and found no statistically significant impact. Wimberley (1990) found that bilateral non-military aid had no significant relationship with infant mortality or with life expectancy at one year of age. Bird, Mori, & Rowlands (2000) reported that multilateral aid from the World Bank and IMF did not have a significant impact on capital flows or bilateral aid flows to developing countries.

Table 4 presents the findings from the 40 studies reviewed according to the authors' original hypotheses of whether bilateral or multilateral aid would be more effective. In some cases, the authors explicitly stated which aid channel they expected to be more effective. In others, the hypothesis is inferred from their review of the literature and their conclusions about the existing evidence on the effectiveness of bilateral versus multilateral aid in a particular context. Far more studies predicted that multilateral aid would be more effective than bilateral aid. This pattern reflects that the theoretical arguments summarized in Table 3 generally favor the relative effectiveness of multilateral aid. However, the findings of the studies did not present a similar consensus over which channel of aid was more effective. For example, in 17 studies the authors hypothesized that multilateral aid would be more effective than bilateral aid. Of these 17 studies, two found that bilateral aid was more effective according to their particular measure of "effectiveness," eight found that

[15] We note that three of the studies that found bilateral aid to have a greater positive effect on GDP growth were based on data from a few small island nations in the Pacific that received the vast majority of their aid from bilateral sources, decreasing the likelihood of significant findings on the impact of multilateral aid on GDP growth (Feeny, 2005; Feeny & McGillivray, 2010; Gounder, 2001).
[16] Indicators include real GDP growth per capita, agricultural GDP growth per capita, imports, gross investment, and GDP shocks.
[17] Indicators include a governance index, the International Country Risk Guide (ICRG) corruption score, and the Corruption Perceptions Index (CPI).
[18] Indicators include the share of aid going to government consumption spending and the share going to government investment in development.
[19] Indicators include school enrollment, HDI, the number of AIDS-related deaths, infant mortality, life expectancy at one year of age, and adult illiteracy.
[20] Indicators include the poverty rate, poverty gap, and squared poverty gap.
[21] Indicators include FDI, FDI/GDP, capital flows, and private flows.

multilateral aid was more effective, two found that which type of aid was more effective depended on the particular indicator of effectiveness used, and five found no difference in effectiveness.

*Table 4. Findings on More Effective Type of Aid by Hypothesis of Aid Effectiveness*

| More Effective Type of Aid: Hypothesized | More Effective Type of Aid | | | | | Number of Articles |
|---|---|---|---|---|---|---|
| | Bilateral | Multilateral | Mixed | No Difference | Did Not Compare | |
| Bilateral | 3 | | | 1 | | 4 |
| Multilateral | 2 | 8 | 2 | 5 | | 17 |
| Mixed | | | 2 | | | 2 |
| No Hypothesis | 5 | 4 | | 5 | 3 | 17 |
| Total | 10 | 12 | 4 | 11 | 3 | 40 |

The findings from this body of evidence do not provide a consensus on which aid channel is more effective. Even within particular outcome areas, different empirical studies reported different findings. These contradictions are likely due in large part to differences in the sample of countries and years studied, in the statistical methodology used, and in how bilateral and multilateral aid were measured. Appendix D summarizes the characteristics and findings, of the studies included in this review and also includes an assessment of their relevance and technical quality. Here we summarize findings from several key studies, selected because they are representative of the body of evidence as a whole or of particular approaches to measuring effectiveness.

Key Findings on Aid and GDP Growth

Eighteen studies evaluated the impacts of bilateral versus multilateral aid using GDP growth as the primary measure of effectiveness. Of these studies, just four (Heady, 2005; Heady, 2008; Minoiu & Reddy, 2007; Minoiu & Reddy, 2010) were of high technical quality, as characterized by a large sample of countries and years of data, a stated hypothesis for whether bilateral or multilateral aid was more effective, controls for endogeneity, measuring subsets of total aid, and evaluating multiple measures of "effectiveness." Another five studies were of medium-high technical quality, and the remaining nine were of medium quality.

Five studies used the same basic analytical model, first presented by Burnside & Dollar (2000), the most-cited study in our sample. These studies used data from the same sample of 56 developing countries from 1970-1993 to evaluate the relationship between aid channels and GDP growth, but had widely different findings. Using a subsample of 40 lower-income countries, Burnside & Dollar (2000) found that bilateral aid had a significant positive impact on government consumption, while the impact of multilateral aid was not significant. The authors used this finding, and the fact that increased government consumption did not positively impact GDP growth, to argue that total aid did not have a significant impact on GDP growth. But Ram (2003) later contended that Burnside & Dollar (2000) had biased their findings by not disaggregating bilateral and multilateral aid in their analysis of GDP growth. He showed that while the effect of total aid on GDP growth was not significant, multilateral aid had a large and significant negative impact and bilateral aid had a large and significant positive impact. In a subsequent paper Ram (2004) further found that even controlling for recipient country economic policies there were significant differences in the GDP growth impacts of bilateral versus multilateral aid. This supported his earlier conclusion that the effectiveness of aid depends substantially on the channel for the aid.

Headey (2005) used the same sample of countries and basic model but added data from 1993-2001, and used lagged measures of aid inflows excluding humanitarian aid. Contrary to Ram (2003; 2004), he found that both channels of aid had a significant and positive impact on GDP growth, but that multilateral aid had roughly twice the effect of bilateral aid. When he controlled for political and strategic influences for bilateral aid using a motivation index, he found that bilateral and multilateral aid flows had similar mean effectiveness levels. Headey (2008) then evaluated the effectiveness of aid channels before and after the Cold War, hypothesizing that political motivation would have reduced the effectiveness of bilateral aid during the Cold War. He found that while multilateral aid had a positive and significant impact on GDP growth both before and after the Cold War, the effect of bilateral aid was only positive and significant after the Cold War. The

author argued that although past studies had also used 4-year averages for all variables in their models, his findings were superior to those of Burnside & Dollar (2000) and Ram (2003; 2004) because the other researchers failed to use lagged measures of aid to allow for a delay in aid's effectiveness.

Another widely-cited empirical study is Rajan & Subramanian (2008), which has relatively strong technical quality. The authors evaluated the impact of aid on GDP growth in 85 developing countries from 1960 to 2000. They found that the relationship between aid and GDP growth was not significant, regardless of the aid channel, though they did report a negative and significant impact for both channels of aid between 1990 and 2000. Hassen (2011) used data from 42 Sub-Saharan African countries from 1980 to 2007, and considered the effect of net aid transfers on GDP growth. He also found that neither bilateral nor multilateral aid had a significant effect on GDP growth, across several specifications.

Finally, recent work of high technical quality by Minoiu & Reddy (2007; 2010) assessed the effectiveness of lagged aid from specific groups of bilateral donors in promoting GDP growth. They treated all multilateral aid as "developmental" in nature, and also considered bilateral aid from the Nordic countries and from the five and ten highest-ranked countries on the Commitment to Development Index to be developmental (or intended to support recipient country development). Their other aid category was "geopolitical," which they calculated as all other bilateral aid. The authors used data from 107 developing countries for 1960-2000. In both studies, geopolitical aid had either a negative or non-significant effect on GDP growth. Minoiu & Reddy (2007) found a large, positive, and statistically significant relationship between past multilateral aid and GDP growth, and a similar relationship for bilateral aid that they considered to be developmental. These relationships held regardless of recipient country domestic policies. Minoiu & Reddy (2010) found a large, positive, and statistically significant relationship between developmental bilateral aid and GDP growth. They reported that the effect of bilateral aid from the Nordic countries was larger than the effect of aid from the highest-ranked bilateral donors, likely because some of these donors (Belgium, France, UK) also gave a large amount of geopolitical aid. However, while multilateral aid had a positive relationship with GDP growth, it was not statistically significant.

