

Relative Effectiveness of Bilateral and Multilateral Aid on Development Outcomes

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Abstract

Aid donors are interested in understanding whether allocating aid via bilateral or multilateral channels might be more effective for achieving development goals. We review 45 papers that empirically test the associations between bilateral and multilateral aid flows and various development outcomes including gross domestic product growth, governance indicators, human development indicators and levels of non-aid investment flows. Findings suggest that differences between countries and regions, time periods, aid objectives, and individual donor organizations all may influence the effectiveness of aid delivered bilaterally and multilaterally. We find, however, no consistent evidence that either bilateral or multilateral aid is more effective overall.

Introduction

Foreign aid is the most important source of international funding for countries with government spending below PPP¹ US\$500 per person per year, accounting for roughly 70% of funding from international sources (Coppard et al., 2013). According to the most recent available data from the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) Creditor Reporting System (CRS), total net Overseas Development Assistance (ODA) flows² from DAC countries to developing countries were US\$137.2 billion in 2014. While most of this aid was distributed bilaterally (directly from donor countries to recipient countries, or to multilateral organizations with donor-imposed restrictions on its use), US\$42.6 billion (31%) went to multilateral organizations without any use restrictions and was distributed as multilateral ODA. This share of multilateral ODA has been largely consistent since at least 1998 (OECD, 2015).³

Donors and recipients appear increasingly concerned about the accountability and effectiveness of aid, as highlighted by the 2005 Paris Declaration on Aid Effectiveness, the 2008 High Level Forum on Aid Effectiveness, the 2011 Busan Partnership Agreement for Effective Development Cooperation, and the emergence and expansion of aid monitoring and reporting organizations including the International Aid Transparency Initiative and the OECD-DAC CRS. Initiatives by the OECD, the Center for Global Development (CGD), the United Kingdom Department for International Development (DFID) and others have sought to review the performance of donor organizations against a variety of indicators

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believed to affect aid effectiveness. These reviews typically evaluate donor organizations individually, but often draw more general comparisons between bilateral and multilateral donors, as multilateral aid is frequently characterized as being relatively more focused on supporting development outcomes in developing countries, while bilateral aid is seen as more likely to be allocated based on donor strategic interests (Alesina and Dollar, 2000; Burnside and Dollar, 2000; Milner and Tingley, 2013; Schraeder et al., 1998).⁴

In this paper we review the empirical evidence for whether disbursing aid via bilateral or multilateral channels is more effective at achieving development outcomes. While acknowledging that aid effectiveness varies among specific donor organizations (regardless of funding channel), we summarize the major hypotheses from the literature for why either bilateral or multilateral aid might generally be more effective. We then analyze 45 empirical studies testing the relative effectiveness of bilateral vs multilateral aid, summarizing findings by various aspects of study methodology. Our results indicate that aid effectiveness may vary by country or region and by time periods studied, but we find no consistent evidence that either bilateral aid or multilateral aid is more effective, either overall or by study methodology.

Background

We define “aid effectiveness” as the ability to achieve targeted development outcomes as measured by indicators such as GDP growth, increases in measures of human development, and increases in private investment flows. We start with the premise that increases in the likelihood of achieving a desired development outcome through aid spending can be driven by either (i) attracting more aid funds towards a given outcome, or (ii) using existing aid funds more efficiently in support of that outcome. The major theoretical arguments in the literature on aid effectiveness can be classified according to these two broad methods: either considering whether characteristics of bilateral vs multilateral aid contribute to increased aid volumes (either overall funding, or the share mobilized for development goals as opposed to donor geopolitical goals), or considering whether the use of bilateral vs multilateral channels increases the cost-effectiveness of aid in achieving development goals (Table 1).

As summarized in Table 1, bilateral aid is hypothesized to increase funding flows to development outcomes by appealing to donors’ strategic interests (Alesina and Dollar, 2000; Barder, 2012; Schraeder et al., 1998), including donor countries’ desire for more direct accountability (Christensen et al., 2011; OECD, 2013). In some cases, historical connections with particular developing countries, e.g. former colonies (Cassen, 1994), are also believed to increase donor country willingness to contribute aid via bilateral channels.

However, critics argue that the continued practice of “tying” bilateral aid, often in the form of restrictions requiring aid funds be used to purchase goods from the donor country, can reduce the value of aid to recipients (Clay et al., 2008; OECD, 2014). Others note that the strategic or geopolitical orientation of aid delivered through bilateral channels (Barder, 2012; Berthélemy, 2006; Clay et al., 2008; Chung et al., 2015; Fleck and Kilby, 2006; Rodrik, 1995) and greater fragmentation of bilateral aid (Acharya et al., 2006; Addison et al., 2015; Barder, 2012; Houerou, 2008; OECD, 2012a) might also decrease cost-effectiveness. That said, several authors contend that direct accountability to donors (Barder, 2012), combined with

Table 1. Arguments for Effectiveness of Bilateral vs Multilateral Aid on Development Outcomes

Attribute	Funding volumes		Cost-effectiveness		Theoretical justification
	Bilateral	Multilateral	Bilateral	Multilateral	
1. Development orientation	+	+		+	Multilateral aid is more likely to be allocated based on development considerations. ^a
2. Strategic orientation	+		+/-		Restrictions on aid and alignment with donor strategic goals may increase the ability of bilateral donors to increase and sustain aid volumes. These restrictions may improve cost-effectiveness through greater control over aid funds, depending on what restrictions are imposed. ^b
3. Conditionality	-	+	-	+	Because they are seen as politically neutral, multilateral agencies can more effectively exercise conditionality, demanding reforms that support development outcomes in exchange for aid. Multilaterals may also mobilize more aid in exchange for the promise of increased effectiveness associated with conditionality. Despite recent progress in untying aid, bilateral aid is more likely to be “tied”, reducing aid effectiveness and transfer value to recipients. ^c
4. Accountability to donors	+	+	+	+	Both bilateral and multilateral channels impose accountability measures designed to increase donor confidence in providing funds. Arguably donors can better exercise their own accountability and oversight processes when using bilateral channels, whereas donors to multilateral channels are further removed and face additional costs in using these channels. ^d
5. Legitimacy to recipients				+	Multilateral agencies are viewed as more politically neutral and publicly acceptable, leading to better cooperation with recipient countries. ^e
6. Specialization and expertise				+	Multilateral agencies accumulate implementation expertise and information about recipients and can also take advantage of economies of scale. ^f

Table 1. Continued

<i>Attribute</i>	<i>Funding volumes</i>		<i>Cost-effectiveness</i>		<i>Theoretical justification</i>
	<i>Bilateral</i>	<i>Multilateral</i>	<i>Bilateral</i>	<i>Multilateral</i>	
7. 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. ^g
8. 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. ^h

Notes: A “+” indicates that providing aid through a particular channel is argued to increase either funding volumes or cost-effectiveness, while a “-” indicates the opposite.