Key Findings on Aid and Private Investment

Seven studies evaluated the impacts of bilateral versus multilateral aid using increased private investment flows as the primary measure of effectiveness. Only Bandyopadhyay, Sandler, & Younas (2013) meets our criteria for high technical quality, though Rodrik (1995) and Ratha (2001) are both of medium-high technical quality.

Rodrik (1995) is the most-cited empirical study in the body of evidence that measures effectiveness not only by GDP growth, but also by changes in private investment. Using the same data and sample of countries as Burnside & Dollar (2000), he found that bilateral net aid transfers had a positive and significant impact on private net transfers, while past multilateral net aid transfers had a negative but non-significant impact. He noted that the negative impact of multilateral aid may have been driven by the significant negative impact of IMF aid, and more generally to multilateral institutions bailing out private creditors after heavy private borrowing from developing countries led to economic difficulties.

Ratha (2001) used a framework similar to Rodrik (1995) to look at data from 137 developing countries between 1970 and 1998. He found that while current aid flows had negative relationships with private flows, lagged aid flows had a positive relationship. Restricting the data to the 1994-1998 period yielded statistically significant coefficients for current multilateral aid flows, which had a negative impact on private flows, and for lagged multilateral, IMF, and bilateral flows, which all had a positive impact when flows were expressed as a share of GDP. The findings changed somewhat when flows were expressed as portfolio shares (i.e., divided by total flows in the same category to all developing countries). While lagged multilateral and IMF flows still had a significant positive effect on private flows, the effect of lagged IMF flows was significantly reduced, and lagged bilateral flows had a significant but negative effect. These findings may support the argument that multilateral aid is more effective at promoting development through its role in signaling a better environment for private investment, after a certain delay. Uneze (2012) supported this finding in a study of 14 developing countries between 1975 and 2008. He reported that lagged multilateral aid had a significant and positive impact on private investment, but bilateral aid had a negative and non-significant impact. He noted that the finding for bilateral aid may have been related to investor uncertainty due to the volatility of bilateral aid, which had a large and significant negative impact on private investment.

Bandyopadhyay, Sandler, & Younas (2013) looked at how domestic and transnational terrorism impacted the relationship between aid flows and foreign direct investment (FDI) in 78 developing countries for 1984-2008. They reported that bilateral aid was effective in reducing the adverse effects of transnational terrorism on FDI, whereas multilateral aid was effective in curbing the adverse effects of domestic terrorism on FDI. For transnational terrorism, there is evidence in the literature that donor countries earmark some bilateral aid to counterterrorism. The authors speculated that multilateral aid may mitigate domestic terrorism by improving general welfare. The findings therefore lend some support to the argument that donor control and tied aid may make bilateral aid more effective, while targeting needy countries with untied aid may make multilateral aid more effective.

Key Findings on Specific Bilateral Donors and Multilateral Agencies

A limited number of studies have explored the effectiveness of specific donor countries or agencies in a bilateral/multilateral comparative context.[22] Of these nine studies, the two by Minoiu & Reddy (2007; 2010) are of high technical quality, while Rodrik (1995), Ratha (2001), Okada & Samreth (2012), and Wamboye, Adekola, & Sergi (2013) are of medium-high technical quality. Table 5 summarizes the findings from articles that evaluated the effectiveness of particular bilateral donors and multilateral agencies.

*Table 5. Findings on Impacts of Specific Bilateral Donors and Multilateral Agencies*

| | Donor | Measure of Impact | Impact *(N.S. = Not Significant)* |
|---|---|---|---|
| Bilateral | The United States | Number of AIDS-Related Deaths[a] | Reduced Deaths |
| | | Corruption[b] | N.S. |
| | France | GDP Growth[c] | Reduced Growth |
| | | Corruption[b] | N.S. |
| | United Kingdom | GDP Growth[c] | N.S. |
| | | Corruption[b] | N.S. |
| | European Union | GDP Growth[c] | N.S. |
| | Japan | Corruption[b] | Reduced Corruption |
| | "Development-Oriented" Donors[d] | GDP Growth[e] | Increased Growth |
| Multilateral | Global Fund | Number of AIDS-Related Deaths[a] | N.S. |
| | UNDP | GDP Growth[c] | Increased Growth |
| | UNFPA | GDP Growth[c] | N.S. |
| | UNHCR | GDP Growth[c] | Reduced Growth |
| | UNICEF | GDP Growth[c] | N.S. |
| | UNTA | GDP Growth[c] | Reduced Growth |
| | WFP | GDP Growth[c] | Increased Growth |
| | IMF | Private Investment[f] | Mixed[g] |
| | | Capital Flows[h] | N.S. |
| | World Bank | GDP Growth[f] | Positive |
| | | HDI[i] | N.S. |
| | | Capital Flows[h] | N.S. |

[a] Nunnenkamp & Ohler, 2011
[b] Okada & Samreth, 2012
[c] Wamboye, Adekola, & Sergi, 2013
[d] These include the Nordic countries and the five and ten highest-ranked countries on the Commitment to Development Index.
[e] Minoiu & Reddy, 2007; Minoiu & Reddy, 2010
[f] Rodrik, 1995; Ratha, 2001
[g] "Mixed" indicates that one study found a positive impact while one found a negative impact.
[h] Bird, Mori, & Rowlands, 2000
[i] Kosack, 2003

Nunnenkamp & Ohler (2011) find some evidence that bilateral aid for HIV/AIDS has been more effective at reducing deaths than multilateral aid channels. They evaluated the treatment effect of ODA specifically meant to fight sexually transmitted diseases on the number of AIDS-related deaths in 47 countries with a rate of adult HIV prevalence above 1%. They found that the treatment effect of HIV/AIDS ODA was insignificant in countries where multilateral organizations were the major

[22] While several of the studies reviewed do look at specific donors or multilateral agencies, this brief prioritized articles comparing effectiveness of bilateral and multilateral aid. Therefore, some studies focusing on particular bilateral donors or multilateral agencies may not be included unless they appeared in our search of comparative bilateral/multilateral studies. Further search and review would be required to identify and analyze the donor-specific body of evidence.

source of this aid, but that HIV/AIDS ODA was significantly related to reductions in the number of AIDS-related deaths in countries where bilateral donors were the major source of funds. Similarly, they reported no significant effect in countries where the Global Fund was the major donor, but a strong and significant impact in countries where the United States was the major donor. This finding supports the argument that greater donor control over bilateral aid makes it more effective. However, the authors did not believe this evidence was proof that bilateral aid is inherently more effective at reducing AIDS-related deaths. They reported that bilateral donors such as the US concentrated their HIV/AIDS ODA in recipient countries where the epidemic was most severe, whereas multilateral agencies spread funding to countries with nascent or minor HIV/AIDS problems. Therefore, how HIV/AIDS ODA is allocated by bilateral and multilateral channels is related to its impact on the number of AIDS-related deaths.

Wamboye, Adekola, & Sergi (2013) performed one of the most comprehensive comparisons of multilateral and bilateral aid flow impacts on GDP growth, finding significant variation among a number of bilateral and multilateral donors. The authors broke down aid flows into multilateral aid from the UNDP, UNFPA, UNHCR, UNICEF, UNTA, and WFP, and bilateral aid from France, the UK, and from all EU member countries added together[23]. They then evaluated the relationship between net ODA flows and real GDP growth per capita in 26 developing countries in Africa between 1984 and 2010. The authors found that total bilateral ODA and bilateral aid from the UK and from the EU as a whole did not have a significant effect on GDP growth, but that bilateral aid from France had a significant negative effect. This result may indicate that France provides more aid for geopolitical reasons. Multilateral aid from the UNDP and WFP had positive significant relationships with GDP growth. Aid flows from the rest of the multilateral agencies had negative effects, but were significant only in the case of UNHCR and UNTA. However, the authors noted that the UNDP and WFP had the highest flows as a percentage of recipient country GDP, which may have supported more significant and positive impacts.

Okada & Samreth (2012) similarly evaluated data from 120 developing countries from 1995 to 2009 and reported that multilateral aid as well as bilateral aid from specific donors had varying impacts on development outcomes. For example, bilateral or multilateral aid from Japan had a significant negative effect on corruption. Bilateral aid from France had a non-significant negative impact on corruption, while bilateral aid from the UK and US had a non-significant positive impact on corruption, indicating that these donors may care less about recipient development and be more focused on geopolitical objectives.

Two additional studies considered the effectiveness of "development-oriented" bilateral donors, finding that such pro-poor bilateral donors have more impacts on development outcomes than bilateral donors in general. Minoiu & Reddy (2007, 2010) assessed the effectiveness of lagged aid of specific groups of bilateral donors in promoting GDP growth, separating out bilateral aid from the Nordic countries and from the five and ten highest-ranked countries on the Commitment to Development Index. They hypothesized that aid from these countries was more likely to be development-oriented. Their findings showed that bilateral aid from these specific countries had a significant positive impact on growth, while aid from other bilateral donors did not have a significant impact.

Finally, four studies separately evaluated aid from either the IMF or World Bank. Rodrik (1995) found that IMF aid had a negative impact on private investment flows, but Ratha (2001) found that it had a positive impact. Their findings are reported in more detail in the section on aid and private investment. Rodrik (1995) also found that the impact the World Bank's International Bank for Reconstruction and Development (IBRD) on GDP growth was positive and significant when controlling for recipient country level of debt, even though the impact of multilateral aid overall was not significant. Kosack (2003) found that both bilateral and multilateral aid positively affected HDI in countries with higher levels of democracy. While this finding was not significant when World Bank aid was considered separately, the author posited that this result may have been due to the relatively low amounts of World Bank aid. Bird, Mori, & Rowlands (2000) reported that multilateral aid from the World Bank and IMF did not have a significant impact on capital flows or bilateral aid flows to developing countries. This result contradicts the argument that multilateral aid serve as a positive signal to attract investment. However, the finding may be related to the fact that the authors did not use lagged measures of aid to account for the delay between when the aid is given and when it can be expected to have supported a more welcoming environment for private investment (Bandyopadhyay, Sandler, & Younas, 2013; Ratha, 2001; Uneze, 2012).

[23] The authors state, "collectively EU member countries are the biggest foreign aid donors to African countries." We interpret this statement to mean that references to "Bilateral aid from the European Union (EU)" are measuring the sum of all bilateral aid from EU countries, as opposed to multilateral aid from the EU.

Other Key Findings and Emerging Areas of Research

As noted throughout this brief, empirical studies directly comparing the effectiveness of bilateral versus multilateral aid channels for specific development outcomes remain scarce, and most focus on very rough development metrics such as GDP. However some recent research has begun to examine alternative measures of development outcomes, including educational attainment, poverty alleviation, and governance.

Christensen, Homer, & Nielson (2011) evaluated the relationship between education aid and school enrollment in 100 low- and middle-income countries for 1995-2008. Theirs was the only study besides Nunnenkamp & Ohler (2011) to compare the effectiveness of aid channels for a particular subset of aid flows targeting a specific sector, as well as the only study evaluating education outcomes. Across all their models, the authors found that bilateral primary education aid showed small but positive and significant effects on enrollment rates while multilateral aid had a negative but non-significant effect. However, they noted that the results were based on low levels of primary education aid.

Alvi & Senbeta (2012) is a high technical quality study and the only one to evaluate the impact of aid flows on poverty, using data from 79 developing countries for 1981-2004. The authors found that multilateral aid had a significant and negative effect on the poverty rate, poverty gap, and squared poverty gap, while bilateral aid did not have a significant impact on any indicator. The finding that multilateral aid reduced poverty while bilateral aid did not supports the argument that multilateral aid is more likely to be development-oriented.

Askarov & Doucouliagos (2013) conducted a systematic and quantitative review of the empirical evidence on the effects of aid on democracy and governance. Of the 22 studies on governance they reviewed, some disaggregated between multilateral and bilateral aid. The authors used meta-regression analysis and found that multilateral aid had a significant positive effect on governance, while bilateral aid had a negative but non-significant effect. This finding may support the argument that multilateral channels are better able to exercise conditionality with their aid. Charron (2011), a high-quality study, analyzed data from 1986-2006 and reports that while neither bilateral nor multilateral aid was effective in combating corruption prior to 1997, multilateral aid had a significant effect on decreasing corruption in the period after 1997. The author argues that this is related to the broad acceptance of "anti-corruption" norms in the mid-1990s, which were incorporated into multilateral aid conditionality.

Senbet & Senbeta (2007) is the only recent study (post-2000) to evaluate the effect of aid on government consumption and investment spending, and one of only two studies of government consumption to look at more than three countries. They used data from 21 Sub-Saharan African countries for 1986-2001. The authors found that both bilateral and multilateral aid had a significant and positive impact on government consumption, but that the majority of bilateral aid financed government civil consumption while multilateral aid primarily supported government investment in development. This finding supports the argument that multilateral aid is more likely to be development-oriented. However, this study is of low technical quality, and the other five studies that considered effects on government investment spending are split on which aid channel is more effective.

**Discussion of Study Limitations**

The body of evidence comparing the effectiveness of bilateral versus multilateral aid suffers from several limitations and gaps which result in an inconsistent overall picture of the impact of different aid channels.

First, the studies differ in the sample of years and countries for which they evaluate the effectiveness of aid. There does not appear to be any correlation between study findings and the year they were published or the use of more recent data. Similarly, there is no apparent relationship between findings and the number of years of data used. However, two studies discussed above (Heady, 2008; Rajan & Subramanian, 2008) noted that their findings changed when they considered subsets of years separately, which either indicates that the effectiveness of aid channels is changing over time or that perhaps

major events (e.g. the end of the Cold War) unduly affect the impact of aid on development outcomes during a particular period of time (e.g. by redistributing aid for geopolitical or humanitarian purposes).[24]

Second, the studies we reviewed used varying data sources for their aid data as well as different measures of aid. We used OECD data on Official Development Assistance (ODA) flows from Development Assistance Committee (DAC) donors in describing patterns of aid flows. Of the studies we reviewed, 20 used OECD data on aid, 16 used World Bank data, and 7 used data from other sources such as recipient government data.[25] Discrepancies in how these sources measure aid flows may have led to differences in the studies' findings. For example, Christensen, Homer, & Nielson (2011) reported that AidData adds money from multilateral banks and other donors that do not report to the OECD's Creditor Reporting System (CRS), and claimed that AidData covers "more than 40% of all development finance."

More importantly, not all studies measured bilateral or multilateral aid the same way. Some studies normalized aid flows by dividing it by recipient GDP (23 studies), population (7 studies) or both (1 study), but 9 studies did not, which may skew findings. Most studies measured actual flows disbursed but a few measured aid commitments, which may not reflect the amounts actually received. In addition, the majority of studies used data on gross ODA, but at least 8 studies[26] used *net ODA*, which nets out "the (principal and net interest) repayments on ODA in addition to rescheduled debts and debt forgiveness grants" from measures of gross ODA (Hassen, 2011). Using measures of net ODA therefore better reflects actual disbursements of new funding to recipient countries.

Further, four studies subtracted certain types of ODA from their measures. Heady (2005; 2008) and Jeanneney & Tapsoba (2012) omitted humanitarian aid, arguing that this type of aid is unlikely to impact GDP growth. Rodrik (1995) and Jeanneney & Tapsoba (2012) omitted technical cooperation because it comprises education or training fees and payments to consultants or advisors. Just two studies focused on the impacts of ODA allocated to certain sectors on indicators of effectiveness in those sectors. Nunnenkamp & Ohler (2007) found that bilateral HIV/AIDS ODA was more effective at reducing the number of AIDS-related deaths, and Christensen, Homer, & Nielson (2011) found that bilateral primary education ODA was more effective at increasing school enrollment. Studies that disaggregate bilateral and multilateral ODA targeted at different sectors and then estimate the impact of those ODA flows on indicators within those sectors may be more likely to accurately evaluate the effectiveness of aid channels than studies looking at the impact of total bilateral and multilateral ODA on indicators that may only be loosely related to purposes for which the aid was disbursed.