^aBurnside and Dollar (2000), Milner and Tingley (2013), Schraeder et al. (1998);

^bAlesina and Dollar (2000); Barder (2012), Schraeder et al. (1998);

^cBarder (2012), Burnside and Dollar (2000), Charron (2011), Chung et al. (2015), Clay et al. (2008), OECD (2014), Rodrik (1995);

^dChristensen et al. (2011), OECD (2013), Publish What You Fund (2016);

^eBarder (2012), Bird et al. (2000), OECD (2013), Rodrik (1995);

^fAskarov and Doucouliagos (2015b), Barder (2012), OECD (2013), Rodrik (1995), Uneze (2012);

^gCassen (1994);

^hAcharya et al. (2006), Addison et al. (2015), Barder (2012), Houserou et al. (2008), Kharas (2010), OECD (2012a, 2013).

bilateral donors' institutional compatibility with recipient countries where they have long-standing historical relationships (Cassen, 1994), and the greater volumes of aid disbursed by bilateral donors (Kharas, 2010; OECD, 2013) all serve to increase bilateral aid cost-effectiveness relative to multilateral aid.

Multilateral aid channels meanwhile are hypothesized to promote increased funding flows targeting development outcomes (rather than donor country interests) owing to of the development orientation associated with multilateral organizations (Burnside and Dollar, 2000; Milner and Tingley, 2013). Combined with common multilateral organization practices such as pro-development conditionality (Charron, 2011; Ram, 2003; Rodrik, 1995) and expansive accountability mechanisms (OECD, 2013; Publish What You Fund, 2016), the relatively more direct and transparent links between multilateral aid and development outcomes may increase some donors' willingness to contribute aid via multilateral rather than bilateral channels, and attract other sources of development finance (Griffith-Jones et al., 2008).

Similarly, in terms of cost-effectiveness the development orientation of multilateral aid (Milner and Tingley, 2013; Miquel-Florensa, 2007), pro-development conditionality (Burnside and Dollar, 2000), and the perceived legitimacy of multilateral aid from the perspective of recipient countries (Barder, 2012; Bird et al., 2000; OECD, 2013; Rodrik, 1995) are all believed to increase the cost-effectiveness of multilateral aid relative to bilateral aid. Other factors including the relatively lower fragmentation of multilateral aid (Addison et al., 2015; OECD, 2012a), combined with the specialization and expertise of multilateral aid organizations (Askarov and Doucouliagos, 2015b; Barder, 2012; OECD, 2013; Rodrik, 1995; Uneze, 2012) are further argued to increase multilateral aid cost-effectiveness.

These and other theoretical arguments around factors expected to influence aid effectiveness have formed the basis of recent calls for aid reform, including calls for aligning aid with recipient country priorities, using recipient country systems to disperse aid, untying aid, increasing aid transparency and more generally depoliticizing the allocation of aid (OECD, 2008, 2012b). Although some studies have compared the aid allocation practices of bilateral vs multilateral aid donors to evaluate how they perform against various criteria (Easterly and Pfütze, 2008; Hashmi et al., 2014; OECD, 2011; OECD/UNDP, 2014), few studies have empirically examined if and how differences in the practices of bilateral vs multilateral donors might lead to improved development outcomes.

Many of the studies that do evaluate impacts of aid do not directly compare the effectiveness of multilateral and bilateral donors. The DFID (2011) multilateral aid review, for example, assessed the "value for money" of UK aid delivered through 43 multilateral organizations. The OECD DAC conducts periodic reviews of the individual development cooperation efforts of its 29 members. Several donor organizations also commission regular independent evaluations,⁵ in addition to internal reports and evaluations at different levels. These studies use a variety of evaluation methods, making it difficult to compare donor effectiveness, and do not answer the question of whether aid is more effective when delivered bilaterally or multilaterally.

This research contributes to the literature on aid effectiveness by reviewing the relatively small number of empirical studies comparing the development impacts of aid delivered through bilateral and multilateral channels and evaluating whether there is consistent evidence that either channel is more effective overall. Most of these studies do not directly test the theoretical arguments related to aid

effectiveness as outlined above. Thus, we analyze the evidence from the studies reviewed on whether bilateral or multilateral aid is relatively more or less effective at improving development outcomes, but do not discuss causal mechanisms behind differences in effectiveness.

Methods

We searched for studies empirically comparing the effectiveness of bilateral vs multilateral aid on Google Scholar, JSTOR, ScienceDirect, Scopus, EconLit, Web of Science and PAIS International using 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 vs multilateral aid overall, rather than studies that focused on particular bilateral donors or multilateral agencies. A somewhat broader literature that focused on the allocation of aid or impacts for donor countries, as opposed to the effectiveness of aid in recipient countries, was excluded from the analysis. Studies focused on theory rather than conducting empirical analyses, or that evaluated the effectiveness of aggregate aid only, were also excluded.

Screening the titles and abstracts of search results provided a final sample of 45 studies that: (i) evaluate the relationship between aid and development outcomes in recipient countries; (ii) include empirical data; and (iii) include and distinguish between bilateral and multilateral aid in at least part of their analysis. The sample studies look at different subsets of developing countries and years and employ a wide variety of estimation procedures (summarized in Table 2).

We first summarize findings across all 45 studies.⁶ A “more effective” finding indicates either that the authors find significant positive associations for both aid channels but the magnitude of the association is significantly larger for one aid channel,⁷ or that the association is significant for only one aid channel. A “mixed” finding indicates that the relative effectiveness of multilateral and bilateral aid differs depending on the model or outcome measure used. A “no difference” finding indicates that the study does not find a statistically significant difference⁸ between the impacts of multilateral and bilateral aid for a given outcome. Several studies use multiple models or specifications. In these cases, we follow the authors in reporting the findings that they emphasize as most robust.

We next explore the relationship between study methods and findings. Past research by Roodman (2007) found that cross-country regressions of total aid on growth can be especially sensitive to different instrumental variable techniques, aid measures, data structuring, regression specification (including the timing of aid’s effect on growth), treatment of outliers and sample variations. We present tables summarizing study findings by various methodological factors including: (i) hypothesized more effective aid channel, (ii) outcome area, (iii) years of data, (iv) number of countries, (v) sample of countries, (vi) measure of aid, and (vii) primary estimation model. Because the number of studies we review is small, we are limited in our ability to conduct significance tests to determine whether the findings are independent of all methodological choices. We conduct analysis of variance (ANOVA) tests for whether the mean number of countries and mean number of years of data included in the studies is the same across studies with different findings, as these are continuous variables. For summary tables with categorical variables, we conduct Fisher’s exact tests (more accurate than χ^2 tests when the