Third, the studies in our review used different methods to account for the delayed impact of aid on their outcomes of interest. 21 studies[27] used lagged measures of aid, under the logic that lagged aid is exogenous to future growth (Askarov & Doucouliagos, 2015). These studies estimated the impact of aid from a time period 1 to 6 years before the time period when the outcome indicator was measured, depending on the study. 22 studies, including 13 of the studies that used lagged measures of aid, estimated the impact of the average or sum of aid flows over several years. Taking multi-year averages of aid flows is intended to both account for the delayed impact of aid on outcomes and also to smooth out fluctuations in flows related to global economic cycles. The most common approach was to divide the years of data in a study into four-year periods and to take the average of aid flows during these periods (ten studies), though three studies used three-year periods, six used five-year periods, and three used longer periods. Several studies took the averages of all of their variables during multi-year periods, which had the advantage of smoothing out fluctuations but had the disadvantage of no longer estimating the effect of aid flows on outcomes in the next time period. However, this approach is likely still preferable to the ten studies that used neither lagged measures nor multi-year averages. The findings from these studies likely suffered from endogeneity bias, as they could not be certain that changes in their outcome variable did not also cause changes in aid flows (e.g. an increase in poverty leading to an increase in aid).

As many authors have also noted there are several problems with using cross-country regressions overall, especially when looking at GDP growth (Caselli, Esquivel, & Lefort, 1996; Mankiw, Phelps, & Romer, 1995). These types of studies face

[24] Four of seven studies that looked at fewer than ten countries (Gang & Khan, 1990; Gounder, 2001; Khan, 1998; Feeny, 2005) found that bilateral aid was more effective, and only one found that multilateral aid was more effective (Otim, 1996). In all four of these studies that found bilateral aid to be more effective, the authors reported that bilateral aid to the countries studied dwarfed multilateral aid, which may have influenced whether multilateral aid was found to have a significant impact on the particular outcome studied. Therefore, findings on effectiveness of aid channels from studies looking at a small number of countries may be biased by their selection of particular countries.
[25] Two studies did not report the source of their aid data, and seven studies used data from two different sources.
[26] Some studies may be using data on net ODA, but did not state this explicitly.
[27] This includes the 8 studies that used GMM estimation, which uses lagged values as instruments.

problems with disentangling cause and effect (simultaneity), correlated individual effects (multicollinearity), and with limiting the scope of their hypotheses and models to be able to find statistically significant relationships (the degrees of freedom problem). Studies using the Generalized Method of Moments (GMM) estimator largely eliminate these issues. While some studies in the body of evidence we have reviewed did better than others at trying to find exogenous differences across countries, all findings must be considered in light of the assumptions made and the models used. Results from cross-country regressions of aid on growth have shown aid-growth regressions to be especially sensitive to different IV (instrumental variable) techniques, aid measures, data structuring, regression specification (including the timing of aid's effect on growth), treatment of outliers, and sample variations (Roodman, 2004).

Fourth, the models used in the different studies included a variety of different control variables, which impacted their findings. Most studies within a given outcome area used a similar set of control variables, such as initial level of per capita income, institutional quality, financial depth, assassinations, ethnic fractionalization, trade policy, inflation, and budget balance for studies of the impact of aid on GDP growth. However, even with all of these controls there is still a risk of omitted variable bias. For example, Heady (2005) found in his basic model that multilateral aid had roughly twice the effect of bilateral aid, but when he controlled for political and strategic influences on bilateral aid using a motivation index, he found that bilateral and multilateral aid flows had similar mean effectiveness levels. When Heady (2008) controlled for the end of the Cold War, he found that the impact of bilateral aid on GDP growth overall was hidden by low effectiveness before the Cold War ended. This and other findings suggest the choice of control variables when estimating impacts on something as complicated as GDP growth, for example, can clearly bias study results.

Lastly, the 40 studies varied in how closely they were able to theoretically connect bilateral and multilateral aid flows with measures of "effectiveness." The two studies that looked specifically at aid flows that target HIV/AIDS and primary education may have better evaluated aid effectiveness by matching the indicators used with the actual intent of the aid. The three studies that omitted humanitarian aid when estimating the effect of aid flows on GDP growth similarly made an attempt to evaluate aid against outcomes it was intended to impact. For the remaining studies, evaluating the effect of total bilateral and multilateral aid on particular indicators may have biased results. If large amounts of aid were targeted at outcomes unconnected to the indicator chosen by the authors to measure effectiveness in the countries and time period studied, this could have reduced the estimated impact of total aid flows on that indicator. This risk of bias might have been diminished for the 18 studies that used real GDP growth per capita as their measure of effectiveness, as theoretically all aid could be expected to contribute to supporting general economic development, of which GDP growth is the most common measure. However, all aid does not contribute equally to GDP growth, and certain types of aid such as humanitarian assistance and technical cooperation may be argued not to contribute at all. As a result, aggregating all bilateral and multilateral aid flows, regardless of what sector they target, may decrease the estimated impacts of aid on a given measure of effectiveness. In addition, "comparing aggregate aid flows to such indicators as economic growth overlooks the specific impacts of aid projects not specifically designed to improve economic growth," (Gebhard, et al., 2008) such as improvements in infant mortality or literacy rates. While previous studies may have been limited by lack of data, future studies that analyze the relationship between sector-specific aid and sector-specific outcomes may provide a better picture of whether aid is more effective (Clemens, et al. 2004; Gebhard, et al., 2008) and yield better evidence of whether bilateral or multilateral aid is more effective.

**Conclusion**

While the bulk of ODA has historically gone through bilateral channels, the share of multilateral ODA has been increasing (OECD, 2014). Both bilateral donors and multilateral donors provide aid to a variety of sectors, but a relatively greater share of bilateral aid goes to debt relief and humanitarian assistance, while multilateral aid is relatively more focused on economic and social infrastructure and services (OECD.stat, 2014).

The literature on aid effectiveness is not in agreement on whether bilateral or multilateral aid is more likely to be effective in supporting development outcomes. Bilateral aid is argued to be more effective as a result of greater accountability to donors, increased donor control, aid that is tied to specific projects, institutional compatibility with former colonies, and the ability to mobilize larger amounts of aid. On the other hand, proponents of multilateral channels point to recipient control over funds, disbursement of aid according to developmental objectives, ability to exercise conditionality, implementation expertise, economies of scale, reduced fragmentation and transaction costs, legitimacy, and signaling for private investment as reasons for greater effectiveness of multilateral aid.

The empirical literature comparing the effectiveness of bilateral versus multilateral aid generally does not directly address these arguments. Instead, studies estimate the impacts of the different aid channels on various measures of "effectiveness," such as GDP growth, private investment flows, and HDI. While some of these outcome indicators (such as increases in private investment flows) relate specifically to theoretical arguments of aid effectiveness, most do not.

In keeping with the disagreements in the theoretical literature, there is no real empirical consensus on the relative effectiveness of bilateral versus multilateral aid in any particular outcome areas. Overall, the number of studies that find that bilateral aid is more effective (10 studies) is not significantly different from the number finding that multilateral aid is more effective (12 studies) or the number that find no difference (11 studies). Nor is there any consensus among more recent studies, studies using more recent data, studies looking at a larger number of countries or more years of data, studies using the same estimation procedure, or studies predicting multilateral or bilateral advantages.