Table 2. Study Methodologies and Findings

Reference	Hypothesis: more effective aid channel	No. of countries	Years of data	Aid measure	Main estimation procedure	Ratio of aid to:	No. of years aid is averaged/summed over	Use of lagged aid measures	Outcome area	Findings: more effective aid channel
Alvi and Senbeta (2012)	Multilateral	79	23	Net ODA	GMM	GDP	3	Yes	Human development	Multilateral
Askarov and Doucouliagos (2013)	-	n/a	n/a	Various	MRA	Various	Various	Various	Governance	Multilateral
Askarov and Doucouliagos (2015a)	-	32	22	Net ODA	GMM	Population	5	Yes	GDP growth	No difference
Askarov and Doucouliagos (2015b)	-	32	22	Net ODA	FE	Population	1	Yes	Governance	No difference
Asongu and Ssozi (2015)	-	78	24	Net ODA	OR	None	1	No	Governance	No difference
Bandyopadhyay et al. (2013)	Mixed	78	24	Net ODA	GMM	GDP	3	Yes	Investment flows	Mixed
Charron (2011)	Multilateral	82	20	Gross ODA	GMM	GDP	1	Yes	Governance	Mixed
Christensen et al. (2011)	Bilateral	100	13	Primary education ODA commitments	HLM	Population	5	No	Human development	Bilateral
Efobi et al. (2015)	-	78	24	Net ODA	GMM	None	3	Yes	Investment flows	No difference
Feeny (2005)	Bilateral	5	21	Gross ODA	FE	GDP	1	Yes	GDP growth	Bilateral
Feeny and McGillivray (2010)	-	52	24	Gross ODA	GMM	GDP	4	Yes	GDP growth	Bilateral
Gang and Khan (1990)	-	1	23	Gross ODA	3SLS	None	1	No	Government development spending	Bilateral
Gebregziabher (2014)	Bilateral	1	49	Net ODA	CVAR	None	1	Yes	GDP growth	No difference

Table 2. Continued

Reference	Hypothesis: more effective aid channel	No. of countries	Years of data	Aid measure	Main estimation procedure	Ratio of aid to:	No. of years aid is averaged/summed over	Use of lagged aid measures	Outcome area	Findings: more effective aid channel
Girod (2008)	Multilateral	64	31	Gross ODA	OLS	None	1	No	GDP growth	Multilateral
Grounder (2001)	–	1	28	Gross ODA	ARDL	GDP	1	Yes	GDP growth	Bilateral
Harms and Lutz (2006)	–	92	11	Net ODA	OLS	Population	3	No	Investment flows	Multilateral
Headey (2005)	Multilateral	56	31	Net ODA, minus humanitarian aid	OLS	GDP	4	Yes	GDP growth	Multilateral
Headey (2008)	Multilateral	56	31	Net ODA, minus humanitarian aid	OLS	GDP	4	Yes	GDP growth	Multilateral
Javid and Qayyum (2011)	Multilateral	1	48	Gross ODA	ARDL	GDP	1	Yes	GDP growth	Mixed
Jeanneney and Tapsoba (2012)	Bilateral	43	28	Net ODA, minus technical cooperation and humanitarian aid	IV	Population	1	No	GDP growth	Bilateral
Jeffrey (2015)	–	120	35	Gross ODA, minus humanitarian aid	OLS	GDP	4	No	GDP growth	Mixed

Table 2. Continued

Reference	Hypothesis: more effective aid channel	No. of countries	Years of data	Aid measure	Main estimation procedure	Ratio of aid to:	No. of years aid is averaged/summed over	Use of lagged aid measures	Outcome area	Findings: more effective aid channel
Khan (1998)	-	3	36	Gross ODA	Non-linear SURE	None	1	No	Government development spending	Bilateral
Kosack (2003)	-	48	11	Gross ODA	2SLS	GDP	4	No	Human development	No difference
Lessmann and Markwardt (2010)	-	72	31	Gross ODA	OLS	GDP	4	No	GDP growth	No difference
Minasyan and Nunnenkamp (2015)	-	70	25	Gross ODA	OLS	GDP	5	No	GDP growth	Mixed
Minoiu and Reddy (2007)	Multilateral	107	40	Net ODA	OLS	GDP	1	Yes	GDP growth	Mixed
Minoiu and Reddy (2010)	Multilateral	107	40	Net ODA	OLS	GDP	5	Yes	GDP growth	Mixed
Mohamed et al. (2014)	-	41	12	Gross ODA	GMM	GDP	1	Yes	GDP growth	No difference
Mohamed et al. (2015)	-	42	10	Gross ODA	QR	GDP	1	No	Governance	No difference
Nowak-Lehmann and Gross (2015)	-	27	24	Net ODA	VECM	None	1	No	GDP growth	Multilateral
Okada and Samreth (2012)	Multilateral	120	14	Net ODA	QR	GDP	5	No	Governance	Multilateral
Olanrele and Ibrahim (2015)	-	1	42	Gross ODA	2SLS	None	1	Yes	GDP growth	Multilateral
Otim (1996)	Multilateral	3	13	Gross ODA	OLS	Population	1	No	Government development spending	Multilateral

Table 2. Continued

Reference	Hypothesis: more effective aid channel	No. of countries	Years of data	Aid measure	Main estimation procedure	Ratio of aid to:	No. of years aid is averaged/summed over	Use of lagged aid measures	Outcome area	Findings: more effective aid channel
Petrikova (2015)	Multilateral	85	17	Gross ODA	GMM	GDP	3	Yes	Human development	Mixed
Quazi et al. (2015)	Multilateral	14	17	Gross ODA	FGLS	GDP	1	No	Government	Multilateral
Quazi et al. (2014)	–	14	17	Gross ODA	FGLS	GDP	1	No	Investment flows	No difference
Rajan and Subramanian (2008)	Multilateral	85	40	Net ODA	GMM	GDP	10–40	Yes	GDP growth	No difference
Ram (2003)	–	56	23	Gross ODA	OLS	GDP	4	No	GDP growth	Bilateral
Ram (2004)	–	56	23	Gross ODA	OLS	GDP	4	No	GDP growth	No difference
Ratha (2001)	Mixed	137	4	Gross ODA	OLS	GDP; Total flows	5	Yes	Investment flows	Mixed
Rodrik (1995)	Multilateral	–	23	Net aid transfers, minus technical cooperation	OLS	GDP	6	Yes	Investment flows	Bilateral
Senbet and Senbeta (2007)	–	21	15	Gross ODA	3SLS	None	1	No	Government development spending	Multilateral

Table 2. Continued

Reference	Hypothesis: more effective aid channel	No. of countries	Years of data	Aid measure	Main estimation procedure	Ratio of aid to:	No. of years aid is averaged/summed over	Use of lagged aid measures	Outcome area	Findings: more effective aid channel
Uneze (2012)	Multilateral	14	33	Gross ODA	FE	GDP	4	Yes	Investment flows	Multilateral
Wako (2011)	Multilateral	42	27	Net aid transfers	GMM	GDP; Population	4	Yes	GDP growth	No difference
Wamboye et al. (2013)	Multilateral	26	26	Net ODA	GMM	GDP	1	Yes	GDP growth	Mixed

Note: Explanations of acronyms used are as follows: GMM, generalized method of moments; MRA, meta-regression analysis; FE, fixed effects; OLS, ordinary least squares; QR, quantile regression; HLM, hierarchical linear modeling; 3SLS, three-stage least squares; CVAR, co-integrated vector autoregressive model; ARDL, autoregressive distributed lag; 2SLS, two-stage least squares; FGLS, feasible generalized least squares; IV, instrumental variables; SURE, seemingly unrelated regressions estimation; VECM, vector error correction models.

expected numbers in any given table cell are small) to test the relationships between variables.

Results

Overall, nine studies find that bilateral aid is more effective for a particular outcome measure, 13 find that multilateral aid is more effective and 13 find no significant difference in effectiveness. Ten studies report mixed findings. Table 3 summarizes the findings on the effectiveness of bilateral vs multilateral aid by the authors' hypothesized more effective channel (section A) and by outcome area studied (section B).

Thirty-three studies hypothesize either bilateral or multilateral aid to be more effective. In several cases the authors do not explicitly state their hypotheses, but hypotheses can be inferred from their reviews of literature or interpretations of findings. The results of Fisher's exact test ($p = 0.002$) suggests that findings differ significantly by author hypothesis. Authors who hypothesize a particular aid channel to be more effective appear to be more likely to report findings supporting their hypothesis, though this is not always the case. The 12 studies that do not put forward any hypotheses regarding bilateral or multilateral aid effectiveness are split evenly between finding either bilateral or multilateral aid more effective and reporting no significant difference in effectiveness, with two reporting mixed findings.

Findings do not differ systematically by outcome area studied ($p = 0.845$). Over half of the studies (23) analyze the effect of aid on a measure related to GDP growth, but an equal number find that multilateral and bilateral are more effective (five studies each), and a greater number report either mixed findings (six studies) or no significant difference in effectiveness (seven). While none of the studies that consider outcomes related to recipient country governance find bilateral aid to be more effective, an equal number find no significant difference in effectiveness as find multilateral aid more effective (three studies each).

We next explored whether this lack of consensus is related to differences in methodology,⁹ first conducting ANOVA tests for whether the mean number of countries and mean number of years of data included in the studies vary across studies with different findings.

We find that the mean years of data does not vary significantly across study findings ($\text{Prob} > F = 0.782$). Half or more of studies report mixed findings or no significant difference between bilateral and multilateral aid, regardless of the number of years of data (Table 4A). Four studies (Charron, 2011; Heady, 2008; Rajan and Subramanian, 2008; Ratha, 2011) note that their findings change when they consider subsets of years separately. These differences either indicate that the effectiveness of aid channels is changing over time, that certain events (such as the end of the Cold War) affect the impact of aid on development outcomes (such as by influencing whether aid is distributed for geopolitical or development purposes), or that other factors not included in the models (such as FDI, remittances, or commodity prices) may be driving the changes in country outcomes. Studies that evaluate aid effectiveness over large periods of time may therefore mask variations in effectiveness in different periods.

Study findings do, however, differ significantly with the mean number of countries included in their samples ($\text{Prob} > F = 0.031$). Studies finding bilateral aid to be more effective have the lowest average number of countries in their sample,

Table 3. *More Effective Aid Channel by Hypothesis and Outcome Area*

	<i>More effective channel</i>				<i>Studies</i>
	<i>Bilateral</i>	<i>Multilateral</i>	<i>Mixed</i>	<i>No difference</i>	
(A) Hypothesized more effective channel	Fisher's exact Pr=0.002**				
Bilateral	3			1	4
Multilateral	1	8	6	2	17
Mixed			2		2
No hypothesis	5	5	2	10	22
(B) Outcome area	Fisher's exact Pr=0.845				
GDP growth ^a	5	5	6	7	23
Governance ^b		3	1	3	7
Government development spending ^c	2	2			4
Human development ^d	1	1	1	1	4
Investment flows ^e	1	2	2	2	7
<i>Total</i>	9	13	10	13	45

Notes: ^aIndicators: real GDP growth per capita, agricultural GDP growth per capita, gross investment, total factor productivity (TFP) growth, GDP shocks. ^bIndicators: governance index, democracy polity index, International Country Risk Guide (ICRG) corruption score, Corruption Perceptions Index (CPI), counts of terrorist incidents. ^cIndicators: share of aid going to government consumption spending, share of aid going to government investment in development. ^dIndicators: school enrollment, HDI, number of AIDS-related deaths, infant mortality, life expectancy at one year of age, adult illiteracy, prevalence of undernourishment, proportion of children under 5 that are underweight, poverty rate, poverty gap, squared poverty gap. ^eIndicators: FDI, capital flows, private flows.

32.6, including four studies that look at five or fewer countries. In each of these four studies (Feeny, 2005; Gang and Khan, 1990; Gounder, 2001; Khan, 1998), the authors acknowledge that the countries included receive the vast majority of their aid from bilateral sources, which may decrease the likelihood of significant findings on the impact of multilateral aid. Studies finding multilateral aid to be more effective include an average of 45.6 countries and studies that find no difference in effectiveness include an average of 47.8. Studies reporting mixed findings include an average of 81.3 countries in their sample, as seven of 14 studies that looked at more than 75 countries report mixed findings (Table 4B).

The samples of countries selected by the studies vary widely. Though 21 studies specify looking at “developing countries,” the number of countries included by these studies varies from 14 to 137. Other samples considered include “transition economies,” “low and middle income countries” and for 16 studies, a regional subset of countries (Table 4C). We observe a variety of findings among studies looking at samples of “developing countries”. All three studies of small island developing states find bilateral aid more effective, but none of the studies of sub-Saharan African countries reach this conclusion. Thus, the relative effectiveness of bilateral and multilateral aid may differ depending on the context and findings from large samples may mask differences in effectiveness among subsets of countries.

Table 5 breaks down findings by the measure of aid used. The findings of studies using measures of total gross ODA are nearly evenly divided. All 14 studies using total net ODA, which subtracts repayment of loan principals from gross ODA to better reflect actual aid inflows, report either mixed findings or no significant

Table 4. More Effective Aid Channel by Years of Data, Count of Countries, and Type of Countries in Sample

	<i>More effective channel</i>				<i>Studies</i>
	<i>Bilateral</i>	<i>Multilateral</i>	<i>Mixed</i>	<i>No difference</i>	
(A) Years of data	Fisher's exact Pr=0.219				
1–20	1	5	2	4	12
21–30	7	2	4	6	19
31+	1	5	4	3	13
(B) Count of countries	Fisher's exact Pr=0.081*				
1–25	4	5	1	2	12
26–75	3	4	2	8	17
76+	1	3	7	3	14
(C) Type of countries	Fisher's exact Pr=0.118				
Developing countries	3	6	8	5	22
South and East Asia	2	2	1	1	6
Sub-Saharan Africa		2	1	4	7
Small island developing states	3				3
Other/not specified	1	2		3	6

Notes: Askarov and Doucouliagos' (2013) meta-analysis is not included in this table. The authors find that multilateral aid is more effective. Rodrik (1995) does not report the number of countries in his sample, so is not included in section B. He finds that bilateral aid is more effective.

difference. Gebhard et al. (2008), however, argue that “comparing aggregate aid flows to such indicators as economic growth overlooks the specific impacts of aid projects not specifically designed to improve economic growth” (p. 2). Seven studies look at subsets of either gross or net ODA, in attempts to evaluate aid flows against outcomes they are intended to impact. One study looking just at gross primary education disbursements finds that bilateral aid is more effective at increasing primary school enrollment (Christensen et al., 2011). Four studies do not count humanitarian aid, arguing that this type of aid is less likely to target longer-term development outcomes such as GDP growth. Of these, one subtracts humanitarian aid from gross ODA and has mixed findings (Jeffrey, 2015), two subtract it from net ODA and both find multilateral aid more effective (Heady, 2005, 2008), and one subtracts both humanitarian aid and technical cooperation from net ODA and finds bilateral aid more effective (Jeanneney and Tapsoba, 2012). Two studies use net aid transfers, which subtract net interest as well as principal repayments from ODA. One finds no difference in aid effectiveness (Wako, 2011), and the other also subtracts technical cooperation and finds bilateral aid more effective (Rodrik, 1995).