There were many methodological limitations within this body of evidence. Most studies do not consider whether major events (e.g. the end of the Cold War or a humanitarian crisis) occurred during the time period they are studying that could have affected the impact of aid on development outcomes. Studies use different sources of data on aid flows, and also measure aid differently. Discrepancies in what is included in the measures of aid across studies may explain some of the differences in the findings. While some studies used lagged values for aid or averaged aid flows over several years, the models used to account for the timing of aid's effect on particular outcome indicators vary. Many studies do not consider this issue, which introduced bias related to endogeneity and multicollinearity. The choice of different control variables even across studies that look at the same outcome indicators also likely explains some of the variation in the findings. Finally, few studies consider the theoretical connections between the measures of aid and effectiveness that they use by using measures of aid flows targeted at a specific sector to compare the effectiveness of different channels of aid in that sector.

Based on this body of evidence, we cannot draw any strong conclusions about the effectiveness of bilateral versus multilateral aid. It is not clear that the data and methodological limitations in these cross country exercises can ever be satisfactorily resolved to answer this question. In addition, this body of evidence does not consider the cost-effectiveness of these aid channels, the different transaction costs they impose, or how they are perceived within donor countries. A more fruitful approach may be to examine specific rates of return to projects or even sectors that flow through multilateral or bilateral channels (though this approach still suffers from the assumption that bilaterals are all equally effective at delivering aid.) To the extent that these organizations internally evaluate their aid effectiveness, comparing across individual bilateral donors or multilateral agencies could provide evidence in these areas.

*Please direct comments or questions about this research to Leigh Anderson at eparx@u.washington.edu.*

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**Appendix A. 2012 ODA of DAC Members, Millions of USD**

| | Bilateral Aid | Multilateral Aid | Total Aid |
|---|---|---|---|
| Australia | 4550.44 | 852.28 | 5402.72 |
| Austria | 535.65 | 570.15 | 1105.8 |
| Belgium | 1432.72 | 882.21 | 2314.93 |
| Canada | 4052.69 | 1597.57 | 5650.26 |
| Czech Republic | 66.42 | 153.2 | 219.62 |
| Denmark | 1921.51 | 771.08 | 2692.59 |
| Finland | 795 | 524.71 | 1319.71 |
| France | 7927.84 | 4100.43 | 12028.27 |
| Germany | 8584.03 | 4355.47 | 12939.49 |
| Greece | 107.29 | 220.1 | 327.39 |
| Iceland | 21.21 | 4.92 | 26.13 |
| Ireland | 536.18 | 272.18 | 808.36 |
| Italy | 623.98 | 2113.14 | 2737.12 |
| Japan | 6402.2 | 4202.3 | 10604.5 |
| Korea | 1183.17 | 414.29 | 1597.46 |
| Luxembourg | 276.64 | 122.39 | 399.03 |
| Netherlands | 3857.53 | 1665.31 | 5522.85 |
| New Zealand | 361.57 | 87.57 | 449.14 |
| Norway | 3522.68 | 1230.32 | 4752.99 |
| Poland | 111.55 | 309.51 | 421.06 |
| Portugal | 397.27 | 183.5 | 580.77 |
| Slovak Republic | 18.95 | 60.73 | 79.68 |
| Slovenia | 19.08 | 39.36 | 58.44 |
| Spain | 985.51 | 1051.86 | 2037.37 |
| Sweden | 3637.82 | 1601.98 | 5239.8 |
| Switzerland | 2457.15 | 598.44 | 3055.59 |
| United Kingdom | 8712.97 | 5178.52 | 13891.49 |
| United States | 25471.15 | 5215.81 | 30686.96 |
| DAC Countries Total | 88570.19 | 38379.32 | 126949.5 |

*Source:* OECD.stat, 2014

**Appendix B. OECD Aid Sector Classifications**

| Social Infrastructure and Services | Economic Infrastructure and Services | Production Sectors | Multi-Sector/ Cross-Cutting | Commodity Aid/ General Program Assistance | Action Relating to Debt | Humanitarian Aid |
|---|---|---|---|---|---|---|
| • Education<br>• Health<br>• Population Policy/Progr. & Reproductive Health<br>• Water Supply & Sanitation<br>• Government & Civil Society<br>• Other | • Transport & Storage<br>• Communications<br>• Energy<br>• Banking & Financial Services<br>• Business & Other Sectors | • Agriculture<br>• Forestry<br>• Fishing<br>• Industry<br>• Mining<br>• Construction<br>• Trade Policies & Regulations<br>• Tourism | • General Environment Protection<br>• Other | • General Budget Support<br>• Development Food Aid/ Food Security Assistance<br>• Other | *Refers to debt relief* | • Emergency Response<br>• Reconstruction Relief & Rehabilitation<br>• Disaster Prevention & Preparedness |

*Source:* OECD.stat, 2014

**Appendix C. Poverty and Politics: Determinants of ODA Allocation**

Most ODA is disbursed to individual developing country recipient governments. Countries in sub-Saharan Africa receive about 35% of the total, and South and Central Asia about 17%. Thirteen of the twenty largest overall ODA recipients are in Sub-Saharan Africa. Afghanistan receives the most aid of all recipient countries, with 4.9% of total ODA disbursements (Development Initiatives, 2013).

The 2013 report "Investments to End Poverty" notes that poverty eradication is an important priority for ODA (Development Initiatives, 2013). Social infrastructure and services receive the largest single share of ODA from both bilateral and multilateral donors, followed by economic infrastructure and services. However, much of ODA is given in response to other objectives. For example, "despite the persistence of malnutrition and the fact that rural livelihoods are very important for the poorest, spending on agriculture remains well below that on humanitarian crises, which are often acute phases of chronic food insecurity" (Development Initiatives, 2013).

In other cases aid flows are influenced by donor country political motives (see e.g., Milner, 2006). By way of example, Tables C1 and C2 compare ODA inflows for the countries with the weakest social services and education, as measured by the Human Development Index (HDI) and Mean Years of Schooling, respectively, with the countries that receive the largest amounts of these aid flows. While the countries that receive the most social service aid do rank in the lower half of all countries in terms of HDI, none rank in the bottom ten, and only two rank in the bottom twenty. Meanwhile, the ten lowest-ranked countries receive widely differing amounts of social services aid, and significantly less than the largest recipients of this type of aid. Table C2 indicates that the ten least educated countries all have mean years of schooling below three, but only Ethiopia also appears on the list of countries receiving the most education aid. While these measures do not account for the relative population of the countries shown, they clearly support the widely cited critique of ODA that many countries arguably in need of aid do not receive attention, while other countries less in need receive substantial aid flows.

*Table C1: Countries with Greatest Need for Social Services Aid (left) v. Countries Receiving Most Social Services Aid (right).*

| Lowest HDI Countries | HDI Rank | Amount of Social Services Aid (millions of USD) | Countries receiving most social services aid | HDI Rank | Amount of Social Services Aid (millions of USD) |
|---|---|---|---|---|---|
| Democratic Republic of the Congo | 187 | 527.10 | Afghanistan | 169 | 2820.96 |
| Niger | 186 | 174.84 | India | 135 | 1285.86 |
| Central African Republic | 185 | 18.94 | Brazil | 80 | 1138.17 |
| Sierra Leone | 184 | 117.66 | China | 93 | 1133.87 |
| Chad | 183 | 42.03 | Jordan | 77 | 981.37 |
| Eritrea | 182 | 4.03 | Ethiopia | 173 | 893.62 |
| Burkina Faso | 181 | 221.55 | Vietnam | 121 | 854.11 |
| Burundi | 180 | 135.31 | Tanzania | 160 | 807.09 |
| Mozambique | 179 | 655.41 | Pakistan | 146 | 768.89 |
| Guinea | 178 | 65.53 | Kenya | 147 | 733.84 |