Twenty-nine studies divide aid by GDP of the recipient country and six divide aid by population to control for differences in how aid volumes affect countries of different sizes, while nine do not normalize their measure of aid. Twenty-three take the average (or in a few instances, sum) of aid and other variables over a certain number of years and test associations in these multi-year periods to attempt to account for the procyclical nature of aid (United Nations Conference on Trade and Development (UNCTAD), 2010) and for delays between aid being received and its effect on the outcome measure of interest. Twenty-four studies use lagged measures

Table 5. *More Effective Aid Channel by Measure of Aid*

	<i>More effective channel</i>				<i>Studies</i>
	<i>Bilateral</i>	<i>Multilateral</i>	<i>Mixed</i>	<i>No difference</i>	
(A) Measure of aid	Fisher's exact Pr=0.228				
Total gross ODA	6	6	5	6	23
Subset of gross ODA	1		1		2
Total net ODA		4	4	6	14
Subset of net ODA	2	2		1	5
(B) Primary aid normalization measure	Fisher's exact Pr=0.239				
GDP	5	6	10	8	29
Population	2	2		2	6
None	2	4		3	9
(C) Number of years used to average or sum aid	Fisher's exact Pr=0.878				
1	5	6	4	6	21
3		2	2	1	5
4	2	3	1	4	10
5+	2	1	3	2	8
(D) Use of lagged aid measure	Fisher's exact Pr=0.296				
No	5	7	2	6	20
Yes	4	5	8	7	24

Note: Askarov and Doucouliagos' (2013) meta-analysis is not included in this table. The authors find that multilateral aid is more effective.

of aid and test associations between outcomes in a given year and aid volumes from previous years. This latter approach is also used to reduce the risk of endogeneity bias from the possibility that changes in outcome variables may also cause changes in aid flows (such as an increase in poverty leading to an increase in aid, or more aid going to countries with a lower GDP per capita), under the logic that lagged aid is exogenous to future outcomes (Askarov and Doucouliagos, 2015a).

We do not observe any clear relationship between any of these manipulations of the aid measure and study findings (Table 5, Sections B–D). Fourteen studies take an average of aid over multiple years and also include lagged measures of aid in their models—two find that bilateral aid is more effective, four find multilateral more effective, four report mixed findings and four report no significant difference. While these studies have the advantage of smoothing out fluctuations in aid and may avoid some endogeneity bias, these specifications do not lead to any further consensus on the relative effectiveness of bilateral and multilateral aid.

The reviewed studies use a variety of econometric models to evaluate aid effectiveness. We focused on results from the primary or most robust models, as identified by the study authors. The most common approach (17 studies) is ordinary least squares (OLS) regression, often with fixed effects controlling for aid recipient country and year or time period. Many studies use instrumental variable (IV) models, including two-stage or three-stage least squares (four studies) and the generalized method of moments (GMM—11 studies), in attempts to control for endogeneity in the relationship between aid flows and outcome measures. Other

econometric models include quantile regression, autoregressive distributed lag, cointegrated vector autoregressive models, vector error correction models, feasible generalized least squares, hierarchical linear modeling and seemingly unrelated regressions estimation (see Table 2).

While each study estimates models differently (e.g. varying in the choice of instruments or control variables), for comparison we grouped together studies using OLS, studies using IV models other than GMM, studies using GMM and studies using other types of models (Table 6). We find no clear pattern in the results of these studies, though a larger share of studies using OLS finds multilateral aid to be more effective and studies using GMM are more likely to report mixed findings or no significant difference.

Many studies within a given outcome area base their models on seminal studies and use a similar set of control variables and approaches to instrumentation. To examine the possible relationship between model specification and study findings, we reviewed five studies that use a similar basic analytical model, first presented by Burnside and Dollar (2000). The Burnside and Dollar model includes time and country fixed effects and regresses per capita real GDP growth on logged initial real per capita GDP, aid receipts relative to GDP, an “economic policy index,”¹⁰ the interaction of aid receipts and the economic policy index, and other exogenous variables that might affect growth and aid.¹¹ Burnside and Dollar (2000) look at a sample of 56 developing countries from 1970 to 1993 using 4-year averages for all variables. To account for endogeneity in aid flows, they use two-stage least squares (2SLS) to construct an estimate of aid using various instruments. They find that bilateral aid has a significant positive impact on government consumption, while the impact of multilateral aid is not significant, but they do not separately evaluate the association between bilateral and multilateral aid and GDP growth.

Many other studies reference this model and five studies in our review build directly on the Burnside and Dollar approach. Ram (2003) uses the same model and sample as Burnside and Dollar (2000), but separates out bilateral and multilateral aid without interacting these with the economic policy index. He also uses simple OLS rather than 2SLS, noting that Burnside and Dollar did not find evidence of significant endogeneity between aid and growth. Ram (2003) concludes that multilateral aid has a large and significant negative impact on GDP growth and bilateral aid has a large and significant positive impact. The same author later conducted another study (Ram, 2004) using the same sample and model as Ram (2003) but interacting aid with the policy index and ultimately reporting similar results.

Table 6. More Effective Aid Channel by Primary Estimation Model

	<i>More effective channel</i>				<i>Studies</i>
	<i>Bilateral</i>	<i>Multilateral</i>	<i>Mixed</i>	<i>No difference</i>	
Primary estimation model	Fisher's exact Pr=0.403				
OLS	3	6	5	3	17
IV ^a	2	2		1	5
GMM	1	1	4	5	11
Other ^b	3	4	1	4	12

Notes: ^aTwo studies use 2SLS, two use 3SLS and one uses IV. ^bAll other estimation models.

Headey (2005) starts from the Burnside and Dollar model and sample but adds data from 1993 to 2001, and does not interact aid with policy variables. He argues that the use of “strategy” instruments as in Burnside and Dollar (2000) and other studies cannot explain multilateral aid flows and that IV approaches can also induce multicollinearity between aid and other explanatory variables included both as instruments and as exogenous variables. He addresses the issue of endogeneity by using lagged measures of aid inflows excluding humanitarian aid. He finds that lagged measures of both aid channels have a significant and positive impact on GDP growth, and that multilateral aid has roughly twice the effect of bilateral aid. When he controls for political and strategic influences for bilateral aid using a motivation index, he finds that bilateral and multilateral aid flows have similar mean effectiveness levels. In a subsequent paper using the same model and sample, Headey (2008) finds that while multilateral aid has a positive and significant impact on GDP growth both during and after the Cold War, the effect of bilateral aid is only positive and significant after the Cold War, which he attributes to a reduction in the geopolitical orientation of bilateral aid.

Jeffrey (2015) starts from the Burnside and Dollar model but directly interacts the measures of economic policy and a measure of governance quality with bilateral and multilateral aid, rather than constructing a policy index. The author uses a larger sample of 120 developing countries from 1974 to 2009 and uses OLS. The relationships between the uninteracted aid variables and GDP growth are not significant in the full sample, but multilateral aid has a significant and positive impact in a subsample of 53 low-income countries, while bilateral aid has a negative but not significant impact. In addition, the author reports that a good policy environment spurs bilateral aid’s effectiveness but hurts multilateral aid’s effectiveness, though the bilateral aid interaction terms are only significant in the full sample and the multilateral aid interaction terms are only significant in the subsample.