*Source:* 2012 data from OECD.stat, 2014; United Nations Development Programme, 2014

*Table C2: Countries with Greatest Need for Education Aid (left) v. Countries Receiving Most Education Aid (right)*[28]

| Least Educated Countries | Mean Years of Schooling | Amount of Education Aid (millions of USD) | Countries receiving most education aid | Mean Years of Schooling | Amount of Education Aid (millions of USD) |
|---|---|---|---|---|---|
| Burkina Faso | 1.25 | 82.11 | China | 7.54 | 667.39 |
| Niger | 1.44 | 43.07 | Afghanistan | 3.21 | 358.45 |
| Chad | 1.51 | 11.29 | Ethiopia | 2.41 | 266.04 |
| Guinea | 1.58 | 30.75 | Indonesia | 7.51 | 221.06 |
| Mali | 1.99 | 63.25 | Morocco | 4.37 | 209.01 |
| Guinea-Bissau | 2.26 | 18.66 | Pakistan | 4.73 | 195.64 |
| Bhutan | 2.30 | 2.88 | Vietnam | 5.49 | 159.27 |
| Ethiopia | 2.41 | 266.04 | Senegal | 4.45 | 146.31 |
| Yemen | 2.51 | 61.51 | Turkey | 7.56 | 138.10 |
| Burundi | 2.69 | 28.32 | India | 4.43 | 133.45 |

*Source:* 2012 data from OECD.stat, 2014; United Nations Development Programme, 2014

[28] Education aid includes imputed costs of foreign students at US universities.

**Appendix D. Characteristics and Findings of Studies Reviewed**

*Table D1. General Study Characteristics*

| Author(s) | Year | Aid Channels Studied | Type of Countries Evaluated | Number of Countries | Data Start Year | Data End Year | Focus on Bilateral vs. Multilateral |
|---|---|---|---|---|---|---|---|
| Alvi & Senbeta | 2012 | Both | Developing Countries | 79 | 1981 | 2004 | Yes |
| Askarov & Doucouliagos | 2015 | Both | Transition Economies | 32 | 1990 | 2012 | No |
| Askarov & Doucouliagos | 2013 | Both | N/A: Meta-Analysis | -- | -- | -- | No |
| Bandyopadhyay, Sandler, & Younas | 2013 | Both | Developing Countries | 78 | 1984 | 2008 | Yes |
| Bird, Mori, & Rowlands | 2000 | Multilateral | Developing Countries | -- | early 1970s | mid 1990s | No |
| Burnside & Dollar | 2000 | Both | Developing Countries | 56 | 1970 | 1993 | No |
| Cashel-Cordo & Craig | 1990 | Both | Developing Countries | -- | 1975 | 1980 | Yes |
| Charron | 2011 | Both | ODA Recipient Countries | 82 | 1986 | 2006 | Yes |
| Christensen, Homer, & Nielson | 2011 | Both | Low and Middle Income Countries | 100 | 1995 | 2008 | Yes |
| Feeny | 2005 | Both | Melanesian Countries | 5 | 1980 | 2001 | Yes |
| Feeny & McGillivray | 2010 | Both | Small Island Developing States | -- | 1980 | 2004 | No |
| Gang & Khan | 1990 | Both | India | 1 | 1961 | 1984 | Yes |
| Gebregziabher | 2014 | Both | Ethiopia | 1 | 1960 | 2009 | Yes |
| Girod | 2008 | Both | Not Specified | 64 | 1966 | 1997 | Yes |
| Gounder | 2001 | Both | Fiji | 1 | 1968 | 1996 | Yes |
| Harms & Lutz | 2006 | Both | Low and Middle Income Countries with Population over 1 M | 92 | 1988 | 1999 | No |
| Hassen | 2011 | Both | Sub-Saharan African Countries | 42 | 1980 | 2007 | Yes |
| Headey | 2005 | Both | Developing Countries | 56 | 1970 | 2001 | Yes |
| Headey | 2008 | Both | Developing Countries | 56 | 1970 | 2001 | Yes |
| Javid & Qayyum | 2011 | Both | Pakistan | 1 | 1960 | 2008 | Yes |
| Jeanneney & Tapsoba | 2012 | Both | Developing Countries | 43 | 1980 | 2008 | Yes |
| Khan | 1998 | Both | Malaysia, Indonesia, & Thailand | 3 | 1960 | 1996 | Yes |
| Kosack | 2003 | Both | Not Specified | 48 | 1974 | 1985 | No |
| Lessmann & Markwardt | 2010 | Both | Developing Countries | 72 | 1966 | 1997 | No |
| Minoiu & Reddy | 2007 | Both | Developing Countries | 107 | 1960 | 2000 | Yes |
| Minoiu & Reddy | 2010 | Both | Developing Countries | 107 | 1960 | 2000 | Yes |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nunnenkamp & Öhler | 2011 | Both | Countries with HIV Prevalence over 1% | 47 | 1998 | 2007 | Yes |
| Okada & Samreth | 2012 | Both | Developing Countries | 120 | 1995 | 2009 | Yes |
| Otim | 1996 | Both | Pakistan, India, & Sri Lanka | 3 | 1977 | 1990 | Yes |
| Quazi, et al. | 2014 | Both | South and East Asian Countries | 14 | 1995 | 2012 | No |
| Rajan & Subramanian | 2008 | Both | Developing Countries | 85 | 1960 | 2000 | Yes |
| Ram | 2003 | Both | Developing Countries | 56 | 1970 | 1993 | Yes |
| Ram | 2004 | Both | Developing Countries | 56 | 1970 | 1993 | Yes |
| Ratha | 2001 | Both | Developing Countries | 137 | 1994 | 1998 | Yes |
| Rodrik | 1995 | Both | Developing Countries | -- | 1970 | 1993 | Yes |
| Senbet & Senbeta | 2007 | Both | Sub-Saharan African Countries | 21 | 1986 | 2001 | Yes |
| Uneze | 2012 | Both | Developing Countries | 14 | 1975 | 2008 | Yes |
| Wamboye, Adekola, & Sergi | 2013 | Both | African Developing Countries | 26 | 1984 | 2010 | Yes |
| Wimberley | 1990 | Bilateral | Developing Countries | 63 | 1967 | 1980 | No |
| Yontcheva & Masud | 2005 | Bilateral | Developing Countries | 76 | 1990 | 2001 | No |

*Table D2. Summary of Study Findings*

| Author(s) | Year | Hypothesized More Effective Type of Aid | Main Estimation Procedure | Aid Data Source | Aid Measure | Ratio of Aid to: | # of Years Aid is Averaged/ Summed Over | Use of Lagged Aid Measures | Outcome Area | Overall More Effective Aid Channel |
|---|---|---|---|---|---|---|---|---|---|---|
| Alvi & Senbeta | 2012 | Multilateral | GMM[29] | World Bank and OECD | Bilateral and Multilateral ODA | GNI | 3 | Yes | Poverty | Did not compare |
| Askarov & Doucouliagos | 2015 | No hypothesis | GMM | World Bank and OECD | Net Bilateral and Multilateral ODA | Population | 5 | Yes | GDP Growth | Mixed |
| Askarov & Doucouliagos | 2013 | No hypothesis | Meta-Regression Analysis | Various | Various | Various | Various | Various | Governance | Multilateral |
| Bandyopadhyay, Sandler, & Younas | 2013 | Mixed | GMM | OECD | Net Bilateral and Multilateral ODA | GDP | 3 | Yes | Private Flows | Multilateral |
| Bird, Mori, & Rowlands | 2000 | No hypothesis | Case studies | World Bank | Multilateral Aid (IMF, World Bank) | None | 1 | No | Private Flows | No difference |
| Burnside & Dollar | 2000 | No hypothesis | OLS[30] | World Bank | Bilateral and Multilateral ODA | GDP | 4 | No | Government Development Spending | Did not compare |
| Cashel-Cordo & Craig | 1990 | Multilateral | Least Squares with Dummy Variables | World Bank and OECD | Bilateral and Multilateral (Multilateral | None | 1 | Yes | Government Development Spending | Multilateral |