These studies illustrate how model specification choices influence study findings, even among studies using similar models and samples. The choice of control variables, interaction terms and approaches to addressing endogeneity can significantly affect results when estimating impacts of aid on something as complicated as GDP growth, for example. A study testing the sensitivity of findings to various model specifications could further shed light on how these decisions may influence aid effectiveness results.

Discussion and Conclusion

In keeping with the disagreements in the theoretical literature, we find no empirical consensus on the relative effectiveness of bilateral vs multilateral aid in any particular outcome areas. Authors that hypothesize that a particular channel will be more effective are more likely to report findings in line with their hypothesis, but this is not always the case.

While this lack of consensus appears to hold across most aspects of study methodologies, our results indicate that the relative effectiveness of aid channels may vary across countries. We find, for example, that studies looking at fewer countries are more likely to conclude that bilateral aid is more effective. This finding may be driven in part by the four studies in our sample with only five or fewer countries included and where the vast majority of aid comes from bilateral sources—a fact that the authors acknowledge makes a significant finding for

multilateral aid effectiveness less likely. Other patterns across studies suggest potentially meaningful differences in aid effectiveness by region. For example, none of the seven studies that look exclusively at sub-Saharan Africa find bilateral aid to be more effective. Thus, the sample of countries studied may influence study results. Similarly, though we find no association between the number of years of data analyzed and study findings, four studies report that looking at subsets of years changed their findings, indicating variation in the relative effectiveness of aid channels over time.

In addition, it is possible that looking at the impact of total aid flows on a single outcome measure may mask important variation in effectiveness across different subsets of aid flows. The variety of findings among the seven studies analyzing subsets of gross or net aid suggests that the relative effectiveness of bilateral and multilateral aid may vary depending on the specific outcomes targeted by aid flows, so looking at the impact. While studies may be limited by issues of data availability and quality (Addison et al., 2015), future studies that analyze the relationship between sector-specific aid and sector-specific outcomes, as in Basnett et al.'s (2012) study of the effectiveness of aid for trade, may provide a better picture of when and if bilateral or multilateral aid might be more effective (Clemens et al., 2012; Gebhard et al., 2008).

Another factor not considered in this paper that might influence findings on the relative effectiveness of bilateral vs multilateral donors is differences among individual donors themselves. Studies of aid efficiency, transparency and coordination with recipient countries reveal a wide range of performance by individual multilateral and bilateral donor organizations. Our analysis reviews findings for total aid delivered bilaterally and multilaterally, thus likely masking variations in effectiveness among donors. A few of the studies we reviewed do also separately analyze the effectiveness of particular donors (Kosack, 2003; Minoiu and Reddy, 2007, 2010; Okada and Samreth, 2012; Ratha, 2001; Rodrik, 1995; Wamboye et al., 2013), but look at only a few donors. Future studies could seek to evaluate more systematically and empirically and compare individual donors or conduct a meta-analysis of existing donor aid effectiveness studies, though such analyses would likely be limited by the availability of comparable data and by challenges in causally connecting aid and activities of particular donors to country-level outcomes. Such studies might follow DFID's approach to reviewing multilateral aid "value for money" (DFID, 2011) by using quantitative data as much as possible but supplementing them with qualitative data from surveys and interviews in recipient countries, external evaluations and organizational reporting.

Ultimately, we cannot draw strong conclusions about the relative overall effectiveness of bilateral versus multilateral aid at improving recipient country development outcomes. What we can conclude is that given renewed international attention to the sustainable development goals, if more efficient resource allocation is a priority, there is now an opportunity to respond to some of the questions about data and methodology raised in the few cross-country studies of aid effectiveness undertaken to date. Our findings suggest that there is variation in, and therefore value in accounting for, the effectiveness of bilateral and multilateral aid across countries and regions and across time periods. While the body of evidence reviewed here does not consider the relative cost-effectiveness of these aid channels, the different transaction costs they impose, or how they are perceived within donor countries, further research connecting aid flows empirically to development

outcomes could be a useful complement to the DFID and OECD reviews of aid organizations that attempt to answer some of these other questions.

References

- Acharya, A., A. T. Fuzzo De Lima, and M. Moore, "Proliferation and Fragmentation: Transactions Costs and the Value of Aid," *The Journal of Development Studies*, 42 (2006):1–21.
- Addison, T., M. Niño-Zarazúa, and F. Tarp, "Aid, Social Policy and Development," *Journal of International Development* 27 (2015):1351–65.
- African Development Bank, "Development Effectiveness Reviews," ADB, Adibjan, available at <http://www.afdb.org/en/topics-and-sectors/topics/quality-assurance-results/development-effectiveness-reviews/> (2016).
- Alesina, A. and D. Dollar, "Who Gives Foreign Aid to Whom and Why?," *Journal of Economic Growth* 5 (2000):33–63.
- Alvi, E. and A. Senbeta, "Does Foreign Aid Reduce Poverty?," *Journal of International Development* 24 (2012):955–76.
- Askarov, Z. and H. Doucouliagos, "Does Aid Improve Democracy and Governance?" A Meta-regression Analysis," *Public Choice* 157 (2013):601–28.
- , "Development Aid and Growth in Transition Countries," *World Development* 66 (2015a):383–99.
- , "Aid and Institutions in Transition Economies," *European Journal of Political Economy* 38 (2015b):55–70.
- Asongu, S. A. and J. Ssozi, "When is Foreign Aid Effective in Fighting Terrorism? Threshold Evidence," African Governance and Development Institute WP/15/031, Yaoundé, Cameroon (2015).
- Bandyopadhyay, S., T. Sandler, and J. Younas, "Foreign Direct Investment, Aid, and Terrorism," *Oxford Economic Papers* (2013). doi:10.1093/oenp/gpt026.
- Barder, O., "Is Multilateral Aid Better," available at <http://www.owen.org/blog/6128> (2012).
- Basnett, Y., J. Engel, J. Kennan, C. Kingombe, I. Massa, and D. W. te Velde, "Increasing the Effectiveness of Aid for Trade: The Circumstances Under Which it Works Best," working paper 353, Overseas Development Institute, London (2012).
- Berthélemy, J. C., "Bilateral Donors' Interest vs Recipients' Development Motives in Aid Allocation: Do All Donors Behave the same?" *Review of Development Economics* 10 (2006):179–94.
- Bird, G., A. Mori, and D. Rowlands, "Do the Multilaterals Catalyse Other Capital Flows? A Case Study Analysis," *Third World Quarterly* 21 (2000):483–503.
- Burnside, C. and D. Dollar, "Aid, Policies, and Growth," *American Economic Review* 90 (2000):847–68.
- Cassen, R., *Does Aid Work? Report to an Intergovernmental Task Force*, 2nd edn, Oxford: Clarendon Press (1994).
- Charron, N., "Exploring the Impact of Foreign Aid on Corruption: Has the "Anti-Corruption Movement" Been Effective?" *The Developing Economies* 49 (2011):66–88.
- Christensen, Z., D. Homer, and D. L. Nielson, "Dodging Adverse Selection: How Donor Type and Governance Condition Aid's Effects on School Enrollment," *World Development* 39 (2011):2044–53.
- Chung, S., Y. H. Eom, and H. J. Jung, "Why Untie Aid? An Empirical Analysis of the Determinants of South Korea's Untied Aid from 2010 to 2013," *Journal of International Development* 28 (2015):552–568.
- Clay, E. J., M. Geddes, L. Natali, and D. W. te Velde, "The Developmental Effectiveness of Untied Aid: Evaluation of the Implementation of the Paris Declaration and of the 2001 DAC Recommendation on Untying ODA to the LDCs," Phase I Report, December 2008, Ministry of Foreign Affairs of Denmark, Copenhagen (2008).

- Clemens, M. A., S. Radelet, R. R. Bhavnani, and S. Bazzi, "Counting Chickens When They Hatch: Timing and the Effects of Aid on Growth," *The Economic Journal* 122, no. 561 (2012):590–617.
- Coppard, D., T. German, and J. Randel, *Investments to End Poverty: Real Money, Real Choices, Real Lives*, Bristol, UK: Development Initiatives (2013).
- DFID, "Multilateral Aid Review 2011," UK Department for International Development, London (2011).
- Easterly, W. and T. Pfutze, "Where Does the Money Go? Best and Worst Practices in Foreign Aid," *The Journal of Economic Perspectives* 22 (2008):29–52.
- Efobi, U., S. A. Asongu, and I. Beecroft, "Foreign Direct Investment, Aid and Terrorism: Empirical Insight Conditioned on Corruption Control," African Governance and Development Institute WP/15/007, Yaoundé, Cameroon (2015).
- Feeny, S., "The Impact of Foreign Aid on the Rural Sector in Melanesia," AusAID, Canberra (2005).
- Feeny, S. and M. McGillivray, "Aid and Growth in Small Island Developing States," *The Journal of Development Studies* 46 (2010):897–917.
- Fleck, R. and C. Kilby, "How do Political Changes Influence U.S. Bilateral Aid Allocations? Evidence from Panel Data," *Review of Development Economics* 10 (2006):210–23.
- Gang, I. N. and H. Ali Khan, "Foreign Aid, Taxes, and Public Investment," *Journal of Development Economics* 34 (1990):355–69.
- Gebhard, N., K. Kitterman, A. A. Mitchell, D. Nielson, and S. Wilson, "Healthy Aid? Preliminary Results on Health Aid Effectiveness," paper presented at the annual meeting of the American Political Science Association, 28–31 August 2008, Boston, MA (2008).
- Gebregziabher, F., "The Long-run Macroeconomic Effects of Aid and Disaggregated Aid in Ethiopia," *Journal of International Development* 26 (2014):520–40.
- Girod, D., "Cut from the Same Cloth? Multilateral vs. Bilateral Aid," paper presented at the annual conference of the International Political Economy Society, 14–15 November 2008, Philadelphia, PA (2008).
- Gounder, R., "Aid–Growth Nexus: Empirical Evidence from Fiji," *Applied Economics* 33 (2001):1009–19.
- Griffith-Jones, S., D. Griffith-Jones, and D. Hertova, "Enhancing the Role of Regional Development Banks," G-24 discussion paper series, vol. 50, UNCTAD, New York (2008).
- Harms, P. and M. Lutz, "Aid, Governance and Private Foreign Investment: Some Puzzling Findings for the 1990s," *The Economic Journal* 116, no. 513 (2006):773–90.
- Hashmi, N., N. Birdsall, and H. Kharas, "The Quality of Official Development Assistance (QuODA)," Brookings and Center for Global Development, Washington, DC (2014).
- Headey, D., "Foreign Aid and Foreign Policy: How Donors Undermine the Effectiveness of Overseas Development Assistance," working paper 052005, School of Economics, University of Queensland, Australia (2005).
- , "Geopolitics and the Effect of Foreign Aid on Economic Growth: 1970–2001," *Journal of International Development* 20 (2008):161–80.
- Houerou, Philippe Le, Akihiko Nishio, and Gaiv Tata, "Aid Architecture: An Overview of the Main Trends in Official Development Assistance Flows," World Bank, Washington, DC (2008).
- Javid, M. and A. Qayyum, "Foreign Aid and Growth Nexus in Pakistan: The Role of Macroeconomic Policies," PIDE working paper 2011: 72, Pakistan Institute of Development Economics, Islamabad (2011).
- Jeanneney, S. G. and S. Tapsoba, "Aid and Income Stabilization," *Review of Development Economics* 16 (2012):216–29.
- Jeffrey, S. B., "Is All Foreign Aid the Same? An Empirical Comparison of the Effect of Multilateral and Bilateral Aid on Growth," *Undergraduate Economic Review* 12, no. 1 (2015): art. 3.
- Khan, H. A., "Aid and Development: What Can Africa Learn from the Macroeconomics of Foreign Aid in Some Southeast Asian Economies?" paper presented at the UNU–AERC