[29] Generalized Method of Moments (GMM)
[30] Ordinary Least Squares (OLS)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Development Banks, IMF) ODA | | | | | |
| Charron | 2011 | Multilateral | GMM | World Bank | Bilateral and Multilateral ODA | GNP | 1 | Yes | Governance | Multilateral |
| Christensen, Homer, & Nielson | 2011 | Bilateral | Hierarchical Linear Modeling | AidData | Bilateral and Multilateral Primary Education ODA | Population | 5 | No | Health & HDI | No difference |
| Feeny | 2005 | Bilateral | Fixed Effects | OECD | Bilateral and Multilateral ODA | GDP | 1 | Yes | GDP Growth | Multilateral |
| Feeny & McGillivray | 2010 | No hypothesis | GMM | OECD | Bilateral and Multilateral ODA | GDP | 4 | Yes | GDP Growth | Bilateral |
| Gang & Khan | 1990 | No hypothesis | Three-Stage Least Squares | India Economic Survey | Bilateral and Multilateral ODA | None | 1 | No | Government Development Spending | Bilateral |
| Gebregziabher | 2014 | Bilateral | Cointegrated Vector Autoregressive model (CVAR) | OECD | Bilateral and Multilateral ODA | None | 1 | Yes | GDP Growth | Bilateral |
| Girod | 2008 | Multilateral | OLS | -- | Bilateral and Multilateral ODA | None | 1 | No | GDP Growth | No difference |
| Gounder | 2001 | No hypothesis | Autoregressive Distributed Lag (ARDL) | OECD and Fiji Bureau of Statistics | Bilateral and Multilateral ODA | GDP | 1 | Yes | GDP Growth | Multilateral |
| Harms & Lutz | 2006 | No hypothesis | OLS (but also used 2SLS[31] and GMM) | OECD | Net Bilateral and Multilateral (including Arab Donors) ODA | Population | 3 | No | Private Flows | Multilateral |
| Hassen | 2011 | Multilateral | GMM | Roodman (2005) and World Bank | Net Bilateral and Multilateral ODA | GDP; Population | 4 | No | GDP Growth | No difference |
| Headey | 2008 | Multilateral | OLS (but also used LAE[32] and GMM) | OECD | Bilateral and Multilateral ODA, Minus Humanitarian Aid | GDP | 4 | Yes | GDP Growth | Multilateral |
| Headey | 2005 | Multilateral | OLS (but also used GMM) | OECD | Bilateral and Multilateral ODA, Minus Humanitarian Aid | None | 4 | Yes | GDP Growth | Bilateral |
| Javid & Qayyum | 2011 | Multilateral | Autoregressive Distributed Lag (ARDL) | Pakistan Economic Survey | Bilateral and Multilateral Aid | GDP | 1 | Yes | GDP Growth | No difference |
| Jeanneney & Tapsoba | 2012 | Bilateral | Instrumental Variables | OECD | Net Bilateral and Multilateral ODA, Minus Technical Cooperation and Emergency Flows | None | 1 | No | GDP Growth | Multilateral |
| Khan | 1998 | No hypothesis | Non-linear SURE | OECD | Bilateral and Multilateral ODA | None | 1 | No | Government Development Spending | No difference |

[31] Two-Stage Least Squares (2SLS)
[32] Least Absolute Error (LAE)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Kosack | 2003 | No hypothesis | 2SLS | World Bank WBDRS | Bilateral and Multilateral (Total, World Bank) ODA | GDP | 4 | No | Health & HDI | No difference |
| Lessmann & Markwardt | 2010 | No hypothesis | OLS | OECD | Bilateral and Multilateral ODA | GDP | 4 | No | GDP Growth | Bilateral |
| Minoiu & Reddy | 2010 | Multilateral | OLS (but also used GMM) | OECD | Net Bilateral (Partially Disaggregated by Donor Development Rankings) and Multilateral ODA | GDP | 1 | Yes | GDP Growth | Bilateral |
| Minoiu & Reddy | 2007 | Multilateral | OLS | OECD | Net Bilateral (Partially Disaggregated by Donor Development Rankings) and Multilateral ODA | GDP | 5 | Yes | GDP Growth | No difference |
| Nunnenkamp & Öhler | 2011 | Multilateral | Difference in Difference in Difference | OECD | Bilateral and Multilateral HIV/AIDS ODA | Population | 1 | No | Health & HDI | Mixed |
| Okada & Samreth | 2012 | Multilateral | Quantile Regression | OECD and World Bank WDI | Bilateral (France, Japan, UK, US) and Multilateral ODA | GDP | 5 | No | Governance | Bilateral |
| Otim | 1996 | Multilateral | OLS | UN Statistical Yearbook for Asia and the Pacific | Bilateral and Multilateral Aid | Population | 1 | No | Government Development Spending | No difference |
| Quazi, et al. | 2014 | No hypothesis | Feasible Generalized Least Squares | World Bank WDI | Bilateral and Multilateral ODA | GDP | 1 | No | Private Flows | Multilateral |
| Rajan & Subramanian | 2008 | Multilateral | GMM | OECD | Bilateral and Multilateral ODA | GDP | 10-40 | Yes | GDP Growth | No difference |
| Ram | 2003 | No hypothesis | OLS | World Bank | Bilateral and Multilateral ODA | GDP | 4 | No | GDP Growth | Multilateral |
| Ram | 2004 | No hypothesis | OLS | World Bank | Bilateral and Multilateral ODA | GDP | 4 | No | GDP Growth | No difference |
| Ratha | 2001 | Mixed | OLS | World Bank | Bilateral and Multilateral (Total, IMF) ODA | GDP; Total Flows | 5 | Yes | Private Flows | Bilateral |
| Rodrik | 1995 | Multilateral | OLS | World Bank | Net Bilateral and Multilateral ODA, Minus Technical Cooperation | GNP | 6 | Yes | Private Flows | Bilateral |
| Senbet & Senbeta | 2007 | No hypothesis | 3SLS | OECD | Bilateral and Multilateral ODA | None | 1 | No | Government Development Spending | Bilateral |
| Uneze | 2012 | Multilateral | Fixed Effects | OECD | Bilateral and Multilateral ODA | GDP | 4 | Yes | Private Flows | Mixed |
| Wamboye, Adekola, & Sergi | 2013 | Multilateral | GMM | World Bank | Bilateral (Total, France, UK, EU) and | GDP | 1 | Yes | GDP Growth | Mixed |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Multilateral (UNDP, UNFPA, UNHCR, UNICEF, UNTA, WFP) ODA | | | | | |
| Wimberley | 1990 | No hypothesis | OLS | -- | Bilateral ODA, Minus Military Aid | GNP | 7 | No | Health & HDI | Did not compare |
| Yontcheva & Masud | 2005 | No hypothesis | 2SLS and GMM | OECD and European Commission | Bilateral ODA and EU NGO Aid | Population | 1 | No | Health & HDI | Multilateral |