- conference on “Asia and Africa in the Global Economy”, United Nations University, Tokyo, Japan (1998).
- Kharas, H., “Rethinking the Roles of Multilaterals in the Global Aid Architecture,” *Making Development Aid More Effective: The 2010 Brookings BLUM Roundtable Policy Briefs* (September 2010):55–61.
- Kosack, S., “Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life,” *World Development* 31 (2003):1–22.
- Lessmann, C. and G. Markwardt, “Decentralization and Foreign Aid Effectiveness: Do Aid Modality and Federal Design Matter in Poverty Alleviation?” CESifo working paper on Fiscal Policy, Macroeconomics and Growth 3035, Munich (2010).
- Milner, H. V. and D. Tingley, “The Choice for Multilateralism: Foreign Aid and American Foreign Policy,” *The Review of International Organizations* 8 (2013):313–41.
- Minasyan, A. and P. Nunnenkamp, “Donors’ Openness to Immigration and the Effectiveness of Foreign Aid,” Kiel Institute for the World Economy working paper 1983 (2015).
- Minoiu, C. and S. Reddy, “Aid Does Matter, After All: Revisiting the Relationship between Aid and Growth,” *Challenge* 50 (2007):39–58.
- , “Development Aid and Economic Growth: A Positive Long-run Relation,” *The Quarterly Review of Economics and Finance* 50 (2010):27–39.
- Miquel-Florensa, J., “Aid Effectiveness: A Comparison of Tied and Untied Aid,” York University, Canada, available at http://dept.econ.yorku.ca/research/workingPapers/working_papers/2007/April2007_TiedUntied.pdf (2007).
- Mohamed, M. R., S. R. Kaliappan, N. W. Ismail, and W. N. W. Azman-Saini, “Impact of Foreign Aid and Foreign Direct Investment on Economic Growth: Evidence from Sub-Saharan African Countries,” *Jurnal Ekonomi Malaysia* 48 (2014):63–73.
- , “Effect of Foreign Aid on Corruption: Evidence from Sub-Saharan African Countries,” *International Journal of Social Economics* 42 (2015):47–63.
- Nowak-Lehmann, F. and E. Gross, “What Effect Does Development Aid have on Productivity in Recipient Countries? An Analysis Using Quantiles and Thresholds,” Ibero-America Institute for Economic Research discussion paper 232, Göttingen (2015).
- OECD, “The Paris Declaration on Aid Effectiveness and the Accra Agenda for Action,” OECD, Paris, available at <http://www.oecd.org/dac/effectiveness/parisdeclarationandaccraagendaforaction.htm> (2008).
- , *Aid Effectiveness 2011: Progress in Implementing the Paris Declaration. Better Aid*, Paris: OECD (2011).
- , “Multilateral Aid Report,” OECD, Paris, available at [http://www.oecd.org/dac/aid-architecture/DCD_DAC\(2012\)33_FINAL.pdf](http://www.oecd.org/dac/aid-architecture/DCD_DAC(2012)33_FINAL.pdf) (2012a)
- , “The Busan Partnership for Effective Development Cooperation,” OECD, Paris, available at <https://www.oecd.org/dac/effectiveness/Busan%20partnership.pdf> (2012b).
- , “What Do We Know About Multilateral Aid? The 54 Billion Dollar Question,” OECD, Paris, available at http://www.oecd.org/dac/aid-architecture/13_03_18%20Policy%20Briefing%20on%20Multilateral%20Aid.pdf (2013).
- , “Making Earmarked Funding More Effective: Current Practices and a Way Forward,” Report number 1, prepared by P. Tortora and S. Steensen, OECD, Paris (2014).
- , “Table 2—Total Net Flows from DAC Countries by Type of Flow, Statistics on Resource Flows to Developing Countries,” OECD, Paris, available at <http://www.oecd.org/dac/stats/statisticsonresourceflowstodevelopingcountries.htm> (2015).
- OECD/UNDP, *Making Development Co-operation More Effective: 2014 Progress Report*, Paris: OECD (2014).
- Okada, K. and S. Samreth, “The Effect of Foreign Aid on Corruption: A Quantile Regression Approach,” *Economics Letters* 115 (2012):240–43.
- Olanrele, I. A. and T. M. Ibrahim, “Does Developmental Aid Impact or Impede on Growth: Evidence from Nigeria,” *International Journal of Economics and Financial Issues* 5 (2015):288–96.

- Otim, S., "Foreign Aid and Government Fiscal Behaviour in Low-income South Asian Countries," *Applied Economics* 28 (1996):927–33.
- Petrikova, I., "Aid for Food Security: Does it Work?," *International Journal of Development Issues* 14 (2015):41–59.
- Publish What You Fund, "Aid Transparency Index: 2016 Index," available at http://ati.publishwhatyoufund.org/wp-content/uploads/2016/02/ATI-2016_Report_Proof_DIGITAL.pdf (2016).
- Quazi, R. M., A. Alam, and S. Tandon, "Impact of Foreign Aid on Corruption: An Econometric Case Study of South Asia and East Asia," *Global Journal of Business Research* 9, no. 4 (2015):17–30.
- Quazi, R. M., M. F. Williams, R. Baldwin, J. Vesey, and W. E. Ballentine, "Impact of Foreign Aid on Foreign Direct Investment in South Asia and East Asia," *International Business Research* 7, no. 12 (2014):44–52.
- Rajan, R. G. and A. Subramanian, "Aid and Growth: What Does the Cross-country Evidence Really Show?," *The Review of Economics and Statistics* 90 (2008):643–65.
- Ram, R., "Roles of Bilateral and Multilateral Aid in Economic Growth of Developing Countries," *Kyklos* 56 (2003):95–110.
- , "Recipient Country's 'Policies' and the Effect of Foreign Aid on Economic Growth in Developing Countries: Additional Evidence," *Journal of International Development* 16 (2004):201–11.
- Ratha, D., "Complementarity between Multilateral Lending and Private Flows to Developing Countries: Some Empirical Results," World Bank Policy Research working paper 2746, Washington, DC (2001).
- Rodrik, D., "Why is there Multilateral Lending?" NBER working paper w5160, Cambridge, MA (1995).
- Roodman, D., "The Anarchy of Numbers: Aid, Development, and Cross-country Empirics," *The World Bank Economic Review* 21 (2007):255–77.
- Schraeder, P. J., S. W. Hook, and B. Taylor, "Clarifying the Foreign Aid Puzzle: A Comparison of American, Japanese, French, and Swedish aid flows," *World Politics* 50 (1998):294–323.
- Senbet, D. and A. Senbeta, "Fiscal Response to External Finance: The Case of Sub-Saharan Africa," International Conference on African Development Archives, paper 116, Western Michigan University, Kalamazoo, MI (2007).
- UNCTAD, "The Least Developed Countries Report 2010," UNCTAD, New York, available at http://unctad.org/en/Docs/ldc2010_en.pdf (2010).
- Uneze, E., "Foreign Aid, Aid Uncertainty and Private Investment in West Africa: An Unobserved Country Effects Model," *Journal of Economic Development* 37 (2012):101–23.
- Wako, H. A., "Effectiveness of Foreign Aid in Sub-Saharan Africa: Does Disaggregating Aid into Bilateral and Multilateral Components Make a difference?" *Journal of Economics and International Finance* 3, no. 16 (2011):801.
- Wamboye, E., A. Adekola, and B. S. Sergi, "Economic Growth and the Role of Foreign Aid in Selected African Countries," *Development* 56 (2013):155–71.

Notes

1. Purchasing power parity, an inflation-adjusted metric of consumer purchasing power allowing comparisons of financial flows across countries and regions.
2. Gross ODA is the amount that a donor actually spends in a given year. Net ODA takes into account repayments of principal on loans made in prior years (but not interest) and offsets entries for forgiven debt and any recoveries made on grants.
3. All figures are reported in 2014 US dollars.
4. Several bilateral donors, notably the Nordic countries, are noted as being more likely to deliver aid targeting development outcomes (Minoiu and Reddy, 2007, 2010).

5. For example, the African Development Bank (AfDB)'s Development Effectiveness Review series provides regular evaluations and overviews of the AfDB's contribution to development results in Africa (African Development Bank, 2016).
6. The findings presented are those of the original studies and do not represent any additional analysis.
7. We do not test for the significance of differences in the magnitude of coefficients if both are statistically significant and only report one aid channel as "more effective" in this situation if the authors themselves make this conclusion.
8. In a few instances, studies find that both multilateral and bilateral aid have a negative impact on the selected outcome measure. In these cases, we do not consider either aid channel to be more effective, even if the difference in the magnitude of their coefficients is statistically significant, as this finding would instead indicate one channel is less counter-effective.
9. Table 2 presents a summary of each study's methodology.
10. The authors create an index of policies expected to affect economic growth using a dummy variable for trade openness, inflation, budget surplus relative to GDP and government consumption relative to GDP.
11. Exogenous variables include a measure of institutional quality based on security of property rights and efficiency of government bureaucracy, ethnolinguistic fractionalization, a measure of political instability, the interaction between ethnolinguistic fractionalization and political instability, the lagged level of broad money (M2) over GDP (as a proxy for financial system development), and regional dummy variables for sub-Saharan Africa and East Asia.