*Table D3. Study Quality*

| Authors | Year | Number of Google Scholar Citations [33] | Evaluates Both Multilateral and Bilateral Aid | Hypothesizes a More Effective Aid Channel | Evaluates a Subset of Total Aid[34] | Evaluates Multiple Measures of Effectiveness[35] | Controls for Endogeneity [36] | 50+ Countries in Sample (Median is 56) | 20+ Years of Data in Sample (Median is 23) | Overall Study Quality & Relevance[37] |
|---|---|---|---|---|---|---|---|---|---|---|
| Askarov & Doucouliagos | 2015 | 0 | Yes | No | No | No | Yes | No | Yes | Medium |
| Gebregziabher | 2014 | 1 | No | Yes | No | Yes | Yes | No | Yes | Medium |
| Quazi, et al. | 2014 | 0 | Yes | No | No | No | No | No | No | Low |
| Wamboye, Adekola, & Sergi | 2013 | 2 | Yes | Yes | Yes | No | Yes | No | Yes | Medium-High |
| Askarov & Doucouliagos | 2013 | 4 | No | No | No | No | Yes | Not specified | Not specified | Medium |
| Bandyopadhyay, Sandler, & Younas | 2013 | 10 | Yes | Yes | No | Yes | Yes | Yes | Yes | High |
| Jeanneney & Tapsoba | 2012 | 6 | Yes | Yes | Yes | No | No | No | Yes | Medium |
| Okada & Samreth | 2012 | 43 | Yes | Yes | Yes | Yes | Yes | Yes | No | Medium-High |
| Alvi & Senbeta | 2012 | 17 | Yes | Yes | No | Yes | Yes | Yes | Yes | High |
| Uneze | 2012 | 2 | Yes | Yes | No | No | Yes | No | Yes | Medium |
| Hassen | 2011 | 1 | Yes | Yes | No | No | Yes | No | Yes | Medium |
| Javid & Qayyum | 2011 | 10 | Yes | Yes | No | Yes | Yes | No | Yes | Medium-High |
| Charron | 2011 | 14 | Yes | Yes | No | Yes | Yes | Yes | Yes | High |
| Nunnenkamp & Öhler | 2011 | 9 | Yes | Yes | Yes | No | No | No | No | Medium |
| Christensen, Homer, & Nielson | 2011 | 15 | Yes | Yes | Yes | No | Yes | Yes | No | Medium-High |
| Minoiu & Reddy | 2010 | 120 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | High |

[33] We note that the number of citations should be considered in conjunction with the year of publications, as more recent articles will not have had as much time to accumulate citations.
[34] "Yes" indicates that the study includes aid flows from individual donors or from a particular sector (e.g. HIV/AIDS), or excludes certain components of total aid (e.g. humanitarian aid or technical cooperation).
[35] "Yes" indicates that the study evaluates the impact of aid flows on at least two measures of aid "effectiveness."
[36] "Yes" indicates that the study controls for endogenous effects of aid flows by using lagged values of aid and/or multi-year averages of aid.
[37] Study quality and relevance is relative to the specific research questions for this brief. Low-quality and non-relevant studies were largely excluded from this analysis during the screening stage of the literature search.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Feeny & McGillivray | 2010 | 15 | Yes | No | No | No | Yes | Not specified | Yes | Medium |
| Lessmann & Markwardt | 2010 | 6 | Yes | No | No | No | Yes | Yes | Yes | Medium |
| Headey | 2008 | 73 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | High |
| Girod | 2008 | 5 | Yes | Yes | No | No | No | Yes | Yes | Medium |
| Rajan & Subramanian | 2008 | 475 | Yes | Yes | No | No | Yes | Yes | Yes | Medium-High |
| Minoiu & Reddy | 2007 | 21 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | High |
| Senbet & Senbeta | 2007 | 1 | Yes | No | No | No | No | No | No | Low |
| Harms & Lutz | 2006 | 62 | Yes | No | No | No | Yes | Yes | No | Medium |
| Headey | 2005 | 8 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | High |
| Feeny | 2005 | 3 | Yes | Yes | No | Yes | Yes | No | Yes | Medium-High |
| Yontcheva & Masud | 2005 | 158 | No | No | No | Yes | No | Yes | No | Medium-Low |
| Ram | 2004 | 54 | Yes | No | No | No | Yes | Yes | Yes | Medium-High |
| Ram | 2003 | 72 | Yes | No | No | No | Yes | Yes | Yes | Medium |
| Kosack | 2003 | 199 | Yes | No | No | No | Yes | No | No | Medium-Low |
| Gounder | 2001 | 85 | Yes | No | No | No | Yes | No | Yes | Medium |
| Ratha | 2001 | 20 | Yes | Yes | No | Yes | Yes | Yes | No | Medium-High |
| Burnside & Dollar | 2000 | 3841 | Yes | No | No | No | Yes | Yes | Yes | Medium |
| Bird, Mori, & Rowlands | 2000 | 16 | Yes | No | No | Yes | No | Not specified | Yes | Medium |
| Khan | 1998 | 5 | Yes | No | No | No | No | No | Yes | Medium-Low |
| Otim | 1996 | 45 | Yes | Yes | No | No | No | No | No | Medium-Low |
| Rodrik | 1995 | 330 | Yes | Yes | No | Yes | Yes | Not specified | Yes | Medium-High |
| Cashel-Cordo & Craig | 1990 | 100 | Yes | Yes | No | Yes | Yes | Not specified | No | Medium |
| Gang & Khan | 1990 | 171 | Yes | No | No | No | No | No | Yes | Medium-Low |
| Wimberley | 1990 | 148 | Yes | No | Yes | Yes | Yes | Yes | No | Medium-High |

**Appendix E. Supplemental References**


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**Appendix F. List of Acronyms**

| | |
|---|---|
| DAC | Development Assistance Committee |
| DFI | Development Finance Institution |
| EDF | European Development Fund |
| FDI | Foreign Direct Investment |
| HDI | Human Development Index |
| IDA | International Development Association of the World Bank |
| IMF | International Monetary Fund |
| NGO | Non-Governmental Organization |
| ODA | Official Development Assistance |
| OECD | Organization for Economic Co-operation and Development |
| PPP | Purchasing Power Parity |
| UNDP | United Nations Development Programme |
| UNFPA | United Nations Population Fund |
| UNHCR | United Nations High Commission for Refugees |
| UNICEF | United Nations Children's Fund |
| UNTA | United Nations Transit Authority |
| WFP | World Food Programme |

**Appendix G. Glossary**

*Aid fragmentation*: The recent trend of increasing numbers of aid projects or activities. Aid fragmentation is criticized for increasing reporting requirements for recipient governments and diverting resources from other government bureaucracy functions.

*Aid commitment:* Funding promised by a donor country or multilateral agency, as tracked by the OECD.

*Aid disbursement:* Funding delivered by a donor country or multilateral agency, as tracked by the OECD.

*Bilateral aid*: All ODA provided by an official bilateral donor (state or local government) directly to the government of a developing country, or to a multilateral agency with use restrictions.

*Bilateral disbursements*: All disbursements originating from a bilateral donor, including disbursements to or through multilateral agencies.

*Donor proliferation*: The recent trend of growing numbers of aid channels such as multilateral agencies, non-governmental organizations, universities, and think-tanks that are active at the recipient country level, as well as newly active bilateral donors.

*Earmarked aid (also referred to as non-core multilateral aid and multi-bilateral aid)*: Funds channeled through multilateral agencies with restrictions on use, such as specific projects or specific countries where the funds must be used. These aid flows are reported by the OECD as bilateral aid.

*Multilateral aid*: Core funding disbursed by a bilateral donor to a regional or multilateral organization without use restrictions.

*Multilateral disbursements*: Unrestricted (core) funds flowing from a multilateral agency to recipient countries.

*Net ODA*: A measure of ODA which nets out the principal and net interest repayments on ODA, in addition to rescheduled debts and debt forgiveness grants from measures of gross ODA. This measure better captures disbursements of new funding to recipient countries.

*ODA*: The OECD defines ODA as flows provided by official agencies to countries and territories on the DAC List of ODA Recipients and to multilateral development institutions. ODA transactions must (1) have economic development and welfare as their main objective and (2) be concessional in character, with a grant element of at least 25% (calculated at a 10% discount rate).

*Total resource flows*: A measure of foreign flows to recipient countries that includes ODA and other official flows, Foreign Direct Investment (FDI), remittances, portfolio equity, long and short term loans, military expenditure, development finance institutions, and non-DAC development cooperation.